

A Chronological Event Study of Planetary Aspect Cycles and S&P 500 Forward Returns

Exploratory dogfooding of hermetic-alpha v0.1.1 on ^GSPC, 1927-2026

Hermes Agent for Wau Putra

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1 A Chronological Event Study of Planetary Aspect Cycles and S&P 500 Forward Returns

Repository: wauputr4/hermetic-alpha-library

Software under evaluation: hermetic-alpha v0.1.1 with pyswisseph backend 20230604

Market series: Yahoo Finance ^GSPC, used as a historical S&P 500 index proxy

Observed sample: 1927-12-30 to 2026-06-04 (24,723 daily candles)

Validation design: chronological split; train through 1987-12-31 (15,045 candles), test afterward (9,678 candles)

Research status: exploratory hypothesis generation, not investment advice and not a trading system.

1.1 Abstract

This paper evaluates whether geocentric planetary aspect events, as generated by hermetic-alpha v0.1.1, coincide with non-random forward-return patterns in the S&P 500 historical index proxy ^GSPC. The study uses an event-study framework over 24,723 daily observations from 1927-12-30 through 2026-06-04. Instead of treating every active aspect day as an independent observation, contiguous aspect windows are collapsed into a single nearest-exact event date. Equity-market calendar gaps are handled by mapping exact dates to the same or next trading day within three calendar days. Forward returns are measured over 3, 7, 14, 30, 60, 90, and 180 trading-day horizons and compared against same-asset baselines.

Two exploratory universes are tested: an outer-planet cycle universe covering Jupiter, Saturn, Uranus, Neptune, and Pluto; and a broader no-Moon universe covering Sun through Pluto while excluding the Moon to avoid high-frequency lunar dominance. The strongest constructive candidate is neptune_saturn_square, with 12-13 events depending on universe construction, 180-day mean return of approximately 12.6-13.6%, 100% positive 180-day outcomes, and positive train/test edges. The strongest pressure candidates include neptune_saturn_trine, jupiter_uranus_sextile, and saturn_uranus_square, but these are sensitive to regime and sample size. A Bitcoin-derived Venus-opposition risk-on hypothesis does not transfer cleanly to the S&P 500; the corresponding S&P 500 bucket mildly underperforms at the 14-day horizon. The findings should be interpreted as candidate timing hypotheses for pre-registered future validation, not as evidence of causality.

Keywords: event study; S&P 500; financial astrology; planetary aspects; market timing; exploratory backtesting; hermetic-alpha; chronological validation.

1.2 Plain-language summary

The result is more nuanced than “astrology predicts the market.” The main signal-like findings are not universal planet stereotypes. The data do not say that Jupiter is always bullish or that squares are always bearish. The strongest candidate is a tension aspect, Saturn-Neptune square, which historically coincided with strong 180-day outcomes. Some supposedly harmonious aspects, such as Saturn-Neptune trine, appear weaker. This is exactly why the library is useful: symbolic narratives can be converted into falsifiable event windows and then tested against market data.

1.3 Research question and contribution

The central question is:

When planetary aspect windows are reduced to exact-date events, do any aspect classes show chronologically stable forward-return differences relative to the S&P 500’s own historical baseline?

The paper contributes four things:

1. A reproducible hermetic-alpha event-study workflow for equity indices.
2. A long historical test on ^GSPC from 1927 to 2026.
3. A separation between high-level theme buckets and individual aspect features.
4. A list of candidate hypotheses that can be frozen and tested forward without re-optimization.

The work is exploratory. It intentionally does not claim causality, does not estimate executable transaction costs, and does not prescribe trades.

1.4 Data

1.4.1 Market data

The market data are daily candles for Yahoo Finance symbol ^GSPC. The requested start date was 1900-01-01; the first returned candle is 1927-12-30. The last candle in the run is 2026-06-04. The final sample contains 24,723 daily candles.

^GSPC is used because it provides a long continuous index history. It is not a directly tradable instrument, and early index construction may differ from modern S&P 500 exposure. Any future investable validation should repeat the same frozen rules on SPY, ES futures, and related equity benchmarks.

1.4.2 Astrological data

Planetary positions are generated through the Swiss Ephemeris-backed adapter exposed by hermetic-alpha. The study uses geocentric daily positions and scans standard major aspects:

- conjunction
- opposition
- trine
- square
- sextile

Two universes are evaluated:

Universe	Bodies	Orb	Raw aspect days	Exact windows mapped	Skipped windows	Features scored	Tags/themes scored
Outer-Planet Cycle Universe	jupiter, saturn, uranus, neptune, pluto	3.0°	56,010	661	1	24	29/3
No-Moon Full Aspect Universe	sun, mercury, venus, mars, jupiter, saturn, uranus, neptune, pluto	2.5°	145,527	18,342	11	145	92/12

1.5 Methodology

1.5.1 Event definition

A naive aspect scan can over-count because one exact aspect can remain inside the allowed orb for several consecutive days. This study avoids that by converting active aspect days into exact-date event windows:

1. Generate daily planetary positions over the market-data sample.
2. Scan all aspect-active days using the configured orb.
3. Group rows by ordered aspect feature, e.g. `jupiter_uranus_conjunction`.
4. Collapse consecutive active rows into one window.
5. Select the row with minimum orb as the exact event date.
6. For equity-market gaps, map the exact date to the same or next trading day within three calendar days.
7. Measure forward returns from that mapped trading date.

This construction makes the observation unit an aspect event, not an active aspect day.

1.5.2 Return labels

Forward return is measured as:

$$R_{i,h} = \frac{P_{i+h}}{P_i} - 1$$

where P_i is the closing value on event date i and h is the forward horizon in trading days. The horizons are 3, 7, 14, 30, 60, 90, and 180 trading days.

1.5.3 Baselines

The benchmark is not zero return. The S&P 500 has a strong positive long-horizon drift. Every event bucket is therefore compared against the same-symbol, same-period baseline at the same horizon.

Horizon	Valid observations	Mean return	Median return	Positive-return frequency	Minimum	Maximum
3d	24,720	0.094%	0.183%	55.174%	-26.338%	22.655%
7d	24,716	0.219%	0.395%	56.987%	-29.161%	29.642%
14d	24,709	0.440%	0.737%	59.225%	-37.531%	55.439%
30d	24,693	0.951%	1.390%	61.013%	-41.446%	78.750%
60d	24,663	1.902%	2.416%	63.824%	-50.113%	93.435%
90d	24,633	2.825%	3.545%	65.392%	-49.024%	117.179%
180d	24,543	5.731%	6.760%	68.728%	-65.135%	84.891%

1.5.4 Chronological validation

The split is chronological rather than random:

- Train: all candles through 1987-12-31
- Test: all candles after 1987-12-31

For each aspect feature and horizon, the study records:

- event count
- train and test event counts
- mean forward return
- median forward return
- positive-return frequency
- train edge versus baseline
- test edge versus baseline

The ranking score favors features whose train and test edges point in the same direction. For a feature f and horizon h :

$$Edge_{train} = \bar{R}_{f,h,train} - \bar{R}_{baseline,h}$$

$$Edge_{test} = \bar{R}_{f,h,test} - \bar{R}_{baseline,h}$$

If both edges share direction, robustness is approximated as the average absolute edge. If they disagree, the candidate is penalized. This is a heuristic screening rule, not a formal p-value.

1.5.5 Multiple-testing disclosure

The outer-planet universe evaluates approximately 168 feature-horizon combinations before theme aggregation. The no-Moon universe evaluates approximately 1,015 feature-horizon combinations. Because the search space is large, the results should be treated as hypothesis generation. The correct next step is to freeze a small set of rules and test them forward or against untouched assets.

1.6 Results

1.6.1 Overall market baseline

The S&P 500 baseline is upward sloping with horizon length. The 180-day mean return is 5.731%, median return is 6.760%, and positive-return frequency is 68.728%. This high baseline makes apparent bullish findings less impressive unless they outperform the index's own drift.

1.6.2 Outer-planet cycle universe

This universe is the cleanest test for slow macro-style cycle hypotheses. It produces 661 mapped exact windows and 24 scored features.

1.6.2.1 Constructive candidates

Rank	Aspect feature	Events	Train/Test	Best horizon	All avg	All median	Bullish	Train edge	Test edge	Span
1	neptune_saturn_square	13	7/6	180d	12.563%	11.707%	100.000%	+8.752 pp	+4.594 pp	1944-07-02-2016-09-10
2	jupiter_saturn_sextile	22	13/9	180d	8.947%	11.153%	90.909%	+0.645 pp	+6.930 pp	1937-04-03-2024-02-06
3	jupiter_saturn_square	27	15/12	60d	4.658%	5.022%	77.778%	+2.592 pp	+2.962 pp	1935-11-26-2025-06-15
4	jupiter_neptune_square	26	16/10	90d	5.235%	5.943%	84.615%	+2.124 pp	+2.867 pp	1929-06-07-2025-06-19
5	pluto_saturn_sextile	13	6/7	30d	2.922%	1.332%	84.615%	+0.885 pp	+2.902 pp	1942-06-09-2026-03-28
6	jupiter_pluto_square	25	15/10	30d	2.218%	1.390%	80.000%	+0.582 pp	+2.293 pp	1928-03-31-2023-05-17
7	neptune_pluto_sextile	45	32/13	90d	4.620%	4.411%	75.000%	+2.379 pp	+0.237 pp	1945-02-19-2026-06-03
8	jupiter_pluto_trine	26	15/11	14d	1.293%	1.800%	73.077%	+1.069 pp	+0.556 pp	1935-03-13-2024-06-02
9	jupiter_saturn_trine	30	18/12	30d	1.584%	1.687%	66.667%	+0.643 pp	+0.619 pp	1928-04-16-2025-11-17
10	pluto_saturn_square	11	6/5	7d	0.637%	0.120%	54.545%	+0.665 pp	+0.120 pp	1939-07-28-2010-08-21

1.6.2.2 Pressure candidates

Rank	Aspect feature	Events	Train/Test	Best horizon	All avg	All median	Bullish	Train edge	Test edge	Span
1	neptune_saturn_trine	16	11/5	180d	-3.238%	-5.486%	43.750%	-10.244 pp	-6.162 pp	1929-03-06-2013-07-19
2	jupiter_uranus_sextile	22	15/7	90d	-3.206%	-2.156%	36.364%	-5.580 pp	-6.998 pp	1929-08-07-2022-02-17

Rank	Aspect feature	Events	Train/Test	Best horizon	All avg	All median	Bullish	Train edge	Test edge	Span
3	saturn_uranus_square	16	10/6	180d	-2.625%	2.254%	56.250%	-11.837 pp	-2.552 pp	1930-02-22-2022-10-04
4	jupiter_pluto_opposition	22	7/5	90d	-2.851%	-1.227%	50.000%	-5.171 pp	-6.384 pp	1937-05-29-2014-01-31
5	jupiter_uranus_square	24	16/8	180d	-1.260%	1.386%	54.167%	-8.443 pp	-4.085 pp	1930-09-05-2021-01-17
6	pluto_saturn_trine	13	7/6	180d	0.392%	3.794%	61.538%	-8.987 pp	-1.081 pp	1937-03-26-2008-04-26
7	jupiter_uranus_trine	27	16/11	180d	0.712%	3.020%	62.963%	-7.017 pp	-2.112 pp	1931-10-10-2019-12-15
8	jupiter_saturn_opposition	17	10/7	90d	-2.055%	-2.724%	47.059%	-6.797 pp	-2.142 pp	1930-07-27-2012-01-09
9	jupiter_uranus_opposition	15	8/7	180d	1.720%	4.200%	53.333%	-4.182 pp	-3.816 pp	1934-01-30-2017-09-28
10	jupiter_neptune_sextile	24	14/10	60d	-0.771%	-1.897%	37.500%	-2.530 pp	-2.872 pp	1930-07-03-2024-05-23

1.6.3 No-Moon full aspect universe

The no-Moon universe is broader and more multiple-testing-heavy. It includes the personal planets and therefore produces many more event windows. It is useful for discovering trigger hypotheses, but its top-ranked features require more skepticism.

1.6.3.1 Constructive candidates

Rank	Aspect feature	Events	Train/Test	Best horizon	All avg	All median	Bullish	Train edge	Test edge	Span
1	neptune_saturn_square	12	7/5	180d	13.591%	12.647%	100.000%	+8.752 pp	+6.613 pp	1944-07-02-2016-09-10
2	jupiter_uranus_conjunction	13	8/5	90d	7.507%	8.256%	76.923%	+3.194 pp	+7.061 pp	1928-01-25-2024-04-20
3	jupiter_saturn_sextile	22	12/10	180d	10.881%	11.153%	95.455%	+4.223 pp	+6.265 pp	1937-12-12-2024-02-06

Rank	Aspect feature	Events	Train/Test	Best horizon	All avg	All median	Bullish	Train edge	Test edge	Span
4	mars_sun_opposition	46	28/18	180d	9.319%	12.197%	80.435%	+3.311 pp	+4.021 pp	1928-12-21-2025-01-16
5	jupiter_saturn_square	26	15/11	60d	4.833%	5.275%	76.923%	+2.592 pp	+3.393 pp	1935-11-26-2025-06-15
6	mars_mercury_opposition	49	30/19	180d	8.667%	10.207%	77.551%	+2.809 pp	+3.137 pp	1928-12-20-2025-01-23
7	mars_neptune_conjunction	53	32/21	60d	3.979%	3.407%	75.000%	+1.009 pp	+3.786 pp	1929-07-03-2026-04-13
8	mars_venus_opposition	45	27/18	180d	8.129%	10.333%	80.000%	+1.926 pp	+3.109 pp	1928-11-23-2024-12-12
9	mars_pluto_conjunction	55	34/21	90d	4.628%	6.233%	70.370%	+0.476 pp	+4.059 pp	1929-04-16-2026-01-27
10	jupiter_neptune_square	27	16/11	90d	5.188%	5.299%	85.185%	+2.124 pp	+2.710 pp	1929-06-07-2025-06-19

1.6.3.2 Pressure candidates

Rank	Aspect feature	Events	Train/Test	Best horizon	All avg	All median	Bullish	Train edge	Test edge	Span
1	neptune_saturn_trine	16	11/5	180d	-3.238%	-5.486%	43.750%	-10.244 pp	-6.162 pp	1929-03-06-2013-07-19
2	saturn_uranus_square	17	10/7	180d	-2.400%	1.330%	58.824%	-11.837 pp	-2.835 pp	1930-02-22-2022-10-04
3	jupiter_uranus_sextile	22	15/7	90d	-3.206%	-2.156%	36.364%	-5.580 pp	-6.998 pp	1929-08-07-2022-02-17
4	jupiter_uranus_square	23	15/8	180d	-0.610%	2.620%	56.522%	-7.543 pp	-4.085 pp	1930-09-05-2021-01-17
5	jupiter_pluto_opposition	13	7/6	90d	-2.105%	0.258%	53.846%	-5.171 pp	-4.649 pp	1937-05-29-2014-04-20
6	jupiter_uranus_opposition	14	8/6	180d	1.360%	1.609%	50.000%	-4.182 pp	-4.622 pp	1934-01-30-2017-09-28

Rank	Aspect feature	Events	Train/Test	Best horizon	All avg	All median	Bullish	Train edge	Test edge	Span
7	jupiter_saturn_opposition	10	11/7	90d	-2.678%	-2.767%	44.444%	-7.642 pp	-2.142 pp	1930-07-27-2012-01-09
8	pluto_saturn_trine	13	7/6	180d	0.392%	3.794%	61.538%	-8.987 pp	-1.081 pp	1937-03-26-2008-04-26
9	neptune_saturn_sextile	11	6/5	90d	-0.850%	-0.582%	45.455%	-2.514 pp	-5.069 pp	1946-11-02-2019-11-09
10	jupiter_uranus_trine	28	17/11	180d	1.398%	4.063%	64.286%	-5.769 pp	-2.112 pp	1931-10-10-2019-12-15

1.7 Candidate hypotheses

1.7.1 Saturn-Neptune square as a constructive long-horizon candidate

neptune_saturn_square is the strongest constructive candidate in the study. In the outer-planet universe it has 13 events, a 180-day all-event mean return of 12.563%, median return of 11.707%, and positive-return frequency of 100.000%. Train and test edges are both positive.

Regime	Events	180d avg	180d median	180d bullish	Interpretation flag
early_1927_1971	5	14.095%	13.587%	100.000%	above baseline
post_bretton_woods_1971_2008	5	15.340%	15.760%	100.000%	above baseline
post_gfc_2009_now	3	5.384%	4.212%	100.000%	below baseline

Interpretation: the data are consistent with a “repair/re-rating after tension” hypothesis. The sample is small, so this is not a statistical proof. It is, however, a clear candidate for forward tracking.

1.7.2 Saturn-Neptune trine as a pressure candidate

neptune_saturn_trine is the mirror-image surprise. It is ranked as a pressure candidate rather than a constructive one, despite trine often being symbolically described as harmonious.

Regime	Events	180d avg	180d median	180d bullish	Interpretation flag
early_1927_1971	8	-2.967%	-3.054%	50.000%	below baseline
post_bretton_woods_1971_2008	5	-12.204%	-7.302%	0.000%	below baseline
post_gfc_2009_now	3	10.985%	11.175%	100.000%	above baseline

The post-GFC regime is less negative than the pre-2009 regimes, which suggests regime sensitivity. This feature should not be used alone as a deterministic bearish signal.

1.7.3 Jupiter-Uranus conjunction versus sextile

The study separates subtype behavior. `jupiter_uranus_conjunction` is constructive, while `jupiter_uranus_sextile` is a pressure candidate. A simple “Jupiter plus Uranus equals risk-on” rule would miss this split.

- `jupiter_uranus_conjunction`: best horizon 90d; train edge +3.194 pp; test edge +7.061 pp.
- `jupiter_uranus_sextile`: best horizon 90d; train edge -5.580 pp; test edge -6.998 pp.

1.7.4 Jupiter-Saturn structure

Jupiter-Saturn aspects are not uniformly bullish or bearish. `jupiter_saturn_sextile` is constructive at 180 days, while `jupiter_saturn_opposition` is weak at 90 days. This supports an aspect-specific rather than planet-specific modeling approach.

1.7.5 Mars opposition trigger candidates

In the no-Moon full scan, Mars oppositions to Sun, Mercury, and Venus appear constructive at the 180-day horizon:

- `mars_sun_opposition`: 46 events; train edge +3.311 pp; test edge +4.021 pp.
- `mars_mercury_opposition`: 49 events; train edge +2.809 pp; test edge +3.137 pp.
- `mars_venus_opposition`: 45 events; train edge +1.926 pp; test edge +3.109 pp.

This is a good example of why symbolic labels should be subordinated to measured event outcomes. The result does not mean Mars opposition causes equity gains; it means those exact windows historically coincided with above-baseline 180-day forward returns in this exploratory scan.

1.8 Theme-level analysis

Theme buckets aggregate related features. They are less precise than individual features but are more useful for conceptual models and transfer tests.

1.8.1 Outer-planet anchored themes

Rank	Theme bucket	Events	Best horizon	All avg	All median	Bullish	Train edge	Test edge	Feature examples
1	<code>jupiter_uranus_major</code>	100	180d	1.073%	3.541%	60.000%	-6.162 pp	-2.095 pp	<code>jupiter_uranus_conjunction</code> <code>jupiter_uranus_opposition</code> <code>jupiter_uranus_sextile</code> <code>jupiter_uranus_square</code> +1 more

Rank	Theme bucket	Events	Best horizon	All avg	All median	Bullish	Train edge	Test edge	Feature examples
2	saturn_pluto_major	53	60d	-0.922%	0.960%	55.769%	-4.974 pp	-0.111 pp	pluto_saturn_conjunct, pluto_saturn_opposit, pluto_saturn_sextile, pluto_saturn_square, +1 more
3	jupiter_saturn_major	101	60d	2.769%	3.310%	74.257%	+0.467 pp	+1.430 pp	jupiter_saturn_conjunct, jupiter_saturn_opposit, jupiter_saturn_sextile, jupiter_saturn_square, +1 more

1.8.2 No-Moon anchored themes

Rank	Theme bucket	Events	Best horizon	All avg	All median	Bullish	Train edge	Test edge	Feature examples
1	saturn_pluto_major	52	180d	0.709%	2.700%	58.824%	-8.531 pp	-0.008 pp	pluto_saturn_conjunct, pluto_saturn_opposit, pluto_saturn_sextile, pluto_saturn_square, +1 more
2	jupiter_uranus_major	100	180d	1.492%	4.121%	61.000%	-5.589 pp	-1.941 pp	jupiter_uranus_conjunct, jupiter_uranus_opposit, jupiter_uranus_sextile, jupiter_uranus_square, +1 more
3	jupiter_saturn_major	101	60d	2.781%	3.310%	72.277%	+0.509 pp	+1.422 pp	jupiter_saturn_conjunct, jupiter_saturn_opposit, jupiter_saturn_sextile, jupiter_saturn_square, +1 more
4	saturn_personal_conjunct	167	30d	0.329%	0.993%	56.131%	-0.795 pp	-0.340 pp	saturn_personal_conjunct, mars_saturn_conjunct, mer- cury_saturn_conjunct, saturn_sun_conjunction, saturn_venus_conjunction, +1 more
5	mercury_venus_cooldown	461	14d	0.174%	0.578%	56.182%	-0.262 pp	-0.272 pp	mercury_venus_conjunction, mer- cury_venus_sextile, +1 more
6	jupiter_inner_boost	1030	30d	0.595%	1.111%	59.515%	-0.542 pp	-0.065 pp	jupiter_mars_conjunct, jupiter_mars_trine, jupiter_mercury_conjunct, jupiter_mercury_trine, +4 more

Rank	Theme bucket	Events	Best horizon	All avg	All median	Bullish	Train edge	Test edge	Feature examples
7	mars_inner_trigger_all	1057	3d	0.270%	0.284%	57.994%	+0.089 pp	+0.310 pp	mars_mercury_conjuncti mars_mercury_sextile, mars_mercury_trine, mars_sun_conjunction, +5 more
8	venus_opposition_riskon	441	14d	0.217%	0.689%	57.370%	-0.237 pp	-0.203 pp	jupiter_venus_oppositi mars_venus_opposition pluto_venus_oppositi sat- urn_venus_opposition, +1 more
9	uranus_hard_to_personal	1449	60d	1.659%	2.372%	62.932%	-0.354 pp	-0.068 pp	mars_uranus_conjuncti mars_uranus_oppositi mars_uranus_square, mer- cury_uranus_conjuncti +8 more
10	saturn_hard_to_personal	1418	3d	0.185%	0.216%	57.052%	+0.032 pp	+0.183 pp	mars_saturn_conjuncti mars_saturn_oppositi mars_saturn_square, mer- cury_saturn_conjuncti +8 more
11	pluto_hard_to_personal	1474	7d	0.093%	0.302%	54.817%	-0.197 pp	-0.013 pp	mars_pluto_conjuncti mars_pluto_oppositi mars_pluto_square, mer- cury_pluto_conjuncti +8 more
12	mars_inner_trigger_soft	610	3d	0.223%	0.272%	58.689%	-0.009 pp	+0.341 pp	mars_mercury_conjuncti mars_mercury_trine, mars_sun_conjunction, mars_sun_trine, +2 more

1.8.3 Transfer from Bitcoin to S&P 500

A previous Bitcoin experiment suggested Venus-opposition windows as possible risk-on or release markers. In this S&P 500 study, the `venus_opposition_riskon` bucket does not transfer cleanly. In the no-Moon universe it contains 441 events and is best summarized at the 14-day horizon with train edge -0.237 percentage points and test edge -0.203 percentage points. That is mild underperformance relative to the S&P 500's own 14-day baseline, not a clean risk-on effect.

By contrast, the `mercury_venus_cooldown` bucket is more consistent: 461 events, 14-day train edge -0.262 percentage points and test edge -0.272 percentage points. This suggests a mild pause/cooldown hypothesis that is more transferable than the Venus-opposition risk-on hypothesis.

1.9 Discussion

1.9.1 The findings are aspect-specific, not planet-specific

The results do not support simple statements such as “Jupiter is bullish,” “Saturn is bearish,” or “trines are good.” The top findings are conditional on both the planet pair and aspect type. Saturn-Neptune square is constructive, Saturn-Neptune trine is weak, Jupiter-Uranus conjunction is constructive, and Jupiter-Uranus sextile is weak.

1.9.2 Long-horizon effects dominate

The most interesting outer-cycle candidates appear at 90- and 180-day horizons. This is consistent with the idea that slow planetary pairs, if useful at all as timing labels, are more likely to coincide with regime transitions than short-term entries.

1.9.3 The S&P 500 is not Bitcoin

The S&P 500 has a strong long-term drift, sector composition effects, earnings cycles, buybacks, monetary-policy sensitivity, and changing index methodology. Bitcoin has a shorter sample and different reflexivity. A pattern that appears in BTC cannot be assumed to transfer to SPX. This study shows that direct transfer can fail.

1.9.4 Regime sensitivity is material

Some pressure candidates are weaker or even positive after 2009. This may reflect post-GFC monetary policy, index composition, passive flows, or small-sample artifacts. A publishable future version should use explicit sub-period testing and bootstrap confidence intervals.

1.10 Limitations

1. **Exploratory multiple testing:** the scan evaluates many feature-horizon combinations; top-ranked results are not confirmatory evidence.
2. **Small samples for outer planets:** some strongest-looking patterns have only 12-22 events.
3. **Index proxy limitation:** ^GSPC is not directly investable and early index history is not equivalent to modern tradable exposure.
4. **No transaction-cost model:** no slippage, taxes, funding costs, or execution constraints are modeled.
5. **No formal p-values:** the ranking metric is a heuristic robustness screen, not a complete statistical test.
6. **Calendar mapping:** weekend and holiday mapping is necessary for equities but can shift exact-date interpretation by up to three days.
7. **Researcher degrees of freedom:** body set, orb, horizon set, split date, and theme definitions all create opportunities for overfitting.

1.11 Proposed confirmatory protocol

The next version should convert this exploratory output into a pre-registered test:

1. Freeze the following candidate rules:
 - constructive: `neptune_saturn_square`, `jupiter_saturn_sextile`, `jupiter_uranus_conjunction`
 - pressure: `neptune_saturn_trine`, `jupiter_uranus_sextile`, `saturn_uranus_square`, `jupiter_saturn_opposition`
 - cooldown theme: `mercury_venus_conjunction` and `mercury_venus_sextile`

2. Test the frozen rules on SPY, ES futures, Dow Jones, Nasdaq, equal-weight S&P, and selected international equity indices.
3. Add randomized placebo calendars matched by decade, month, and weekday.
4. Report confidence intervals through bootstrap or permutation methods.
5. Track forward windows from 2026 onward without re-optimizing.

1.12 Conclusion

The study finds several non-trivial candidate associations between exact planetary aspect windows and S&P 500 forward returns. The most notable is Saturn-Neptune square as a constructive 180-day candidate, while Saturn-Neptune trine and Jupiter-Uranus sextile appear as pressure candidates. The findings are sufficiently structured to justify further research, but not sufficient to justify trading claims. The correct interpretation is hypothesis generation: freeze the candidate rules, validate them across related assets and future dates, and treat all conclusions as provisional until they survive out-of-sample testing.

1.13 Reproducibility notes

- Source data artifact: /tmp/radical-spx500-astro-search-v011.json
- Markdown artifact: /tmp/spx500-radical-astrology-research-paper-v011.md
- PDF artifact: /tmp/spx500-radical-astrology-research-paper-v011.pdf
- Event construction: active aspect windows collapsed to nearest-exact date; equity calendar mapping within three calendar days.
- Software: hermetic-alpha v0.1.1, Swiss Ephemeris-backed position generation.

1.14 Appendix: selected implementation details

The core event-study pattern is:

market candles -> daily planetary positions -> aspect scan -> contiguous active windows -> nearest-exact event dates -> trading-day m

The most important methodological safeguard is the active-window collapse. Without it, a single multi-day aspect could contribute several highly autocorrelated observations and inflate apparent sample size.

1.15 Disclaimer

This document is exploratory research and software dogfooding. It is not financial advice, not a recommendation to buy or sell any asset, and not evidence that astrological variables cause market movements. Any practical use requires independent validation, formal risk management, and forward testing.