

LAVA TRADES

LAVA COMPOUNDER V1

Audit & Reproducibility Report

Version 1.0

FOR DUE DILIGENCE PURPOSES

Preservation Package: F11

Official trade tape hash: 9c83254bb3d0ca13

Freeze certification date: 2026-05-28

Report date (UTC): 2026-06-09

Primary audit reference: Bitunix Futures

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WHAT IS LAVA COMPOUNDER?

LAVA Compounder V1 is a **systematic, rules-based quantitative strategy** designed for cryptocurrency perpetual futures markets. Positions are entered and managed through a **predefined automated process**, without discretionary intervention.

Key characteristics relevant to due diligence:

- **Fully systematic.** All decisions follow predefined rules. There is no discretionary overlay or adaptive re-optimization in production.
- **Automated execution.** Signals are generated and executed programmatically on the client's exchange account.
- **Frozen strategy.** The production version is locked at a certified baseline. No parameter changes are applied without a formal governance process.
- **Reproducible.** An independent party can reconstruct the full trade history from sealed datasets using documented procedures.
- **Independently auditable.** Results, governance controls, and reproducibility — not proprietary signal logic — are the subject of this report.

This document does not describe how the strategy identifies opportunities. It demonstrates that the **reported results are real, traceable, and independently verifiable**.

DOCUMENT PURPOSE

This report provides verifiable evidence of the existence, reproducibility, statistical robustness, quantitative governance, risk controls, and result traceability of **LAVA Compounder V1**, without disclosing intellectual property or specific signal-generation mechanisms.

The exact rules governing asset selection, filtering, execution, and signal construction remain protected and are not part of this document. The purpose is to allow allocators, family offices, funds, and strategic partners to assess **whether they can rely on the reported outcomes** without access to the underlying methodology.

1. EXECUTIVE SUMMARY

LAVA Compounder V1 is a fully rules-based quantitative strategy for cryptocurrency perpetual futures.

- No discretionary intervention or adaptive optimization in production.
- Dynamic multi-asset universe built with point-in-time (causal) data architecture — no look-ahead bias detected.
- Periodic execution framework with fully automated, rules-based operation.
- Deterministic reproducibility certified via Preservation Package F11 and independent reconstruction.

Overall verdict: AUDITED AND VERIFIED (Frozen Strategy Version, Certification Phase).

For performance planning, use the conservative CAGR of **35.54%** (Confidence Interval Analysis), not the backtest CAGR of 49.32%.

INVESTMENT HIGHLIGHTS

FROZEN STRATEGY Production baseline locked and hash-certified	FULLY REPRODUCIBLE 316 / 316 trades reconstructed — identical hashes
INDEPENDENTLY RECONSTRUCTED Deterministic rebuild verified (Certification Phase)	AUDITED DATASET Sealed artifacts with SHA-256 chain of custody
VERIFIED TRADE HISTORY	CONSERVATIVE CAGR

Official hash: 9c83254bb3d0ca13	35.54%
WIN RATE 79.43%	PROFIT FACTOR 1.96
MAXIMUM DRAWDOWN -6.31%	

Figures above are audited Bitunix baseline metrics. See Section 6 for the full performance table and Section 10 for stated limitations.

2. AUDIT SCOPE

Element	Audited Value
Official backtest period	2025-05-05 → 2026-05-03 UTC
Operative tape period	2025-06-09 → 2026-04-30
Markets	Cryptocurrency perpetual futures (multi-asset)
Asset universe	Curated multi-asset universe · causal point-in-time construction (no look-ahead)
Data infrastructure	Proprietary data lake · verified market data archives · Bitunix/Binance feeds
Strategy version	Frozen Strategy Version / LAVA V1 Production Baseline
Freeze date	2026-05-28 (Certification Phase closure)
Audit / package date	Preservation Package: 2026-06-04 · Report: 2026-06-09
Reference exchange	Bitunix (316 official trades)

3. REPRODUCIBILITY CERTIFICATION

The strategy underwent full deterministic reconstruction (Certification Phase + Preservation Package F11).

Control	Bitunix Result
Official certified hash	9c83254bb3d0ca13
Reconstructed trades	316 / 316
Rebuild status (Certification Phase)	True
Determinism test 5×5 (Reproducibility Phase)	Identical hashes — REPRODUCIBLE
Official metrics match	WR, PF, CAGR, DD, Sharpe, Sortino verified

Reconstruction procedure: *REBUILD_INSTRUCTIONS.md* (Preservation Package). Artifacts sealed with SHA-256 in *MANIFEST.md*.

4. GOVERNANCE AND CHANGE CONTROL

- **Freeze methodology:** Multi-phase validation pipeline with destructive gates; formal closure at Production Baseline.
- **Version control:** Official trade tape hash; Parquet datasets with SHA-256 in manifest.
- **Document hierarchy:** Official bytes > Frozen Strategy Version > Master Guide > validation phase reports.

- **Preservation Package:** 17 sealed artifacts (documentation, datasets, trades, code, hash, rebuild instructions).
- **Master Guide:** LAVA_V1_MASTER_GUIDE.md — operational audit reference.
- **Chain of custody:** MANIFEST.md with source paths, SHA-256, size, and UTC timestamps.

5. QUANTITATIVE VALIDATION PROCESS

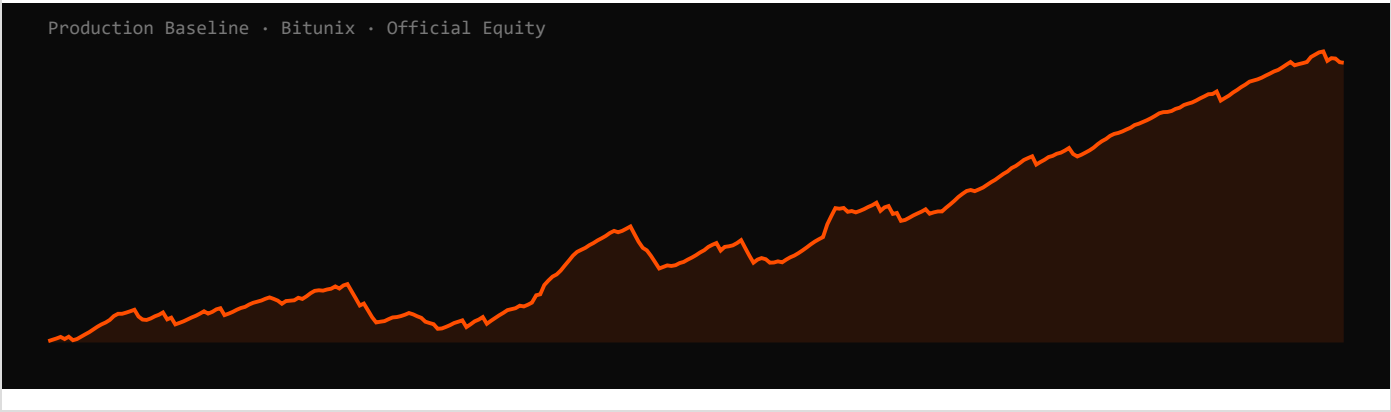
Summary of validation phases executed on the causal baseline (no proprietary parameters disclosed):

Phase	Objective	Bitunix Result	Approval Gate
Reproducibility Phase	Deterministic reproducibility	REPRODUCIBLE	✓
Causal Universe Validation	Point-in-time universe without look-ahead	APPROVED	✓
Bootstrap & Monte Carlo Phase	Resampling / path-order sensitivity	LUCKY_PATH (temporal ordering)	—
Execution Sensitivity Phase	Micro-cost sensitivity (slippage)	FRAGILE ≥ 10 bps	—
Walk-Forward Validation Phase	Temporal out-of-sample split	ROBUST (globally SUSPICIOUS)	—
Statistical Significance Phase	Sign-flip null hypothesis	REAL EDGE ($p < 0.001$)	✓
Edge Concentration Analysis	Return concentration audit	CONCENTRATED	—
Regime Stability Phase	Performance across market regimes	STABLE	—
Operability Assessment	Capital / liquidity operability	Operable $\leq 100k$ USD	—
Confidence Interval Analysis	Bootstrap confidence intervals	HIGHLY ROBUST ($IC95 > 0$)	✓
Cross-Exchange Portability	Multi-venue parity replay	INCONCLUSIVE	—
Certification & Reconstruction Phase	Final independent rebuild	rebuild_ok=True	✓

6. PERFORMANCE OVERVIEW

Official audited metrics — Bitunix baseline (316 trades, 10% allocation, systematic compounding):

Metric	Value
CAGR (backtest)	49.32%
Conservative CAGR (Confidence Interval Analysis)	35.54%
Stress CAGR (Confidence Interval Analysis)	34.32%
Profit Factor	1.96
Win Rate	79.43%
Max Drawdown	-6.31%
Sharpe (trade-level)	4.78
Sortino	5.37
Calmar	7.81
Expectancy (per trade)	1.139%
Recovery Factor	6.79
Starting / ending equity	10,000 → 14,286.93
Number of trades	316



7. RISK CHARACTERISTICS

Dimension	Audited Observation
Return distribution	251 winners / 65 losers · avg win 2.931% · avg loss -5.782%
Concentration (Edge Concentration Analysis)	Top-10 trades 12.6% · top-10 symbols 22.4% · top-decile concentration 63.2% — CONCENTRATED
Exposure	1% sizing per trade · curated multi-asset universe
Operational risk	Non-custodial · API without withdrawal permissions · friction not fully modeled in backtest
Market risk	Perpetual futures exposure · historical maximum drawdown -6.31%
Execution risk	FRAGILE at slippage ≥ 10 bps (Execution Sensitivity Phase) — plan with stress tests

8. ROBUSTNESS ASSESSMENT

Bootstrap — Bitunix (Bootstrap & Monte Carlo Phase)

CAGR p5 / p50 / p95: **29.79%** / **49.46%** / **71.51%** · P(permanent loss)=0% · Temporal ordering verdict: LUCKY_PATH.

Monte Carlo reorder (Bootstrap & Monte Carlo Phase)

CAGR invariant to reordering (commutative compounding). Drawdown sensitivity: p50 -3.31%, p95 -2.33%. Baseline at 85th percentile of temporal ordering.

Walk-forward (Walk-Forward Validation Phase)

Split 2025-11-03 · Forward CAGR 132.06% vs train 14.07% · Elevated retention but negative cross-block correlation — interpret with caution.

Regime stability (Regime Stability Phase)

100% regimes with $PF > 1$ · Without best block: residual CAGR 34.32% — STABLE.

Confidence intervals (Confidence Interval Analysis)

IC95 (p2.5) = **26.56%** · P(CAGR>0)=100% · P($PF > 1$)=100% — HIGHLY ROBUST.

9. OPERATIONAL FRAMEWORK

- Non-custodial execution architecture on the client's exchange.

- Signals generated through a predefined systematic process and executed programmatically without discretionary intervention.
- Production equals a deterministic clone of the validated baseline (verifiable hash).
- Risk controls: API permissions without withdrawal · operational monitoring · frozen strategy with no hot re-optimization.
- Governance: formal change-control process · incident management via Preservation Package per REBUILD_INSTRUCTIONS.

Signal logic, thresholds, and proprietary filters are not disclosed in this report.

10. LIMITATIONS

- Historical results do not guarantee future performance.
- Backtest CAGR (49.32%) must not be used for planning — use conservative 35.54%.
- Sensitivity to favorable temporal ordering (LUCKY_PATH on Bitunix, Bootstrap & Monte Carlo Phase).
- Concentration of edge (Edge Concentration Analysis) and dependence on specific regimes.
- Microstructure: fragility at slippage ≥ 10 bps (Execution Sensitivity Phase).
- Cross-exchange portability inconclusive (Cross-Exchange Portability phase).
- LAVA is a technology provider; not financial advice or fund management.

11. SUMMARY OF FINDINGS

LAVA Compounder V1 demonstrates **complete traceability** from raw datasets to a 316-trade tape, with certified hash and verified independent reconstruction.

Dimension	Level
Documentation maturity	High — Master Guide + Preservation Package + full validation pipeline
Reproducibility	Certified (Reproducibility Phase, Certification Phase, F11)
Statistical robustness	HIGHLY ROBUST on IC95 (Confidence Interval Analysis) with temporal ordering limitations (Bootstrap & Monte Carlo Phase)
Directional edge	Statistically real vs null (Statistical Significance Phase)
External verification	Feasible via preservation package and public rebuild procedure

Status: VERIFIED — suitable for controlled institutional disclosure subject to the warnings in this report.

AUDIT CONCLUSION

Based on the evidence presented in this report, an independent reviewer can reach the following conclusions:

- **Reproducibility.** The full trade history is reproducible. Independent reconstruction yields 316 / 316 trades with identical deterministic hashes across repeated runs.
- **Baseline integrity.** Reconstructed trades match the certified Production Baseline. The official trade tape hash (9c83254bb3d0ca13) provides a tamper-evident identifier for the frozen strategy version.
- **No look-ahead bias detected.** The causal universe validation confirms that features and universe construction use only information available at decision time.
- **Governance controls.** A formal multi-phase validation pipeline, destructive approval gates, version-controlled artifacts, and a documented chain of custody are in place.
- **Document preservation.** The Preservation Package (F11) seals datasets, trade history, rebuild instructions, and cryptographic hashes for independent verification.
- **Frozen strategy.** The production strategy remains locked at the certified baseline. No undocumented changes are applied in production.

This report is intended to answer a single due-diligence question: *Can an allocator trust the reported results without access to proprietary methodology?* The audited evidence supports an affirmative answer, subject to the limitations stated in Section 10.

Status: VERIFIED.

APPENDIX A — GLOSSARY (EXCERPT)

- **Frozen Strategy Version / Production Baseline:** Official locked baseline after Certification Phase closure.
- **Point-In-Time (PIT):** Features computed using only information available at $T-1$.
- **Conservative CAGR:** Minimum of bootstrap p25 and block-bootstrap p25 (Confidence Interval Analysis).
- **Preservation Package:** Sealed artifact bundle enabling independent reconstruction and audit.

APPENDIX B — METRIC DEFINITIONS

- **CAGR:** Compound annual growth rate on equity with 10% allocation per trade.
- **Profit Factor (PF):** Gross profits / gross losses based on per-trade returns.
- **Sharpe / Sortino:** Mean per-trade return / standard deviation (total or downside only), annualized by $\sqrt{n}$.
- **Calmar:** CAGR / |Max Drawdown|.
- **Recovery Factor:** Net return % / |Max Drawdown %|.

APPENDIX C — AUDIT METHODOLOGY

1. Verify SHA-256 of all artifacts against MANIFEST.md.
2. Execute rebuild per REBUILD_INSTRUCTIONS.md → expect 316 trades.
3. Compare trade tape hash with 9c83254bb3d0ca13.
4. Recalculate metrics using documented engine and compare against official tolerances.
5. Review validation phase reports in the preservation package.

Confidentiality & Intellectual Property Notice

This report is prepared for due diligence purposes. It audits **results, reproducibility, and governance** — not proprietary strategy intellectual property.

The following are expressly **not disclosed** in this document and remain the exclusive property of LAVA Compounder:

- Signal generation methodology
- Asset ranking methodology
- Parameterization and internal thresholds
- Execution logic and order-routing rules
- Operational timing, execution schedules, and holding-period logic
- Universe construction and internal filters
- Source code and proprietary algorithms

Recipients may verify reported outcomes through the Preservation Package and independent reconstruction procedures described herein. Access to methodology is subject to separate commercial and legal arrangements.

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