Strake: Perpetual Futures on Crypto Market Structure Indices

@anapneo

March 10, 2026

Abstract

This paper proposes the deployment of perpetual futures contracts on crypto market structure indices via Hyperliquid's HIP-3 framework, powered by SEDA's programmable oracle network. We identify a structural gap in the derivatives market: while traders routinely analyze metrics such as Bitcoin Dominance (BTC.D), altcoin market capitalization (TOTAL3, OTHERS), stablecoin flows (STBL.D, STABLE.C), momentum oscillators (BTC.RSI), and even memecoin aggregates (MEME.C), no native on-chain instrument allows direct exposure to these signals. We design seven index perpetuals and detail the technical integration of SEDA Oracle Programs with HIP-3's SetOracle API. The architecture leverages SEDA Fast's sub-50ms delivery, Pyth and Blocksize price feeds via the SEDA Data Proxy, and HIP-3's permissionless builder model to deliver authenticated, real-time index prices to Hyperliquid's order book. Perps.fun serves as the launchpad, removing the 500k HYPE staking barrier and providing oracle infrastructure support through its SEDA partnership. This paper is submitted as a candidature to Perps.fun.

Table of Contents

1 Introduction

The perpetual futures market on decentralized exchanges has grown from under $1B in daily volume in 2021 to over $15B by early 2026, with Hyperliquid alone capturing roughly $8B in peak daily volume. This explosive growth has been concentrated almost entirely on single-asset contracts: BTC-PERP, ETH-PERP, and a long tail of altcoin perpetuals. Meanwhile, every serious crypto trader monitors a set of structural metrics that no existing instrument allows them to trade directly.

Bitcoin Dominance (BTC.D), the altcoin market excluding BTC and ETH (OTHERS), total altcoin capitalization (TOTAL3), and stablecoin dominance (STBL.D) are reference points in virtually every macro thesis. Yet the only way to express a view on these metrics is through multi-leg basket

trades that are capital-inefficient, difficult to manage, and inaccessible to most participants. In traditional finance, this gap was closed decades ago: the S&P 500, VIX, and sector ETFs transformed how institutions manage risk. Crypto has no equivalent.

Hyperliquid's HIP-3 proposal changes the equation. By enabling permissionless deployment of builder-operated perpetual markets with custom oracle feeds, HIP-3 opens the door to synthetic index products that were previously impossible on-chain. Combined with SEDA's programmable oracle network and the Perps.fun launchpad (which removes the 500k HYPE staking barrier), the infrastructure is now in place to bring index perpetuals to market. This paper is submitted as a proposal to Perps.fun for the deployment of index perpetual futures via its launchpad.

In this paper, we propose a technical and strategic framework: what indices to build, how SEDA Oracle Programs compute and deliver index prices via SEDA Fast, how HIP-3's SetOracle API consumes those prices, and what the deployment path looks like. The goal is to demonstrate both the market opportunity and the technical readiness of the stack.

2 Market Context

2.1 The Perp DEX Explosion

Perp DEX volume has compounded at roughly 3x per year since 2022. Hyperliquid went from zero to the dominant perp DEX in under 18 months. Sub-second finality, a fully on-chain order book, no gas fees, hundreds of listed assets with real depth. HIP-3 went live on mainnet in October 2025 and opened the door to permissionless listings: anyone can deploy a perp market as long as they can feed it a reliable oracle price.

2.2 The Index Gap

Despite the sophistication of crypto derivatives markets, index products remain conspicuously absent. Polymarket and prediction markets offer binary outcomes on macro events, but no instrument provides continuous exposure to market structure metrics.

The demand signal is unambiguous. Analysis of crypto Twitter, trading communities, and on-chain behavior reveals that BTC.D, TOTAL3, and OTHERS are among the most-discussed metrics in macro trading discourse. Traders construct multi-leg positions to approximate index exposure, but the friction is substantial: multiple margin accounts, correlation risk across legs, rebalancing overhead, and no direct liquidation price tied to the index.

2.3 TradFi Precedent

The trajectory is well-established. In traditional markets, index derivatives dwarf single-stock volumes. S&P 500 futures alone average over $200B in notional daily volume. The VIX complex commands tens of billions. Sector ETFs and their options chains provide granular exposure to market sub-segments. Crypto is retracing this path with a 10-15 year delay, and the infrastructure to accelerate it is now live.

3 Proposed Indices

We propose seven indices across two categories, ordered by data availability, calculation complexity, and expected demand.

3.1 Market Structure Indices

Market structure indices capture macro regime signals: dominance ratios, capital flows, and momentum oscillators. They are derived from real-time crypto price data available through SEDA's premium Data Proxy providers (Pyth, Blocksize). Market capitalization is computed on-the-fly from spot prices and circulating supply data. They require simple arithmetic operations and achieve 3-second update frequencies. Future additions in this category include ETH.RSI, HL Perp Share, and Funding Rate indices.

Table 1: Market structure indices.

Index	Ticker	Methodology	Update	Rationale
Bitcoin Dominance	BTCD	BTC MCap / Total MCap	3s	Most-watched macro metric; rotation signal
Stablecoin Dominance	STBLD	Stable MCap / Total MCap	3s	Risk-on/risk-off gauge
Stablecoin Total Cap	STBLC	Sum of top stablecoin MCaps	3s	Institutional flow proxy; Clarity Act upside
BTC RSI	BRSI	14-period RSI on BTC/USD (1-min candles)	3s	Momentum oscillator; mean-reversion vehicle

3.2 Sectoral Indices

Sectoral indices provide direct exposure to crypto market segments: altcoin baskets, long-tail assets, and thematic verticals. They use real-time Pyth/Blocksize price data and achieve the same 3-second update frequency. Future additions in this category include AI, RWA, DePIN, and DeFi sector indices.

Table 2: Sectoral indices.

Index	Ticker	Methodology	Update	Rationale
Altcoin Cap (ex-BTC/ETH)	TOT3	Total MCap - BTC - ETH	3s	Direct altseason exposure
Others Index	OTHRS	Total MCap - Top 10 MCap	3s	Long-tail alt exposure; high beta
Memecoin Composite	MEMEC	MCap-weighted top-20 memecoins	3s	Retail sentiment proxy; high volatility

3.3 Index Calculation Methodology

Each index falls into one of three methodological categories:

Ratio indices (BTCD, STBLD) divide one market cap aggregate by another. The Oracle Program fetches real-time prices for each constituent via Pyth's Data Proxy, multiplies by circulating supply (cached and updated daily), and computes the ratio. The result is expressed as a percentage scaled to a tradeable price (e.g., BTC.D of 58.3% maps to 58.30).

Aggregate indices (TOT3, OTHRS, STBLC, MEMEC) sum constituent market caps. The Oracle Program fetches real-time prices for all constituents via Pyth, applies inclusion/exclusion criteria, multiplies each by supply, sums the result, and normalizes to a base price (e.g., TOTAL3 of $850B maps to 850.0). Constituent rebalancing occurs daily at 00:00 UTC.

Oscillator indices (BRSI) compute technical indicators from real-time price data. The Oracle Program fetches BTC/USD from Pyth, maintains a rolling window of 1-minute candle closes, computes the 14-period RSI using standard Wilder smoothing (same method as TradingView), and delivers the result as a price (RSI of 65.4 = 65.40). Pyth's sub-second updates allow the RSI to recalculate every 3 seconds, making it continuously tradeable.

4 Demand Analysis

4.1 Twitter/X Mindshare Study

To quantify real demand for each proposed index, we scraped Twitter/X for public discourse from February-March 2026. For each of the 7 proposed indices and 5 potential new ones, we ran multiple query variations across both "Top" and "Latest" rankings, deduplicating by tweet ID. The study captured ~1,100 unique tweets and measured total engagement (likes + retweets + quote tweets) as a proxy for trader mindshare.

Table 3: Twitter/X mindshare by index (ranked by total engagement).

Index	Unique Tweets	Total Likes	Total RT + QT	Total Engagement	Avg Eng/ Tweet
BTC.D	111	11,945	1,725	**13,670**	123.2
STBL.D	117	9,804	1,581	11,385	97.3
BTC.RSI	114	7,534	1,197	8,731	76.6
TOTAL3	113	6,383	1,096	7,479	66.2
STABLE.C	113	6,005	1,089	7,094	62.8
OTHERS	113	5,218	842	6,060	53.6
MEME.C	106	2,659	582	3,241	30.6

Source: Twitter/X scrape, February-March 2026. 3 query variations per index, Top + Latest ranking. Engagement = likes + retweets + quote tweets.

BTC.D leads by a wide margin with 13.7K total engagement and the highest average engagement per tweet (123.2). This confirms what every crypto trader knows intuitively: bitcoin dominance is the single most watched macro indicator in the space. Accounts like **@VirtualBacon** (233K followers), **@MerlijnTrader** (421K followers, 6 tweets in sample), and **@AshCrypto** (2.1M followers) drive consistently high-engagement BTC.D content.

STBL.D ranks second (11.5K engagement), which may surprise. Stablecoin dominance has become a leading indicator for risk-on/risk-off transitions, tracked by macro-focused accounts like **@intocryptoverse** (Benjamin Cowen, 1.17M followers), **@TedPillows** (279K followers), and **@CryptoRover** (1.55M followers). This strong showing validates the counter-cyclical hedging thesis for STBL.D.

BTC.RSI (8.8K) and TOTAL3 (7.5K) cluster in the mid-tier. RSI content is driven by momentum call-out accounts posting overbought/oversold signals, while TOTAL3 attracts chartists mapping altcoin cycle structure. STABLE.C (7.2K) and OTHERS (6.1K) follow closely, both with solid engagement per tweet suggesting dedicated audiences rather than viral one-offs.

MEME.C trails at 3.3K engagement, but this understates demand: memecoin discussion is fragmented across individual tickers ($DOGE, $PENGUIN, $TRUMP) rather than the aggregate category. The composite index concept itself is newer than the others.

4.2 Potential New Indices

We also surveyed 5 additional index concepts to identify future pipeline candidates:

Table 3b: Twitter/X mindshare for potential new indices.

Index	Tweets	Engagement	Avg Eng	Top Account	Note
AI Index	76	4,024	52.9	@APompliano (1.9M)	Growing narrative, AI x crypto overlap
RWA Index	70	3,960	56.6	@BSCNews (1.3M)	Institutional interest, tokenization wave
DeFi Index	59	3,554	60.2	@arbitrum (1.2M)	Existing products (Cryptex DEFI.ssi)
ETH.D	77	2,983	38.7	@seth_fin (92K)	Correlated with BTC.D inverse

Note: L1 Index search returned 63.7K engagement, but was dominated by a single viral @SoSoValueCrypto tweet (34K likes, 794K views) about Hyperliquid's addition to their SSI index. Excluding this outlier, L1 engagement normalizes to ~3.9K, in line with other new indices.

AI and RWA indices show comparable engagement to MEME.C and represent strong candidates for future expansion. The DeFi index benefits from an existing product precedent (Cryptex Finance's DEFI.ssi on Arbitrum) which validates demand. ETH.D, while conceptually sound, is largely redundant with BTC.D (near-inverse correlation) and shows the weakest standalone engagement.

4.3 Key Influencers

Cross-index analysis reveals a core group of accounts that repeatedly surface across multiple index discussions, representing the natural distribution channel for Strake awareness:

Table 3c: Top influencers by cross-index engagement.

Account	Followers	Indices Covered	Total Engagement
@AshCrypto	2,149,809	BTC.D, STBL.D, BTC.RSI	4,709
@MerlijnTrader	421,208	BTC.D, TOTAL3, ETH.D	5,355
@VirtualBacon	233,031	BTC.D	2,820
@intocryptoverse	1,170,365	STBL.D	1,309
@CoinBureau	1,096,440	STABLE.C	1,630
@TedPillows	279,379	STBL.D, BTC.RSI	2,580
@AltcoinDaily	2,067,474	OTHERS	620
@CryptoMichNL	820,439	OTHERS	552
@LarkDavis	1,469,647	OTHERS, BTC.RSI	992
@CryptoRover	1,554,014	STBL.D	934

Source: Twitter/X profile data, March 2026. All accounts verified (Twitter Blue).

The combined reach of the top 10 influencers exceeds 11.2M followers. These are not niche accounts; they are the primary distribution layer for crypto market structure analysis. When Strake launches, the content pipeline is already built: these accounts are already publishing the charts, the analyses, and the trade setups. The only missing piece is the instrument itself.

4.4 The Endgame: Crypto Thematic ETFs

The new indices identified through this analysis point to something bigger than seven perpetual contracts. What we are building is infrastructure for thematic crypto ETFs delivered as perpetual futures. AI, RWA, DeFi, L1, gaming, privacy, infrastructure: every narrative cycle in crypto creates demand for sector-level exposure that currently does not exist on-chain. The SEDA Oracle Program architecture is designed to be modular: once the first index pipeline is live and validated, spinning up a new thematic index is an Oracle Program deployment, not a new product. The combination of SEDA's programmable data layer, HIP-3's permissionless market creation, and Perps.fun's launchpad means we can respond to emerging narratives in days, not months. If DePIN or AI agents become the next cycle's dominant theme, the index perp can be live before the hype peaks. This is the long-term vision: a complete suite of tradeable crypto sector indices on Hyperliquid, analogous to what SPDR sector ETFs are for equities.

4.5 Volume Forecast and Revenue Projection

To ground our projections in reality, we analyzed the current HIP-3 market landscape on Hyperliquid. As of March 2026, HIP-3 builder-deployed markets span commodities (crude oil, gold, silver, natural gas), equities (NVDA, TSLA, HOOD, MSTR, COIN), forex (EUR, USDJPY), and crypto assets

(BTC-USDE, XMR, ADA). Daily volumes vary enormously: CL-USDC (crude oil) leads at $1.18B, followed by XYZ100-USDC at $400M and SILVER-USDC at $257M. The median HIP-3 market does $15-25M in daily volume. Lower-tier markets (GLDMINE, PALLADIUM, SEMI) trade under $20K daily, illustrating the cold-start risk.

Two structural observations inform our forecast. First, the highest-volume HIP-3 markets are those that bring genuinely new exposure to Hyperliquid (commodities, equities) rather than duplicating existing native listings. Index perps fit squarely in this category: no one can trade BTC.D or TOTAL3 anywhere today. Second, open interest often exceeds daily volume for commodity and equity HIP-3 markets (GOLD: $178M OI on $78M vol), suggesting traders hold positions rather than day-trade. Index perps are likely to exhibit similar holding behavior given their use in macro positioning and hedging.

Table 4: Volume and revenue projections by scenario (daily, all 7 indices combined).

Scenario	**Daily Volume**	**Comparable HIP-3 Markets**	**Deployer Rev (~3.3bp avg)**	**Annual Rev**
Conservative	$20M	Median HIP-3 market tier	$6,600/day	~$2.4M
Base case	$80M	USA500, GOLD tier	$26,400/day	~$9.6M
Optimistic	$250M	SILVER tier	$82,500/day	~$30.1M

HIP-3 standard fees are 2x the usual Hyperliquid fees, with 50% accruing to the deployer. At Tier 0 this yields ~4.5bp (taker) and ~1.5bp (maker) for the deployer, or ~3.3bp weighted average assuming a 60/40 taker-maker split. We use ~3.3bp as a baseline; actual deployer revenue varies by trader volume tier (fees decrease at higher tiers). Note: growth mode is not available for crypto index perps per Hyperliquid's eligibility rules.

The base case assumes BTC.D captures ~$35M daily (below USA500-USDT at $81M, despite similar macro-trading appeal), TOTAL3 and OTHERS together capture ~$25M, and the remaining four indices contribute ~$20M. This is plausible: BTC.D mindshare data shows engagement comparable to the most-discussed commodity and equity tickers, and the structural novelty of these instruments creates natural attention at launch. The conservative scenario accounts for slow liquidity bootstrapping and the possibility that index perps attract more OI than volume (position-holding behavior). The optimistic scenario reflects what happens if index perps capture even a fraction of the multi-leg basket trading volume that currently flows through individual asset perps as proxy exposure.

4.6 Target Users and Use Cases

Macro traders. The primary audience. These traders already analyze BTC.D, TOTAL3, and OTHERS to time rotations between BTC, ETH, and alts. Index perps give them a direct instrument instead of multi-leg approximations. A trader who believes altseason is approaching can go long OTHERS or short BTC.D in a single position, with clear liquidation levels and funding dynamics.

Hedgers. Portfolio managers holding concentrated altcoin exposure can hedge with TOTAL3 or OTHERS shorts, isolating their alpha from broad market beta. Stablecoin treasuries can hedge depeg risk via STBL.D positions. This is structurally similar to how equity PMs use S&P 500 futures to hedge market exposure.

Basis traders. Index perps create new basis and funding rate arbitrage opportunities. The relationship between BTC.D, TOTAL3, and OTHERS creates cross-index basis trades that do not exist today. Sophisticated traders can arbitrage between the synthetic index and the constituent assets.

Momentum and volatility traders. BTC.RSI turns a widely-followed technical signal into a standalone instrument. Rather than constructing proxy positions on BTC spot to express a momentum view, traders can take direct exposure to the oscillator itself. MEME.C similarly unlocks sector-level memecoin speculation without picking individual tokens.

5 SEDA Oracle Integration

SEDA is a programmable oracle network where developers deploy custom data-fetching and computation logic as WASM binaries called Oracle Programs. For index perps, SEDA's programmability is the key enabler: each index requires bespoke calculation logic that static oracles cannot support. SEDA already powers over $5B in perpetual trading volume, including Dreamcash's 24/7 equity perps on Hyperliquid, which validates the architecture for our use case.

5.1 Why SEDA for Strake

Traditional oracles push pre-defined price feeds. Index perps require something fundamentally different: the oracle must fetch multiple constituent prices, perform arithmetic (ratios, sums, RSI calculations), and deliver a computed result. SEDA's Oracle Programs handle this natively: developers write custom Rust programs that compile to WASM and run on SEDA's infrastructure, with full control over data fetching, transformation, and output logic.

SEDA explicitly supports "Custom Indices and Asset Baskets" as a first-class use case. Their documentation describes building custom baskets combining spot prices from multiple CEXs, ETF prices, and futures data into a single programmable feed. Our index perps are a direct application of this pattern.

5.2 Data Sources via SEDA Data Proxy

The Data Proxy is SEDA's middleware layer connecting premium data providers to Oracle Programs. Providers cryptographically sign all responses, ensuring tamper-proof delivery to the on-chain computation layer.

Our primary data sources, all live on SEDA mainnet:

Table 5: SEDA Data Proxy providers for index calculation.

Provider	Role	Endpoint	Data
Pyth	Primary prices	pyth.proxy.seda.xyz	500+ crypto pairs; sub-second updates
Blocksize	Secondary / VWAP	seda-proxy.blocksize.capital	VWAP + BidAsk for crypto; real-time
Nobi Labs	Tertiary / validation	seda.labs.usenobi.com	Crypto, indices (GMCI30), NAV

For a BTC.D calculation, the Oracle Program fetches BTC/USD from Pyth (primary) and Blocksize VWAP (secondary), takes the median, and repeats for each constituent needed to compute total market capitalization. This multi-source approach provides redundancy and manipulation resistance without relying on aggregator APIs with slow refresh rates.

5.3 SEDA Fast: Delivery to Hyperliquid

SEDA offers two delivery methods: SEDA Core (fully decentralized, multi-node consensus, ~15s finality) and SEDA Fast (optimized single-executor endpoint, sub-50ms latency). For HIP-3 perpetuals requiring 3-second price updates, SEDA Fast is the appropriate choice.

SEDA Fast provides an authenticated REST API and WebSocket endpoint. Each Oracle Program execution is cryptographically signed by SEDA Fast, enabling verification on any chain. The flow for a single index update:

```
// Deployer service (runs every 3 seconds per index)
1. POST to SEDA Fast API with Oracle Program ID + exec inputs
2. SEDA Fast executes the WASM Oracle Program:
   - proxy_http_fetch to Pyth for constituent prices
   - proxy_http_fetch to Blocksize for VWAP validation
   - Compute index value (ratio, aggregate, or RSI)
   - Return signed result
3. Deployer receives signed index price (<50ms)
4. Deployer calls HyperCore SetOracle with the price
```

The deployer service is a lightweight process that polls SEDA Fast every 3 seconds for each index and relays the signed result to HyperCore's SetOracle API. This architecture is identical to how existing SEDA-powered perpetual markets (including Dreamcash equity perps) deliver prices to Hyperliquid today.

5.4 Oracle Program: BTC.D Example

The following illustrates the Oracle Program structure for BTC.D using SEDA's `seda_sdk_rs`:

```
use seda_sdk_rs::{proxy_http_fetch, oracle_program, Process};

#[oracle_program]
impl BtcDominance {
    fn execute() {
        // Fetch BTC price from Pyth via Data Proxy
        let btc = proxy_http_fetch(
            "pyth.proxy.seda.xyz/proxy/price/latest?ids[]=0xe62df...",
            Some(PYTH_PROXY_PUBKEY.to_string()), None,
        );
        // Fetch top-N alt prices similarly...
        // Compute: btc_mcap / total_mcap * 100
        let dominance = (btc_price * btc_supply) / total_mcap * 100.0;
        Process::success(&dominance.to_le_bytes());
    }
    fn tally() {
        let reveals = seda_sdk_rs::get_reveals().unwrap();
        // SEDA Fast: single executor, forward result
        let result = reveals.into_iter().next().unwrap();
        Process::success(&result.body.reveal);
    }
}
```

Each index gets its own Oracle Program with dedicated logic, deployed independently to SEDA. This ensures failure isolation: a Pyth outage affecting MEME.C constituents does not impact BTC.D if it only needs BTC and ETH prices.

6 HIP-3 Integration

6.1 Deployer Mechanics

HIP-3 enables permissionless deployment of perpetual futures markets on Hyperliquid. The deployer's sole technical responsibility is calling the SetOracle API with accurate prices every 3 seconds. Hyperliquid's on-chain order book and matching engine handle all trading. The mainnet staking requirement is 500,000 HYPE, maintained for 30 days after any market halt. Perps.fun removes this capital barrier by pooling community-sourced kpHYPE (Kinetiq liquid staking tokens).

6.2 SetOracle API

The SetOracle action accepts four parameters:

Table 6: SetOracle API parameters.

Parameter	Type	Description
dex	string (max 6 chars)	Market identifier (e.g., "BTCD", "TOT3")
oraclePxs	Array[[asset, price]]	Oracle reference prices, sorted by asset
markPxs	Array[Array[[asset, price]]]	Mark prices; median with local book used
externalPerpPxs	Array[[asset, price]]	External reference to prevent mark deviation

The deployer calls SetOracle every 3 seconds. If no update is received for 10 seconds, HyperCore triggers stale-price handling. The minimum interval between calls is 2.5 seconds. SEDA Fast's sub-50ms response time provides ample margin.

6.3 Safety Parameters

Table 7: HIP-3 safety parameters and index implications.

Constraint	Value	Implication for Strake
Daily price clamp	10x start-of-day	Adequate; no index moves 10x intraday
Mark price clamp	1% per update	~20%/min max; sufficient for all indices
Stale fallback	10 seconds	SEDA Fast <50ms provides ample margin
OI cap enforcement	markPx cannot push OI >10x cap	Requires careful initial OI cap setting
Minimum update interval	2.5 seconds	Our 3s cycle fits within this constraint

The 1% mark price clamp deserves attention. For BTC.D (which typically moves 0.1-0.5% per day), this constraint will almost never bind. For more volatile indices like MEME.C (which can move 5-15% in a day), the clamp could theoretically restrict price updates during extreme moves. In practice, 1% per 3-second update allows approximately 20% cumulative movement per minute, sufficient for all but the most extreme scenarios.

6.4 Slashing and Risk Management

HIP-3 validators can slash the deployer's HYPE bond via stake-weighted vote, with severity ranging from 20% to 100% depending on the nature of the incident. The goal is straightforward: zero slashing events, ever.

We achieve this through defense in depth. Every Oracle Program enforces a multi-source quorum: if fewer than 2 out of 3 data providers (Pyth, Blocksize, Nobi) return valid prices, the program outputs nothing rather than pushing a potentially incorrect value. HIP-3's 10-second stale fallback then engages gracefully, pausing the market rather than trading on bad data. All programs are exhaustively tested against simulated provider failures in SEDA's local WASM VM before any mainnet deployment. Combined with Perps.fun's battle-tested monitoring and incident response infrastructure, this creates a layered safety architecture where every failure mode has a defined, tested fallback. The specifics of our monitoring and alerting stack will be shaped by Perps.fun's operational expertise and their experience with existing HIP-3 deployments.

7 Volatility Study and Leverage Calibration

To calibrate maximum leverage for each index perpetual, we conduct a volatility study based on one year of daily data (March 2025 - March 2026). We compute annualized volatility from daily log-returns, identify 99th-percentile daily moves, and derive indicative leverage limits using a two-factor approach: volatility tier assignment benchmarked against existing HIP-3 deployments, with a conservative liquidity adjustment reflecting the novelty of these instruments.

As an initial sizing heuristic, we set a margin erosion threshold at 50%, meaning a P99 adverse move should not consume more than half the initial margin. This threshold is a design choice - exchanges do not publish their exact calibration formulas - and we validate the resulting leverage tiers against active HIP-3 deployments (see Proposed Leverage Tiers below). We expect to recalibrate on testnet with observed data and Perps.fun quant team feedback.

$$\textit{Max Leverage} = 0.50 \;/\; \textit{P99}(|\textit{daily return}|) \tag{1}$$

7.1 Methodology: GBM Calibration

The volatility parameters are derived from Geometric Brownian Motion (GBM) simulations calibrated to observed market ranges for each index over the March 2025 to March 2026 period. GBM models price evolution as:

$$dS = \mu S\, dt + \sigma S\, dW \tag{2}$$

where μ is the drift, σ the constant volatility, and dW a Wiener process increment. We calibrate σ for each index to match observed annualized volatility ranges, then simulate 365 daily returns to extract the P99 tail statistic feeding Equation (1).

GBM assumes log-normal returns with constant volatility. Real crypto markets exhibit fat tails, volatility clustering, and occasional jump diffusion, all of which produce heavier tails than GBM predicts. This means our GBM-derived P99 estimates understate true tail risk, and the resulting leverage limits should be treated as upper bounds requiring empirical validation. To cross-check, we benchmark against active HIP-3 deployments where deployers assign leverage such that initial margin covers approximately 2.5-3.5 daily standard deviations, with adjustments for underlying liquidity. Since all Strake indices are novel instruments with no pre-existing market depth, we apply a systematic conservative shift relative to established markets of comparable volatility. Equation (1) provides a starting point; final leverage limits are rounded to standard tradeable tiers (2x, 3x, 5x, 10x, 15x, 20x) and will be co-designed with Perps.fun's quant team based on testnet observation.

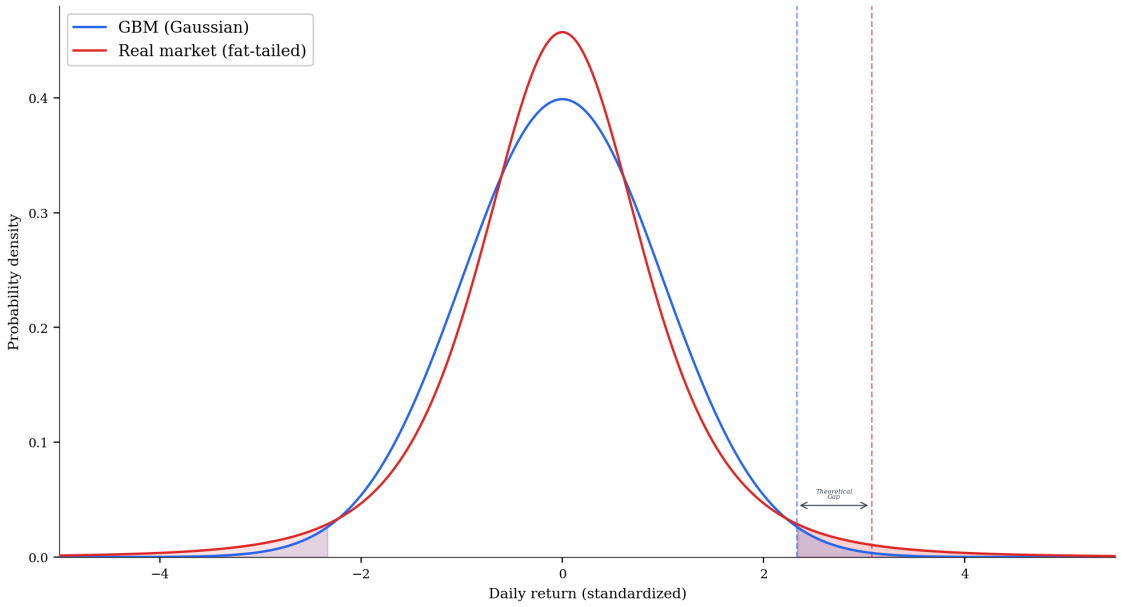

Figure 1: GBM (Gaussian) vs. real market return distributions. The fat-tailed distribution places more probability mass beyond the GBM P99 threshold, highlighting why purely model-based leverage limits must be validated against empirical data and adjusted for market-specific liquidity conditions.

7.2 Volatility Profiles

The seven indices span a wide volatility spectrum, from near-bond-like stability (BTC.D, STBL.D) to extreme asset-class volatility (MEME.C, BTC.RSI). This heterogeneity is precisely what makes index perps attractive: they offer traders exposure across distinct risk profiles within a single venue.

Table 8: Volatility metrics and derived maximum leverage (1Y daily data, Mar 2025 -Mar 2026).

Ticker	Ann. Vol	Daily Vol	Max Daily Move	P99 Daily	Max Leverage
BTC.D	7.7%	0.40%	1.63%	1.07%	20x
TOTAL3	74.0%	3.88%	11.91%	10.39%	5x
OTHERS	104.1%	5.45%	18.89%	15.08%	3x
STBL.D	18.1%	0.95%	2.77%	2.46%	20x
STABLE.C	23.9%	1.25%	4.14%	3.35%	15x
BTC.RSI	288.5%	15.10%	70.90%	44.67%	2x
MEME.C	131.3%	6.87%	19.93%	16.52%	3x

Sources: TradingView (BTC.D, TOTAL3, OTHERS, BTC/USD), CoinGecko (meme category), CoinMarketCap (market caps), DefiLlama (stablecoin data), Statista (stablecoin market cap).

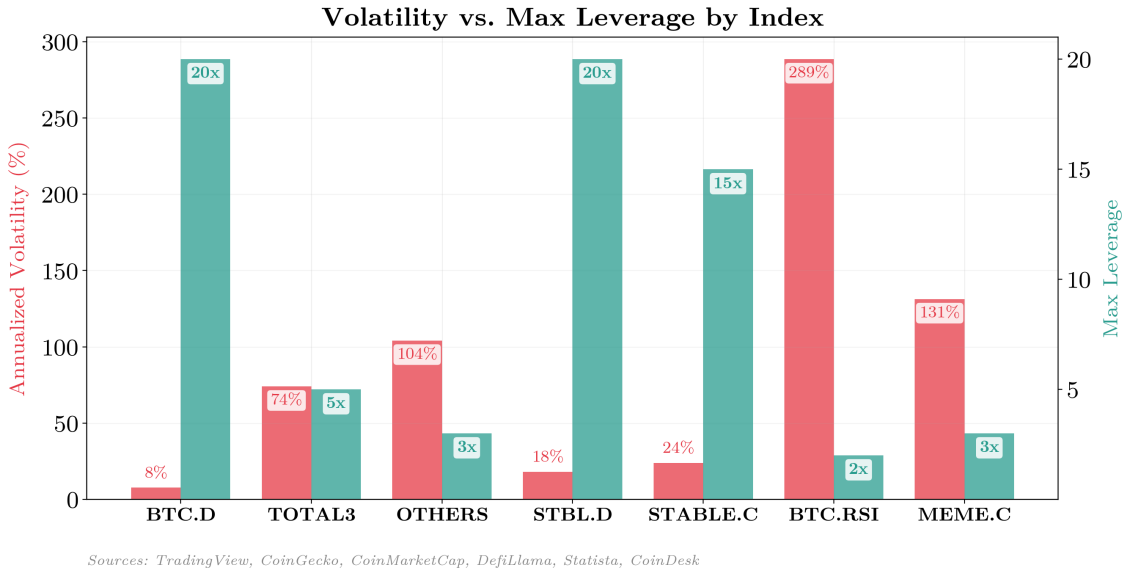

Figure 2: Annualized volatility (red) and derived maximum leverage (green) for each proposed index. Leverage is inversely proportional to tail risk.

7.3 Index-by-Index Analysis

BTC.D exhibits the lowest volatility of any proposed index at 7.7% annualized. Bitcoin Dominance is a ratio of two highly correlated quantities (BTC market cap and total market cap), and this correlation dampens the resulting volatility significantly. Daily moves rarely exceed 0.5%. The 20x maximum leverage is comparable to major forex pairs and reflects the structural stability of this metric.

Figure 3a: BTC.D price and 30-day rolling volatility.

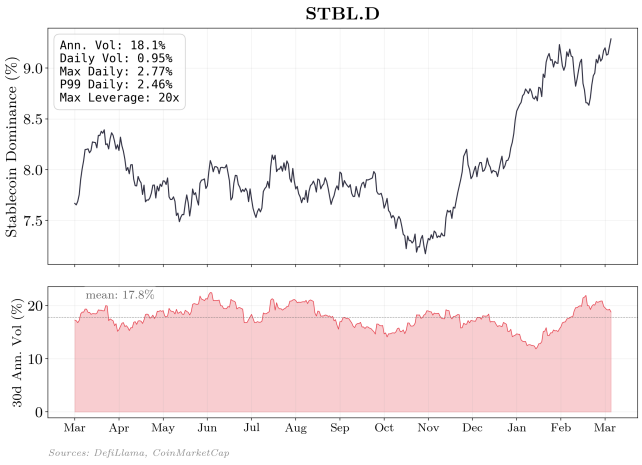

Figure 3b: STBL.D price and 30-day rolling volatility.

STBL.D is similarly low-volatility at 18.1% annualized. Stablecoin dominance moves counter-cyclically to the broader market but within a narrow band, as stablecoin supply adjusts slowly relative to total market cap swings. The 20x leverage ceiling reflects this stability.

STABLE.C at 23.9% annualized vol sits between the ratio indices and the aggregate market cap indices. Stablecoin total capitalization trends upward with moderate drawdowns, driven by institutional flows and regulatory catalysts (e.g., the STABLE Act). The 15x leverage accommodates occasional sharp inflows/outflows.

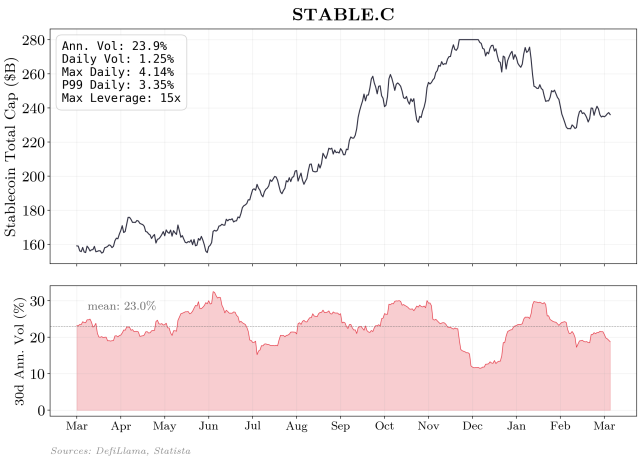

Figure 4a: STABLE.C price and 30-day rolling volatility.

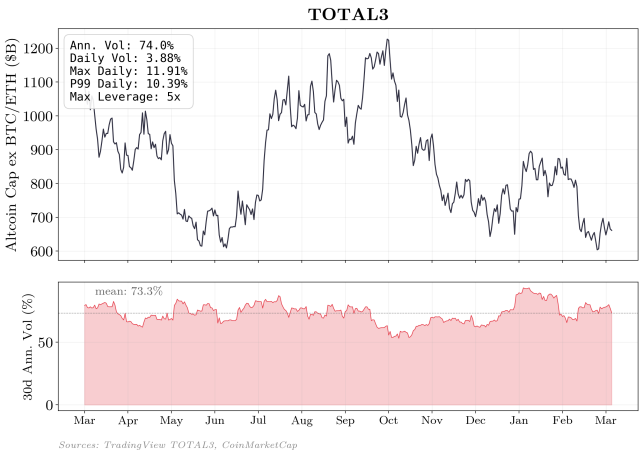

Figure 4b: TOTAL3 price and 30-day rolling volatility.

TOTAL3 and **OTHERS** represent aggregate altcoin exposure and carry correspondingly high volatility: 74.0% and 104.1% annualized respectively. TOTAL3 includes mid-cap altcoins (SOL, ADA, AVAX, etc.) which can swing 10-12% in a day during rotation events. OTHERS captures longer-tail assets beyond the top 10, with even more extreme tail moves (18.9% max daily) and fatter tails (P99 of 15.1% vs 10.4% for TOTAL3). This higher tail risk reduces OTHERS to 3x max leverage vs 5x for TOTAL3.

Figure 5a: OTHERS price and 30-day rolling volatility.

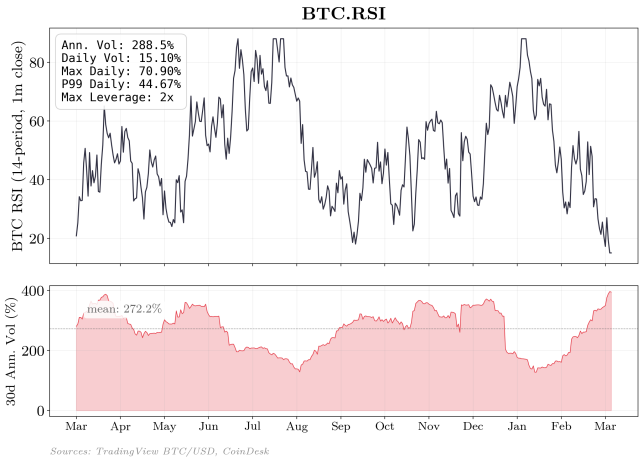

Figure 5b: BTC.RSI value and 30-day rolling volatility.

BTC.RSI is the most volatile index by annualized metric (288.5%), but this requires context. RSI is a bounded oscillator (0-100), and its "price" (RSI value mapped to a tradeable level) can swing 10-20 points in a single day on 1-minute candles. A move from 50 to 65 represents a 30% price change. The 2x leverage cap reflects this extreme intraday variability while still enabling directional and mean-reversion strategies.

MEME.C at 131.3% annualized is the most volatile market-cap-based index. The memecoin sector is dominated by retail speculation, narrative-driven pumps, and thin liquidity in constituent assets. Daily moves exceeding 7% are routine, with ~20% days observed at the 99th percentile. The 3x leverage cap ensures the market remains tradeable without excessive liquidation cascades.

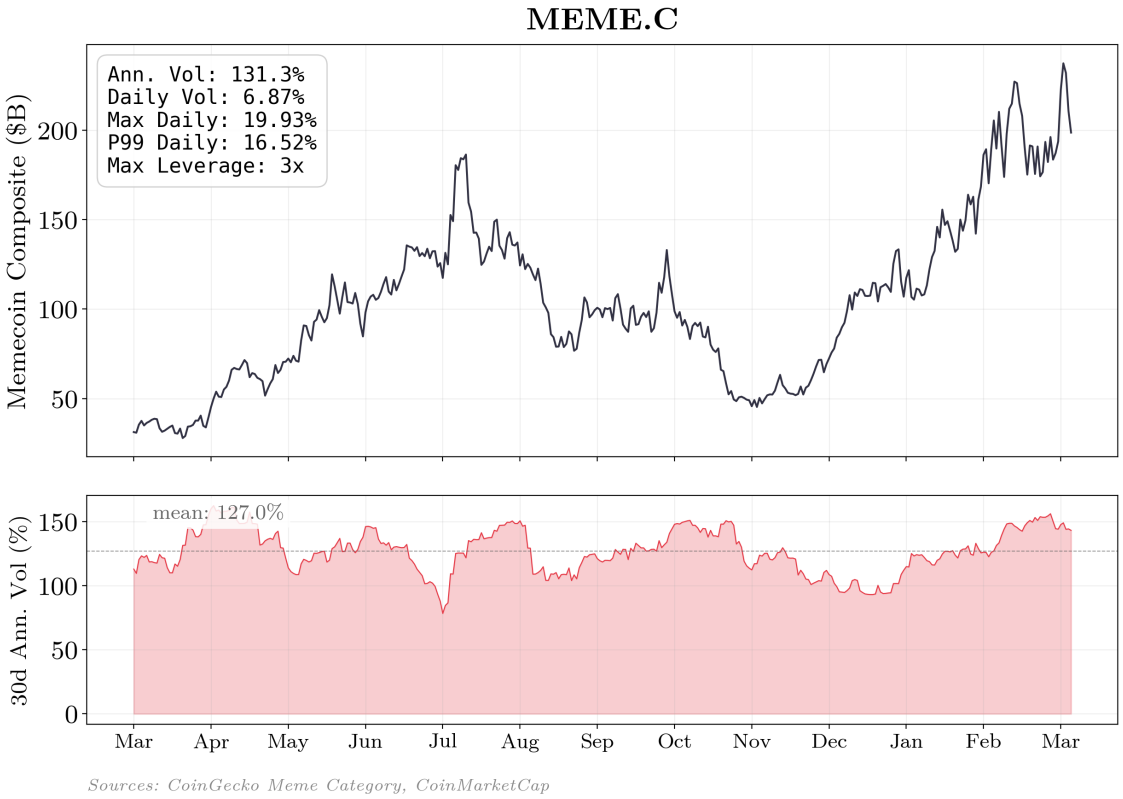

Figure 6: MEME.C price and 30-day rolling volatility. Extreme volatility (131% annualized) justifies the 3x leverage cap.

7.4 Proposed Leverage Tiers

The derived leverage limits align with two natural index categories. To validate these tiers, we benchmarked against active HIP-3 markets: broad equity indices (XYZ100) trade at 30x, precious metals (GOLD, SILVER) at 25x, commodities and liquid single stocks (CL, NVDA) at 20x, and high-volatility single names (TSLA) at 10x. Strake indices are novel with no pre-existing order book depth, so we apply a one-tier conservative shift relative to HIP-3 markets of comparable volatility:

Table 9: Proposed leverage tiers with HIP-3 benchmark validation.

Category	Indices	Proposed Max Leverage	Rationale
Market Structure Indices (BTC.D, STBL.D, BTC.RSI + future: ETH.RSI, HL Perp Share, Funding Rates...)			
Low vol	BTC.D, STBL.D	20x	Ann. vol 8-18%; comparable to GOLD/ SILVER at 25x, reduced one tier for novel liquidity
Moderate vol	STABLE.C	15x	Ann. vol 24%; comparable to EWY at 20x, reduced for no hedging instruments
Extreme vol	BTC.RSI	2x	Ann. vol 289%; bounded oscillator with unique dynamics; minimum viable leverage
Sectoral Indices (TOTAL3, OTHERS, MEME.C + future: AI, RWA, DePIN, DeFi...)			
High vol	TOTAL3	5x	Ann. vol 74%; above any current HIP-3 underlying, sized for ~2x daily sigma margin buffer
Very high vol	OTHERS, MEME.C	3x	Ann. vol 104-131%; no TradFi equivalent; margin covers ~3 daily sigma

These are theoretical maximums. Initial launch leverage will be set below these ceilings (e.g., 10x for BTC.D, 3x for TOTAL3) and adjusted upward as order book depth grows and price feed reliability is validated on testnet. The final risk parameters will be co-designed with Perps.fun's quant team. This paper presents an initial calibration framework, not a fixed specification.

8 Conclusion

Every serious crypto trader watches BTC.D, TOTAL3, and stablecoin flows. None of them can trade these metrics directly today. This paper presents a framework to fix that, and Perps.fun is the right partner to make it happen.

The technical plumbing exists. SEDA's programmable oracles, Pyth and Blocksize price feeds, HIP-3's permissionless market deployment. But infrastructure alone does not build a successful product. What matters is execution: reliable oracle feeds that do not get slashed, liquidity that attracts real traders from day one, and risk parameters calibrated to actual market behavior rather than theory. This is where Perps.fun's role goes far beyond removing the 500k HYPE staking barrier. Perps.fun brings operational experience from existing HIP-3 deployments, a battle-tested SEDA integration pipeline, and the iterative feedback loop needed to tune oracle design, market depth, leverage tiers, and OI caps in production.

We are explicit about what this paper is and what it is not. It is an initial framework: the index selection, volatility calibration, and oracle architecture represent our best current design. We expect these parameters to evolve through collaboration with the Perps.fun team. The exact fee structure, launch leverage, OI caps, and monitoring stack should be co-designed, not dictated. Our contribution is the market thesis, the oracle engineering, and the willingness to iterate fast.

The market opportunity is validated by both TradFi precedent (index derivatives dominating single-asset volumes by 10:1) and on-chain demand signals (13.7K engagement on BTC.D content alone, tracked by accounts with 11M+ combined reach). Comparable HIP-3 markets in commodities and equities already demonstrate $80-260M in daily volume for novel, non-native exposure. Index perps fit the same pattern: genuinely new instruments that cannot be replicated elsewhere.

We plan to deploy the first two indices (BTC.D and TOTAL3) on testnet within four weeks of acceptance, working closely with the Perps.fun team on oracle design and risk calibration. Mainnet launch follows validation. The full seven-index suite targets completion within 12 weeks, with thematic sector indices (AI, RWA, DeFi) in the pipeline.

Bottom Line

Index perps are the missing product category in crypto derivatives. The demand is real, the infrastructure is ready, and the timing is now. We are proposing to build this with Perps.fun because they have the SEDA expertise, the Hyperliquid deployment experience, and the liquidity network to take Strake from concept to production. This paper is our candidature. Let's build.

Hyperliquid.