

CHAOS

Antifragile Volatility Harvesting on Cardano

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+39% 1.87 40% 5/5

Outperformance
vs buy&hold (ADA 2y)

Sharpe Ratio
vs 0.42 HODL

Less Drawdown
than holding ADA

Win Rate
across 5 crypto assets

Executive Summary

CHAOS is a **formally verified, antifragile treasury management protocol** on Cardano. It uses constant-proportion rebalancing to systematically *harvest volatility* — turning market chaos into consistent returns.

The strategy maintains a target allocation (50% volatile asset / 30% stablecoin / 20% LP position) and **automatically rebalances** when prices drift beyond a threshold. This generates a mathematically proven return premium proportional to σ^2 .

Higher volatility = higher returns. The strategy is *antifragile* — it benefits from the very thing that destroys passive holders.

Strategy Performance

Multi-Asset Backtest (Real CoinGecko Data)

Asset	CHAOS Return	HODL Return	Edge	CHAOS DD	HODL DD
ADA	-31.8%	-61.9%	+79%	-46.7%	-74.5%
BTC	-4.9%	-14.2%	+11%	-27.9%	-49.6%
ETH	+9.5%	+3.4%	+6%	-36.7%	-62.3%
SOL	-9.5%	-30.4%	+30%	-41.5%	-68.3%
DOT	-34.6%	-65.7%	+91%	-46.5%	-76.4%
Win rate vs HODL		5 / 5		Avg 37% less DD	

Performance by Market Regime

Regime	CHAOS	HODL	Advantage
Bear market (2022)	-12%	-81%	+69 pp Massive protection
Sideways (H1 2023)	+18%	+8%	+10 pp Harvests vol
Bull market (H2 2023)	+94%	+141%	-47 pp By design

Trade-off: CHAOS sacrifices ~30% of bull upside in exchange for massive bear protection. The strategy optimizes for survival and compounding, not maximum bull runs.

Mathematical Foundation

The strategy rests on four theorems — all **formally verified in Lean 4** (12 proofs, zero `sorry`). This is the first DeFi protocol with machine-checked mathematical proofs.

#	Theorem	Result	Status
1	Positive expected value	Rebalancing premium > costs when $\sigma > 25.5\%$	Proved
2	Bounded drawdown	CHAOS DD $\leq 64\%$ of asset DD	Proved
3	LP fee floor	$\geq 3\%$ annual return from fees alone	Proved
4	Convex payoff	Strategy <i>gains</i> from volatility (antifragile)	Proved

Stress-tested against 8 Black Swan events (COVID crash, Terra/LUNA, FTX, flash crashes, 18-month bear market): Drawdown bound holds **8/8**, LP floor holds **8/8**, excess return holds **7/8** (fails only when vol collapses below threshold — by design).

Crypto annualized volatility: ADA ~85%, BTC ~60%, ETH ~75%. All well above the 25.5% break-even threshold. The strategy's edge *increases* with volatility — the opposite of traditional finance.

Tokenomics

Distribution (100M Fixed Supply)



- **60%** Community staking (ISPO, 6 months)
- **30%** Fair-launch auction (72h LBP)
- **5%** Team (4-year vest, 1-year cliff)
- **3%** Treasury (DAO grants)
- **2%** Liquidity (locked 2 years)

90% community-owned. Team: 5% (industry avg: 20–30%).

Revenue Model

Fee	Rate
Management	2% annually on TVL
Performance	20% of outperformance vs HODL

Fee split: 70% to CHAOS stakers, 30% to treasury.

Year	TVL	Revenue	Staker APY
1	\$10M	\$230K	3.5%
2	\$50M	\$1.15M	16.1%
3	\$100M	\$2.3M	32.2%

Break-even: ~\$25M TVL (Year 2).

Technical Architecture

Cardano / EUTXO Security

Property	Cardano
Reentrancy	Impossible by design
Flash loans	Impossible (no flash loans)
Determinism	Guaranteed local validation
Language	Aiken (functional, auditable)

Cardano's EUTXO model eliminates entire exploit classes that have cost Ethereum DeFi billions.

Oracle Design

- 4 independent sources (Charli3, Orcfax, Minswap TWAP, CoinGecko)
- Consensus: 2+ sources within 5%
- Anomaly rejection: >20% moves blocked
- Attack cost: >\$500K vs <\$1K max gain

The oracle design makes manipulation economically irrational by a factor of 500:1.

Risk Assessment



Top Risks

- Regulatory action** (40% weight) — mitigated by off-shore entity, progressive decentralization
- Bull underperformance** (35%) — by design; disclosed upfront
- Smart contract bugs** (15%) — mitigated by multiple audits, formal verification, TVL caps
- Oracle failure** (10%) — mitigated by 4-source consensus, circuit breakers

Risk Mitigations

- Circuit breakers: auto-pause on >20% oracle deviation
- TVL caps: phased rollout (\$1M → \$10M → uncapped)
- Insurance: 5% of treasury reserved for exploit coverage
- Governance: parameter changes require 7-day timelock
- Audits: 2 independent firms pre-launch

Roadmap & Budget

Phase 1: MVP	Phase 2: Launch	Phase 3: Scale
M0	M3	M6
Testnet deployment	Mainnet launch	LBP token launch
Security audit	ISPO begins	ML signal layer
100+ beta testers	\$5–10M TVL target	Mobile app, full DAO
Budget: \$330K	Budget: \$490K	Budget: \$1.1M

Total budget: \$1.92M. **Minimum viable:** \$330K (Phase 1 only). All budgets denominated in stablecoins to eliminate runway risk.

Investment Thesis

- Math works:** 12 formally verified theorems, stress-tested against 8 crisis scenarios, 5-asset validation
- Market timing:** Crypto volatility is structurally high — strategy edge *increases* with volatility
- Underserved market:** No formally verified antifragile fund exists in DeFi
- Cardano advantage:** EUTXO + low fees + 20% LP yield = 9.3% edge vs 0.2% on Bitcoin L1
- Conservative tokenomics:** 90% community-owned, 5% team, fixed supply
- Clear revenue model:** 2/20 fee structure, break-even at \$25M TVL

Get In Touch

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