# PALLAS

FUND

## Investment Thesis

Basis Trading & Funding Rate Harvesting

Cross-Venue Delta-Neutral Spread Capture

Hyperliquid Core × HIP-3 Builders

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June 2026

# 1. Executive Summary

| Parameter | Detail |
|---|---|
| Strategy | Pallas : Cross-venue delta-neutral spread capture |
| Platform | Hyperliquid L1 (HyperCore + HIP-3 Builders) |
| Type | Hybrid algorithmic / discretionary |
| Mechanism | Spot/Perp basis + Perp Core/Perp HIP-3 + Funding harvesting |
| Venues | 5 (Main DEX + 4 HIP-3 builders, multi-collateral) |
| Track Record | 90 days (Dec 11, 2025 to Mar 10, 2026) |
| Annualized Return | 20.7% |
| Sharpe Ratio (ann.) | 4.57 |
| Sortino Ratio (ann.) | 5.99 |
| Calmar Ratio | 25.26 |
| Max Drawdown | -0.82% |
| Average Daily Return | +0.057% |
| Profit Factor | 3.86x |
| Asset Universe | 10 assets / 21 pairs (crypto + tokenized commodities) |
| Approach | Rotation toward highest-volatility assets across venues |

Pallas captures pricing and funding rate differentials between Hyperliquid's native perpetual markets (Core) and builder-deployed perpetual markets via HIP-3. The strategy maintains near-zero directional exposure by simultaneously holding opposing positions on the same underlying asset across different venues. Returns are generated from three sources: cross-venue spread capture (70% of realized PnL), funding rate differentials (19%), and yield on USDE collateral (11%).

The approach is hybrid: an algorithmic system continuously monitors spreads and funding across all venues and executes trades, while asset selection, position sizing, and rotation decisions remain discretionary.

# 2. Why the Opportunity Exists

## 2.1 The Grossman-Stiglitz Paradox

In 1980, Grossman and Stiglitz demonstrated in the American Economic Review that a perfectly efficient market is a logical impossibility. If prices already reflected all available information, no one would have an incentive to spend resources acquiring it. But without informed agents, prices cannot reflect information. The efficient market self-destructs.

> *"There is an equilibrium degree of disequilibrium: prices reflect the information of informed individuals but only partially, so that those who expend resources to obtain information do receive compensation."* — Grossman & Stiglitz, 1980

The direct consequence: there always exists, in equilibrium, a level of inefficiency that compensates those who deploy capital, infrastructure, and risk to exploit it. This is precisely what Pallas does. The funding and spread differentials between Core and HIP-3 are not anomalies that will be arbitraged to zero. They persist because their exploitation requires technical infrastructure, capital fragmented across multiple venues, and smart contract risk. As long as these costs exist, the return exists.

## 2.2 Adaptive Markets and the HIP-3 Innovation

Andrew Lo (2004) completes this framework with the Adaptive Markets Hypothesis: arbitrage opportunities are not static; they emerge when the environment changes. The introduction of HIP-3 on Hyperliquid in October 2025 is exactly this type of change: independent builders deploy their own perpetual markets, each with its own funding parameters, oracles, and liquidity base. This fragmentation creates new inefficiency niches.

In practice, we observe today on the same asset (e.g. SILVER or HYPE) funding rates that diverge between Core and HIP-3 builders, sometimes in opposite directions. This is not a temporary anomaly: it is a mechanical consequence of liquidity pool fragmentation.

## 2.3 Limits to Arbitrage

Shleifer & Vishny (1997) explain why even known inefficiencies persist: capital is limited, horizons are finite, and counterparty risks create frictions. On Hyperliquid, these frictions are concrete: collateral immobilized across 5 venues in 3 different stablecoins (USDC, USDE, USDH), smart contract risk of HIP-3 builders, complexity of multi-venue execution, and the need for 24/7 monitoring.

These frictions are precisely Pallas's moat. Only participants capable of trading at low cost (optimized infrastructure, builder relationships, volume-based fee tiers) can extract this return, forming a natural barrier against crowding.

## 2.4 Structural Edge vs. Informational Edge

Pallas does not bet on market direction. Its edge is structural, not informational. This distinction is key for alpha durability:

| Informational Edge (NOT Pallas) | Structural Edge (Pallas) |
|---|---|
| Bets on price direction | Price-neutral (delta-neutral) |
| Degrades as the market learns | Persists as long as the structure exists |
| Pure discretionary alpha | Hybrid: system + discretion on selection |
| Crowding destroys the edge quickly | Crowding erodes the edge gradually (fee-bounded) |

# 3. Structural Inefficiencies in Funding Mechanisms

## 3.1 How Funding Creates the Inefficiency

The funding rate anchors a perpetual contract to its spot price through periodic payments between longs and shorts. On Hyperliquid:

**F = Avg Premium Index (P) + clamp(Interest Rate - P, -0.0005, +0.0005)**

The premium is sampled every 5 seconds, averaged over one hour, and payment occurs hourly at 1/8 of the 8h rate. The cap is ±4%/hour, far more aggressive than Binance (±0.75%/8h). The critical point is that each venue calculates differently:

| Parameter | Hyperliquid Core | HIP-3 Builder | CEX (ref.) |
|---|---|---|---|
| Funding period | 1h (1/8 of 8h rate) | Deployer-defined | 8h |
| Premium sampling | Every 5 sec. | Variable | Every 1 sec. |
| Funding cap | ±4% / hour | Variable by deployer | ±0.75% / 8h |
| Oracle source | CEX+DEX aggregate | Deployer-defined oracle | Multi-exchange index |
| Payment timing | End of each hour | Variable | 3x/day fixed |

Each system computes a different "fair price" for the same asset, at different times, using different methodologies. This is not a bug; it is an inevitable consequence of fragmentation. And it is measurable: over the 90-day period, Pallas collected net positive funding on two builder venues while paying funding on Core and two other venues. The differential is systematic, not random.

## 3.2 Mark Price, Oracle Price, Index Price: Three Truths for One Asset

Three prices coexist on each venue, and their divergences sit at the heart of the strategy:

| Price | Definition | Used for | Source of divergence |
|---|---|---|---|
| Mark Price | Theoretical contract price | PnL, liquidations, margin | Differs from last trade in thin books |
| Oracle Price | External price of the underlying | Funding rate calculation | Latency, different sources per deployer |
| Index Price | Weighted avg spot multi-exchange | Premium reference | Different weights and exchange sets |

| | | | |
|---|---|---|---|
| Last Trade | Last executed price on the book | Trade execution | Depends on local order book depth |

The mark/oracle divergence is a specific risk: unrealized PnL follows the mark, but funding is computed on the oracle. If the two deviate, the funding paid/received no longer corresponds to the position's PnL. And the health factor (margin) depends on the mark price, so a divergence can trigger liquidation even when the position is fundamentally sound relative to the oracle. On HIP-3 builders, where each deployer defines their own mark and oracle methodologies, this divergence can be more frequent and more pronounced.

## 3.3 The Funding-Spread Feedback Loop: Imperfect Convergence

Funding should drive the basis to zero. In practice, it never fully does:

- Funding is discrete (hourly) while the basis moves continuously. Between payments, the spread can drift freely without being "penalized" by funding.
- Funding is capped (±4%/h). In high volatility, the corrective mechanism saturates and the spread persists.
- HIP-3 liquidity pools are separate. Funding reflects local supply/demand for each builder, not the global market. Two SILVER perps can have opposite funding rates.
- The clamp on the interest rate component creates a "dead zone" where small premium differences do not translate into funding differences, establishing a floor of inefficiency.
- Funding payment is based on oracle price × position size, not mark price. If oracle ≠/ mark, funding does not exactly offset the position's PnL.

## 3.4 Funding as a Conviction Tax

Funding is not an arbitrage mechanism; it is a tax on directional conviction. Traders who want to stay long (or short) pay a recurring cost to maintain their exposure. This cost is structural: it only disappears when sentiment is perfectly neutral, which almost never happens. CoinGecko's 2025 report shows that aggregate BTC funding was negative only 26 out of 365 days in 2024. The long bias is structural in a tendentially bullish crypto market. Pallas positions itself on the remunerated side of this bias.

## 3.5 Exploitable Temporal Discontinuities

| Window | Phenomenon | What Pallas does |
|---|---|---|
| Pre-funding timestamp | Positional gaming: traders adjust around payment | Anticipatory positioning on the remunerated side |
| Offset Core vs HIP-3 timestamps | Funding hits at different times across venues | Temporal arbitrage: capture on one venue, hedge on another |
| Weekends / low activity | Wider spreads, more volatile funding | Inefficiencies amplify when arbitrage capital sleeps |
| Post-liquidation cascade | Funding flips sharply after a leverage flush | Capture inverted funding + rapid convergence |
| New HIP-3 asset launches | Bootstrapped liquidity, unstable funding | Wide spreads during price discovery phase |

# 4. Pallas Strategy Architecture

## 4.1 PnL Decomposition

| Source | Mechanism | Share of Realized PnL |
|---|---|---|
| Spread capture (net of fees) | Cross-venue price differential capture | 70.5% |
| Funding rate differential | Net positive funding collected cross-venue | 18.8% |
| Collateral yield (USDE) | Yield on USDE collateral posted on builder venues | 10.7% |

## 4.2 Hybrid Approach: Algo + Discretion

| Component | Automated (algo) | Discretionary |
|---|---|---|
| Spread & funding monitoring | 24/7 surveillance across 21 pairs | |
| Trade execution | Simultaneous multi-venue execution | |
| Asset selection | | Rotation toward highest-volatility assets |
| Position sizing | | Adjustment based on market regime |
| New pair onboarding | | Qualitative assessment of builder liquidity |
| Risk management | Alerts and automatic cuts | Override when necessary |

The discretionary component is essential for adaptation. When tokenized commodities (SILVER, GOLD) displayed elevated volatility and wide spreads, Pallas concentrated exposure there. When OIL became available as a tokenized asset on HIP-3, it was rapidly integrated and generated the highest daily return of any asset in the portfolio. This is the Adaptive Markets Hypothesis in action: the environment changed, and the strategy adapted.

## 4.3 Asset Universe and Rotation

| Asset | Volume Share | PnL Contribution | Days Active | Median Hold (min) |
|---|---|---|---|---|
| SILVER | 31.6% | 59.1% | 63 | 131 |
| OIL | 14.8% | 24.8% | 7 | 88 |
| GOLD | 16.5% | 7.6% | 55 | 435 |
| SOL | 5.5% | 6.9% | 52 | 101 |
| HYPE | 11.3% | 6.5% | 79 | 51 |
| ETH | 6.1% | 2.7% | 47 | 83 |
| BTC | 9.2% | 2.0% | 60 | 75 |
| LIGHTER | 1.5% | 0.9% | 41 | 90 |
| PLATINUM | 0.2% | ~0% | 4 | 402 |
| COPPER | 3.3% | -10.5% | 10 | 4,021 |

SILVER dominates at 31.6% of volume and 59% of net PnL. OIL, despite only 7 active days, generated the second-highest PnL contribution (24.8%), validating the discretionary rotation toward highly volatile tokenized assets. COPPER was the only significant loss (-10.5% of net PnL), driven by an unfavorable spread and negative funding during a 10-day period with a median hold time of over 67 hours, indicating a position that took too long to converge.

The inter-asset correlation matrix confirms natural diversification: crypto assets (BTC/ETH/SOL) are correlated at 0.65 to 0.83, while commodities (SILVER/GOLD) are correlated at 0.66 but anti-correlated with crypto at -0.10 to -0.15, providing portfolio-level diversification of spread risk.

# 5. Performance

## 5.1 Key Metrics

| Metric | Value |
|---|---|
| Period | 90 days (Dec 11, 2025 to Mar 10, 2026) |
| Cumulative Return | +5.84% |
| Annualized Return | 20.7% |
| Average Daily Return | +0.057% |
| Sharpe Ratio (annualized) | 4.57 |
| Sortino Ratio (annualized) | 5.99 |
| Calmar Ratio | 25.26 |
| Max Drawdown | -0.82% (March 5, 2026) |
| Avg Drawdown Recovery | 2.4 days (10 DD periods) |
| Profit Factor | 3.86x |
| Longest Consecutive Loss | 4 days |
| Daily Turnover | 1.34x AUM |

## 5.2 Monthly Decomposition

| Month | Days | Spread (% of mo.) | Funding (% of mo.) | Annualized Return |
|---|---|---|---|---|
| Dec 2025 | 20 | 5% | 95% | 13.7% |
| Jan 2026 | 31 | 72% | 28% | 23.9% |
| Feb 2026 | 22 | 54% | 46% | 21.9% |
| Mar 2026 (partial) | 7 | 95% | 5% | Variable |

The strategy's PnL composition shifted significantly over time. In December, funding represented 95% of returns as the system was primarily harvesting funding differentials. By January and onward, spread capture became dominant (72% in Jan, 95% in early March),

reflecting improved execution and the addition of highly volatile tokenized assets with wider spreads.

## 5.3 Market Regime Sensitivity

| Regime | Avg Daily Return | Relative Performance |
|---|---|---|
| Low Volatility | +0.016% | Baseline: strategy remains profitable in range-bound markets |
| High Volatility | +0.105% | 6.4x higher return: volatility amplifies spreads and funding |

This is a key result: Pallas does not depend on a specific regime to be profitable, but volatility acts as a powerful multiplier. Since the perpetuals market is structurally volatile, the base return is amplified the majority of the time.

## 5.4 PnL Attribution

| Source | Share of Realized PnL |
|---|---|
| Spread capture (net of fees) | 70.5% |
| Funding rate differential (net) | 18.8% |
| USDE collateral yield | 10.7% |

Unrealized PnL at the end of the period is negligible (near zero), indicating that virtually all profit has been crystallized. This is consistent with a strategy that actively closes positions upon convergence rather than carrying open basis indefinitely.

# 6. Risks

## 6.1 Fee Structure and Scalability

Trading fees are the single largest cost component of the strategy. At the current average of 4.42 bps (100% taker), fees represent a significant share of gross PnL. However, the fee structure on Hyperliquid is inherently degressive: higher traded volume and HYPE token staking both reduce the effective fee rate. This creates a positive feedback loop where scaling the strategy reduces its cost base and directly increases net returns.

### Fee Reduction Levers

Hyperliquid operates a tiered fee schedule where traders are rewarded for cumulative trading volume (which unlocks lower taker/maker rates) and HYPE staking (which provides additional fee discounts). As Pallas scales its AUM and volume, or increases its HYPE stake, the average fee decreases mechanically:

| Fee Reduction | Effective Fee | Net PnL Uplift | Annualized Return | Estimated Sharpe |
|---|---|---|---|---|
| Current (baseline) | 4.42 bps | Baseline | 20.7% | 4.57 |
| -10% | 3.98 bps | +9.1% | ~22.6% | ~5.0 |
| -20% | 3.54 bps | +18.3% | ~24.5% | ~5.5 |
| -30% | 3.09 bps | +27.4% | ~26.4% | ~6.0 |

Every basis point saved on fees flows directly to the bottom line, because the gross PnL (spread captured + funding) is independent of the fee level. A 30% fee reduction, achievable through a combination of volume tier upgrades and meaningful HYPE staking, would lift the annualized return to approximately 26.4% and the Sharpe ratio to approximately 6.0.

This dynamic means the strategy has a natural scaling advantage: as AUM grows and volume increases, the cost base shrinks, partially offsetting any spread compression from increased size. The decision to stake HYPE is not just a governance or yield decision; it is a direct lever on trading profitability.

### Fee Composition by Venue

| Venue | Share of Total Fees | Collateral |
|---|---|---|
| hyna (HIP-3) | 31.9% | USDE |
| flx (HIP-3) | 29.0% | USDH |
| xyz (HIP-3) | 21.7% | USDC |
| Main (Core) | 17.1% | USDC |
| km (HIP-3) | 0.3% | USDC |

The majority of fees are incurred on HIP-3 builder venues (83% of total), which currently offer less favorable fee tiers than Core. Negotiating builder-specific fee arrangements or obtaining maker status on these venues represents another significant optimization lever independent of Hyperliquid's native fee tiers.

## 6.2 Spread Divergence Risk

The central risk in basis trading is not directional: it is the spread between the two legs widening instead of converging. Over the 90-day period, the max drawdown of -0.82% occurred on March 5, 2026, with an average recovery of 2.4 days across 10 drawdown periods.

| Scenario | Cause | Impact | Mitigation |
|---|---|---|---|
| Flash crash / squeeze | Cascading liquidations | Mark price diverges between venues | Conservative sizing, excess margin |
| Oracle divergence | HIP-3 oracle out of sync with Core | Funding computed on different bases | Continuous oracle monitoring |
| Funding flip | Abrupt sentiment reversal | Remunerated side becomes payer | Rapid exit, no carry without hedge |
| HIP-3 liquidity drained | Builder withdraws liquidity | Cannot unwind the leg | Position sizing relative to book depth |
| Funding cap saturation | Extreme vol, cap hit at ±4%/h | Basis persists without compensation | Integrated into the model |
| Stablecoin depeg | USDE or USDH deviates from peg | Collateral value at risk | Multi-collateral diversification |

## 6.3 Risk Matrix

| Category | Risk | Severity | Mitigation |
|---|---|---|---|
| Spread | Prolonged divergence (>24h) | High | Stop-loss on spread, excess margin |
| Funding | Systematic flip across all assets | Moderate | Rapid exit, no carry without hedge |
| Liquidity | Exit slippage on HIP-3 venue | High | Sizing vs book depth |
| Liquidation | Margin call on one leg | Critical | Health factor >2x, excess collateral |
| Oracle | Material mark/oracle deviation | High | Monitoring, circuit breaker |
| Smart Contract | Exploit on vault / HIP-3 builder | Critical | Multi-venue diversification, audits |
| Stablecoin | USDE or USDH depeg | Critical | Monitoring, exit plan |
| Operational | Bot downtime, parameter error | High | Redundancy, alerts, dry-run testing |
| Crowding | Alpha decay as spreads compress | Moderate | Monitoring average spreads over time |
| Regulatory | Restricted access to Hyperliquid | Moderate | Jurisdiction, contingency |

# 7. Market Context

## 7.1 Hyperliquid Key Metrics (April 2026)

| Metric | Value | Source |
|---|---|---|
| Open Interest | ~$7.6-7.9B | DefiLlama / CoinGecko |
| 24h Futures Volume | ~$7B | CoinGecko |
| Peak 24h Volume (2025) | $32B | Hyperliquid |
| L1 TVL | ~$1.6-6B | DefiLlama |
| Users | ~1.4M | Hyperliquid |
| Annualized Revenue | ~$665-820M | DefiLlama / Artemis |
| Perp DEX Market Share (OI) | >70% | Artemis |
| Futures Pairs | 323+ | CoinGecko |
| HIP-3 OI (ATH Mar 2026) | >$1.43B | CoinGecko Research |
| HIP-3 Volume Share | >35% of total | CoinGecko Research |
| Funding Rate Cap | ±4% / hour | Hyperliquid Docs |

## 8. Vault Structure & Fees

| Parameter | Detail |
|---|---|
| Name | [ **Basis Trading HIP-3** ] |
| Standard | [ERC-7540] |
| Deposit Asset | USDT0 |
| Deposit / Withdrawal | [Free] |
| Management Fee | [1.5% / year] |
| Performance Fee | [15%/ year] |
| Entry / Exit Fee | [Free] |
| Key Management | [Multisig] |

## 9. Conclusion

Over 90 days of live trading, Pallas demonstrates that it is possible to extract a 20.7% annualized return with a 4.57 Sharpe ratio and a maximum drawdown of -0.82% by exploiting structural inefficiencies between Hyperliquid's perpetual markets.

The edge is not informational. It does not rely on price prediction. It is structural: differences in funding calculation methodology between Core and HIP-3 builders (oracles, sampling frequencies, caps, timestamps), fragmentation of liquidity pools, and the structural long bias in crypto markets create mechanical divergences that can be systematically captured.

The Grossman-Stiglitz paradox explains why this alpha is durable: inefficiencies persist because their exploitation requires capital fragmented across 5 venues in 3 different collateral types, 24/7 trading infrastructure, and assumption of specific risks (smart contract, stablecoin depeg, HIP-3 liquidity). As long as these costs exist, the return exists.

Crucially, the strategy has a built-in scaling advantage: as volume grows and HYPE staking increases, fee tiers improve and directly lift net returns. A 30% fee reduction from current levels would push the annualized return from 20.7% to approximately 26.4% and the Sharpe from 4.57 to approximately 6.0, without any change in gross alpha. This creates a virtuous cycle where scaling improves profitability rather than degrading it, at least up to the point where position sizes begin to impact market liquidity.

> *"The market cannot be perfectly efficient, because no one would then have an incentive to make it efficient. Pallas's return is the premium of that equilibrium."* —
> Adapted from Grossman & Stiglitz

| Summary | Detail |
|---|---|
| Strategy | Pallas: Cross-venue delta-neutral spread capture |
| Annualized Return | 20.7% (current) to ~26.4% (optimized fees) |
| Sharpe Ratio | 4.57 (current) to ~6.0 (optimized) |
| Max Drawdown | -0.82% |
| Track Record | 90 days live |
| Alpha Source | Structural (funding + spread differential cross-venue) |
| Scaling Advantage | Fee degression via volume tiers + HYPE staking |

**References:** Grossman & Stiglitz (1980), AER. Lo (2004), JPM. Shleifer & Vishny (1997), JoF. BIS WP 1087 (2024). CF Benchmarks (2025). Hyperliquid Docs (2026). CoinGecko Annual Report (2025).