

HCL-EXP-001 · EXPERIMENT REPORT

# Mature Value Expansion on gold, 2013–2026

*An out-of-sample test*

A gold breakout strategy returned 38.6% in 2024–2026.  
This report tests whether that result holds on the thirteen years around it.

|                     |                                                       |
|---------------------|-------------------------------------------------------|
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# Document control

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## SECTION 1

## Summary

A cBot trading breakouts from a mature, stable session value area on gold (XAUUSD, M5) returned +38.6% with a 4.5% maximum drawdown from January 2024 to August 2026. Its parameters had been tuned on that same period. Run unchanged on the full history available, January 2013 to September 2026, it finished flat (net −\$14.90 on \$10,000) with a 51% drawdown and lost money in nine of the eleven years before 2024.

A research version of the cBot, trading identically, logged market conditions and price excursions for all 3,510 trades. Using 2013–2019 for discovery and keeping 2020–2026 aside for one confirmatory test, the study found:

- Before 2024, a breakout from a mature value area had no measurable directional edge: it continued in the breakout direction to session end 50.4% of the time (2013–2019) and 48.4% of the time (2020–2023).
- Scaling the profit target to volatility did not make the strategy profitable in any tested configuration.
- None of the measured market conditions (tick volume, value-area width, breakout distance, hour, profile age) separated winning from losing periods.
- A trend filter looked promising in discovery but failed the pre-registered confirmatory test.
- In 2024–2026, breakouts in both directions showed follow-through. The strategy's profitable period coincides with that market condition, which none of the tested inputs could detect in advance.

## SECTION 2

# Objective

Determine whether the strategy's 2024–2026 performance reflects a durable edge, and if not, whether any measurable market condition explains when it works.

## SECTION 3

# Hypotheses

## H1: target size relative to volatility (discovery)

The strategy's results depend on the size of its fixed profit target relative to volatility. A volatility-scaled target will make it profitable across market regimes. *Falsification*: no volatility-scaled target is profitable in the 2013–2019 discovery period.

## H2: trend direction (pre-registered before the confirmatory test)

In 2020–2026, breakouts in the direction of the 20-session trend show positive follow-through to session end, and counter-trend breakouts do not. *Pass criteria, all required*:

- 1 With-trend follow-through positive over 2020–2026, with  $t \geq 2$ .
- 2 Positive separately in 2020–2023 and in 2024–2026.
- 3 Counter-trend follow-through not meaningfully positive ( $t < 2$ ).

## SECTION 4

# The strategy as tested

- Builds a developing volume profile for each session (session starts 18:00 New York time), using tick volume.
- Waits until the profile is mature (a minimum number of bars) and stable (value-area high and low drifting less than set thresholds).

- Enters when a bar closes outside the value area, confirmed by the next bar.
- Exits at a fixed profit of \$70 (at 0.07 lots, a \$10 move per ounce), when a bar closes back inside the value area (a failed breakout), or at session end. One trade per session.

Exact parameter values are withheld (section 10).

SECTION 5

# Experimental design

**Data.** XAUUSD M5, cTrader backtests on broker M1 bars, January 2013 to September 2026, \$10,000 starting balance, 0.07 lots.

## Measured runs

| Run                        | Period              | Costs                 | Purpose                   |
|----------------------------|---------------------|-----------------------|---------------------------|
| V2 report                  | Jan 2024 – Aug 2026 | Spread 15 pts, \$30/M | Original in-sample result |
| V2 report                  | Jan 2013 – Sep 2026 | Spread 15 pts, \$15/M | Full-history result       |
| Research run<br>"Baseline" | Jan 2013 – Sep 2026 | Spread 1 pt, \$30/M   | Same trades, with logging |

The research run reproduced all 3,510 entries of the full-history run, with identical times and directions. Its lower spread shifted 20 exit times slightly. Behavioural statistics come from the research run; profit figures come from the measured V2 reports unless marked as modelled.

## Data split

2013–2019 (1,782 trades) for discovery. 2020–2026 (1,728 trades) held back for one confirmatory test.

DISCLOSURE

*Yearly profit figures for 2020–2026 had been seen before the split was made, so that period is not fully blind. The confirmatory criteria were tightened to require the effect in 2020–2023 on its own to address this.*

## Logged per trade

Daily and M5 ATR (14), value-area width, breakout distance, session range, breakout-bar tick volume relative to the session average, entry hour, maximum favourable and adverse excursion while open, the favourable excursion before the failed-breakout rule would fire, and excursions to session end.

## SECTION 6

# Results

## 6.1 Measured performance by era

| Era       | Trades | Net      | Profit factor |
|-----------|--------|----------|---------------|
| 2013–2019 | 1,782  | −\$2,019 | 0.86          |
| 2020–2023 | 1,024  | −\$2,542 | 0.77          |
| 2024–2026 | 704    | +\$4,546 | 1.34          |
| Total     | 3,510  | −\$15    | 1.00          |

Maximum drawdown 51%. Longest losing streak 71 trades.

## 6.2 How the breakouts behaved

| Era       | Gold (avg) | Daily ATR | Target reached | Failure rule fired | Median bars to failure | Continued |
|-----------|------------|-----------|----------------|--------------------|------------------------|-----------|
| 2013–2019 | \$1,287    | \$14.9    | 7.9%           | 88.3%              | 7                      | 50.4%     |
| 2020–2023 | \$1,829    | \$24.3    | 10.9%          | 90.2%              | 6                      | 48.4%     |
| 2024–2026 | \$3,361    | \$46.0    | 31.8%          | 83.7%              | 6                      | 55.3%     |

In every era, most breakouts closed back inside the value area, typically within 30 minutes (6–7 bars), and about a third within 15 minutes. In 2013–2019, the median favourable move before the failure rule fired was \$0.49 per ounce, against a round-trip cost of about \$0.40.

## 6.3 H1: volatility-scaled targets (discovery, modelled)

Each discovery trade was replayed with targets from 0.05× to 1.0× the daily ATR, keeping the failed-breakout exit and applying realistic costs. Nine configurations were tested. None was profitable over 2013–2019; the best profit factor was 0.78, and none was profitable in any single year except 2013. **H1 rejected.**

## 6.4 Feature scan (discovery, exploratory)

Follow-through to session end was compared across quartiles of target-to-ATR ratio, value-area width, breakout-bar volume ratio, breakout distance, entry hour and profile age. All differences were within the range expected from noise given the number of comparisons. No filter was adopted.

## 6.5 Trend direction (discovery, exploratory)

Breakouts in the direction of the 20-, 50- and 100-session average showed small positive follow-through ( $t = 2.23, 1.97, 1.80$ ); counter-trend breakouts showed none. Under the strategy's own exits, trend-filtered trades still lost (profit factor 0.79–0.91). Holding them to session end gave a profit factor of 1.09, driven mostly by 2013, with

2018 and 2019 negative. Because this came from several attempts, it was taken to one confirmatory test rather than adopted.

## 6.6 H2: confirmatory test, 2020–2026

| Group                    | Trades | Mean follow-through (× daily ATR) | t     | Continued |
|--------------------------|--------|-----------------------------------|-------|-----------|
| With-trend, 2020–2026    | 867    | +0.038                            | 1.78  | 51.2%     |
| With-trend, 2020–2023    | 523    | −0.006                            | −0.22 | 47.8%     |
| With-trend, 2024–2026    | 344    | +0.104                            | 3.20  | 56.4%     |
| Counter-trend, 2020–2026 | 861    | +0.012                            | 0.56  | 51.2%     |
| Counter-trend, 2024–2026 | 360    | +0.058                            | 1.93  | 54.2%     |

Criteria 1 and 2 failed. **H2 not supported.**

### SECTION 7

## Interpretation

**Measured.** Before 2024, value-area breakouts on gold had no directional follow-through, in either discovery or held-back data. In 2024–2026, breakouts in both directions followed through more often than not.

**Interpretation.** The strategy's profitable period reflects a market condition specific to 2024–2026, in which gold's breakouts tended to continue, rather than an edge in the strategy's logic. The fixed \$70 target describes which years were easy (its hit rate rose from 7.9% to 31.8% as gold's price and volatility tripled), but it is not the cause: resizing it did not help.

**What this does not establish.** It does not show when the 2024–2026 condition will end, or that it cannot be detected with inputs not tested here, such as implied volatility or macro data.

### SECTION 8

## Decision

- The strategy concept, in this form, is closed as a general edge. No further tuning on this data.
- The live cBot is treated as a regime bet: profitable while gold's breakouts keep following through, with no built-in way to detect when that stops. Position size and use are the author's decision.
- The indicator derived from this strategy is published as a market-structure tool, not a signal. Its tool page links to this report and does not present breakout markers as trading signals.

## SECTION 9

## Lessons

- 1 An in-sample result over one strong market period says little about a strategy. Run the full available history before trusting it.
- 2 When a strategy works only in one period, test whether the market changed before tuning the strategy.
- 3 A plausible explanation can describe a result without causing it. Test the fix, not just the story.
- 4 Pre-register the confirmatory test and accept the outcome.

## SECTION 10

## Reproducibility and withheld material

- **Available:** the strategy logic (section 4), data source and settings (section 5), the research cBot's logging design, and all measured results.
- **Withheld:** exact parameter values (value-area %, profile rows, maturity and stability thresholds, breakout distance), because the live strategy uses them. The study can be evaluated but not replicated exactly.
- **Limitations:** broker M1 bars rather than tick data; failed-breakout exits for trades that actually closed at target were modelled from the boundary and a measured overshoot ( $0.33 \times M5 \text{ ATR}$ ); one broker and one instrument.

## SECTION 11

## AI assistance

Claude (Anthropic) was used to write the research cBot, parse the backtest reports, run the analysis and draft this report. All figures come from the measured files in section 5 and were computed by script. Conclusions and the decision are the author's.

## SECTION 12

## Dependencies

Live cBot XAUUSDVTCUSD2 · forthcoming indicator (Lite and Pro) and its tool page · forthcoming X Article.

SECTION 13

# Revision history

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