

SAEP-07: Spark Prime Brokerage

Executive summary

Spark Prime is a new prime brokerage arm within the $\approx \$2.53\text{bn}$ SLL. The PoC allocation of $\$20\text{m}$ USDC is $<1\%$ of SLL AUM and is fully covered by existing risk capital under a 100% capital risk requirement, so it does not materially change protocol or asset level concentration.

Using CoinGecko prices, 3-day price drawdown plus an execution-liquidity buffer, we map each asset into a required haircut and compare to the configured levels. BTC, ETH, NEAR and USDe configured haircuts are conservative, they are at or above the required level. High-beta L1s (SOL, DOGE, ADA, XRP) and parts of the long tail (SUI, AVAX, ZEC, HYPE) have configured haircuts 2 – 6 pp below the required level under 3-day liquidation horizon, i.e., a repeat of past extremes plus buffer would exhaust the cushion at the margin. For USDC and USDT, required haircuts are $\approx 1.4 - 1.5\%$ leaving $\approx -1.5\text{pp}$ of margin. This is a conscious design choice but from a strict stress test perspective it implies that stability risk must instead be controlled via issuer, venue and concentration limits. Overall, the haircut grid is conservative for BTC, ETH, NEAR, USDe, but too tight for the volatile L1 bucket and some long tail assets if Spark wants high confidence that collateral remains sufficient under repeated 3-day shocks.

CoinDesk volumes across Binance, Bybit, OKX, Bitget, Coinbase and Hyperliquid show a three tier structure under stressed ADV. For BTC, ETH, SOL, XRP, DOGE, SUI and ADA caps are small relative to stressed ADV ($\approx 0.04 - 0.2\text{x}$), implying 0.5 – 2 days to exit at 10% participation, 3-day participation needs of $\approx 1 - 7\%$ and impact proxies well below 1%. Spot liquidity is not the binding constraint here. For NEAR and AVAX, caps are still below stressed ADV but closer to it ($\approx 0.4 - 0.6\text{x}$), with 3.5 – 5.8 day exits at 10% participation, 3-day participation of $\approx 12 - 19\%$ and impact proxies around 1 – 1.5%. These look feasible for a senior secured prime brokerage but operationally more demanding, and natural candidates for tighter internal sub-caps and more conservative exit horizon. For USDe, HYPE and ZEC, caps are large multiples of stressed ADV ($\approx 37\text{x}$, 12x , 11x , respectively), with 100 – 370 days to exit at 10% participation, required 3-day participation of $\approx 363 - 1,230\%$ and impact proxies around 6 – 12%. At current secondary market depth these limits behave more like long-term theoretical ceiling than recallable risk limits.

Note

The conclusions made from this analysis are based purely on market and liquidity data. Governance feedback adds implementation details that partly mitigate the headline concerns. Haircuts are initially taken from Arkis internal liquidation modelling, aimed at zero bad-debt liquidations in their own platform. For large-cap assets, these parameters are broadly in line with, or slightly more conservative than, Spark's on-chain LTVs. For smaller assets such as XRP and NEAR, Arkis does not expect to run a very large size and has expressed confidence in liquidating within the selected haircuts. The 10% USDe haircut matches Spark's historical LTV in Morpho vaults and is applied initially to a small book with $\approx \$20\text{m}$ of funds lent and expected to

generate only $\approx$ \$30 - 40m of USDe exposure as margin collateral. Spark has primarily market access for USDe redemption and even without direct Ethena routing on Arkis, the team expects that arbitrage and secondary market depth should allow exits within the 10% haircut in most scenarios. The first tranche is expected to be deployed across roughly 3 - 5 borrowers with low concentration outside BTC, ETH and SOL. Combined with the small initial sizing and monitoring, this greatly reduces the probability that the very high long-term caps in USDe, HYPE or ZEC are fully utilised.

Taken together, the empirical analysis and these clarifications support that the proposal does not create undue risk at the PoC sizing, provided that (i) haircuts and caps for volatile and thinly traded assets are treated as explicitly dynamic and revisited before any step-up toward the long-term ceilings and (ii) issuer and concentration limits are actively used to manage the residual risks which are not captured by price haircuts.

The full analysis of this proposal can be found hereafter.

1 Balance-sheet baseline for Spark Prime and size of the initial allocation

At the time of writing, the Spark Liquidity Layer (SLL) manages total assets of AUM $\approx$ \$2,528,709,517 ($\approx$ \$2.53bn) deployed across a set of lending, CeFi credit, RWA and structured stablecoin programs. By protocol, the largest allocations are:

- **SparkLend:** \$891.36m (**35.25%** of SLL AUM)
- **Maple:** \$630.00m (**24.91%**)
- **PayPal PYUSD program:** \$428.26m (**16.94%**)
- **Morpho:** \$309.17m (**12.23%**)
- **Superstate (RWA/treasuries):** \$150.82m (**5.96%**)
- **Curve stablecoin LP:** \$52.98m (**2.10%**)
- **PSM3 bridging:** \$45.14m (**1.79%**)
- **Idle:** \$21.66m (**0.86%**),

with residual allocations to Fluid, Ethena and Aave that are negligible at the SLL level ($<0.01\%$). A simple Herfindahl index based on these protocol shares is ≈ 0.234 , indicating a moderately concentrated portfolio where SparkLend, Maple and PayPal constitute the three dominant strategic pillars but no single protocol exceeds 40% of AUM. When grouping the protocols into broader strategy buckets, the current SLL is roughly:

- **On-chain stable lending** (SparkLend, Morpho, Idle, Aave): $\approx$ \$1.22bn (**48.3%** of SLL AUM)
- **CeFi credit** (Maple): \$630 m (**24.9%**)
- **RWA/treasuries** (Superstate): \$150.82m (**6.0%**)
- **Structured stable programs** (PayPal, Curve, PSM3, Fluid, Ethena): $\approx$ \$0.53bn (**20.8%**).

On an asset basis, the SLL is almost entirely exposed to short-duration fiat-backed stablecoins. Aggregating across all chains and programs, approximate exposures are

- **USDC**: $\approx \$1,196.5\text{m}$ (**47.32%** of SLL AUM)
- **PYUSD**: $\approx \$656.8\text{m}$ (**25.97%**)
- **USDT**: $\approx \$309.4\text{m}$ (**12.24%**)
- **DAI**: $\approx \$259.3\text{m}$ (**10.25%**)
- **USDS/sUSDS**: $\approx \$107.4\text{m}$ (**4.25%**)
- **USDe/sUSDS (Ethena / Fluid)**: de minimis ($<0.01\%$).

The corresponding asset-level Herfindahl index is ≈ 0.319 , indicating a higher concentration at the level of underlying currencies than at the protocol level, with USDC and PYUSD together accounting for roughly 73% of the balance sheet. In other words, the SLL is currently a large, diversified stablecoin portfolio across venues and structures, but with material concentration in two primary issuers.

Within this configuration, Spark Prime is introduced as a new prime-brokerage / portfolio-margin lending bucket. The initial proof-of-concept (PoC) tranche foresees a maximum SLL allocation of \$20m in USDC funded from the SLL and deposited into Arkis as margin credit for institutional borrowers. Relative to the current balance sheet, this corresponds to $\approx 0.79\%$ (relative to Maple (\$630m) this allocation is $\approx 3.2\%$). Thus, even if the full PoC tranche is deployed, Spark Prime would constitute **less than 1% of SLL AUM**, making it a small allocation compared to existing buckets such as Maple (24.9% of AUM) or the PayPal PYUSD program (16.9%). From a concentration perspective, adding a 0.8% Prime bucket leaves the protocol- and asset-level HHIs essentially unchanged. Spark Prime does not materially alter the diversification profile of the SLL at this size.

On the risk-capital side, governance explicitly states that Spark currently has sufficient risk capital to support the entire \$20m PoC with a 100% capital-risk requirement (CRR). Interpreted literally, this means that a hypothetical full impairment of the PoC tranche could be absorbed by the designated risk-capital buffer without jeopardising SLL solvency or the backing of USDS and Spark Savings deposits. To sum up, the proposed onboarding of Spark Prime, at the PoC size, introduces a qualitatively new strategy type on a scale that is **immaterial relative to the current SLL balance sheet and fully covered by existing risk-capital capacity**.

2 Market and portfolio risk of marginable assets

To perform haircut adequacy check, we use daily USD close prices from CoinGecko for each asset in the margin set from December 2023 until December 2025. We fix a short liquidation horizon of three trading days, which encodes the operational assumption that, from the point of stress detection to a full exit of the position, Spark may realistically be exposed to adverse price movements over ≈ 1 to 3 days rather than a single close-to-close shock. From these prices, for each asset j we construct:

1. 1-day log returns $r_{j,1}(t) = \ln(P_{j,t}/P_{j,t-1})$
2. A sliding 3-day drawdown (DD) series $DD_{j,3}(t) = 1 - \frac{\min\{P_{j,t}, P_{j,t+1}, P_{j,t+2}\}}{P_{j,t}}$

which measures, for every starting day t , the worst peak-to-trough loss that could have been realised over the next three days of a position had to be unwound during that window. For each asset we then extract from these time series:

- The worst observed 1-day log return
- The worst observed 3-day DD
- The 99th percentile of the 3-day DD, i.e., tail-risk measure excluding the single most extreme path

A pure price DD ignores the fact that liquidating a large position moved the market. To proxy this liquidation impact, we add a conservative, asset-specific execution–liquidity buffer f_j :

- Highly liquid fiat-backed stables (USDC, USDT): 1%
- BTC and ETH: 3% (very deep but still subject to impact at size)
- Alt L1s/high beta majors (SOL, XRP, DOGE, ADA, AVAX, SUI, NEAR, ZEC, HYPE): 5%
- USDe: 5%, reflecting both impact and additional depeg/liquidity risk

For each asset we then define a required haircut h_j^* as:

$$h_j^* = \max\{\text{worst 3d DD}, Q99\ 3d\ DD\} + f_j$$

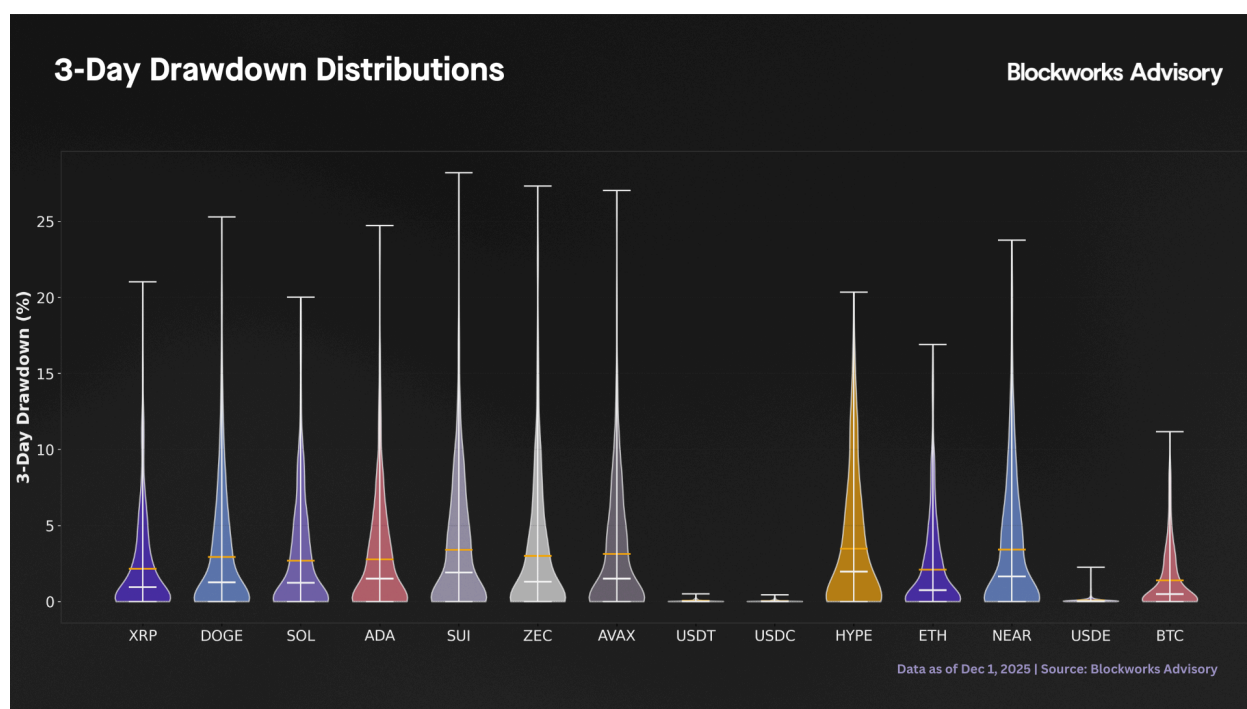
The intuition behind this definition is as follows. The term $\max\{\text{worst 3d DD}, Q99\ 3d\ DD\}$ sets the size of the buffer to cover at least the typical tail 3-day loss, but never below the historical episode observed. Adding f_j is the haircut that would have sufficed, ex post, to absorb the combination of the price path, execution cost, liquidity shocks and impact in the historical sample, under a 3-day liquidation horizon. From the Spark specification we take the configured haircuts h_j to compute the margin of haircuts $\Delta h_j = h_j - h_j^*$. If $\Delta h_j > 0$, configured haircut exceeds the historically required level, meaning it is a conservative buffer given the assumed time horizon of the sample and execution–liquidity buffer. If $\Delta h_j \approx 0$, haircut roughly matched the historical stress requirement, meaning it is tight but defensible, depending on risk appetite. If $\Delta h_j < 0$, configured haircut is smaller than the historically required level, meaning under a repeat of past extremes, the lender could become undercollateralised at the margin.

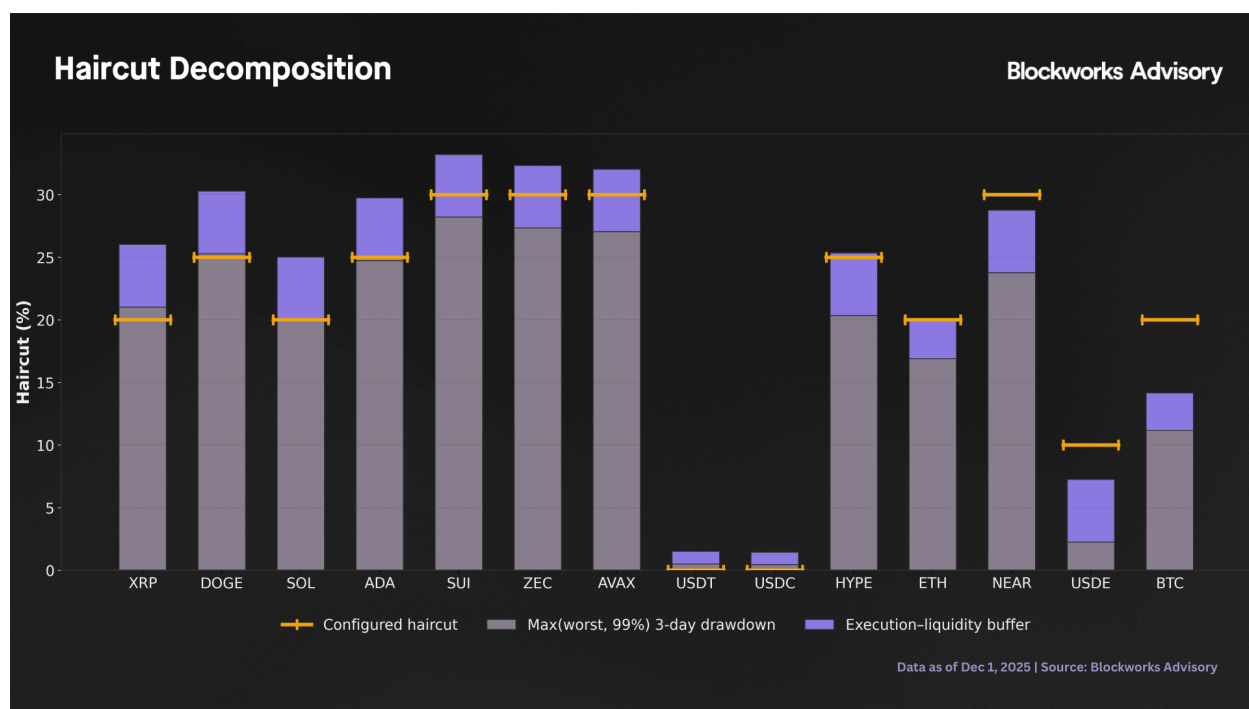
Figure 1 – 3-Day Drawdown Distributions

The violin plot shows the full distribution of rolling 3-day percentage drawdowns for all marginable assets over the sample window. High-beta L1s (XRP, DOGE, SOL, ADA, SUI, ZEC, AVAX, NEAR, HYPE) exhibit fat-tailed downside with typical 3-day losses in the mid-single digits and recurring extremes in the 20 – 30% range. BTC and ETH have visibly tighter distributions, with most mass below $\approx 10 - 15\%$. Fiat-backed stables (USDT, USDC) and USDe sit near zero, with only shallow, short-lived drawdowns. Overall, the figure highlights a clear risk gradient, from almost flat 3-day paths for stables, through moderate stress for BTC/ETH, to very jumpy behaviour for smaller L1s.

Figure 2 – Haircut Decomposition

The haircut decomposition compares, for each asset, (i) the empirical stress component (grey bar is the max of worst and 99% 3-day drawdown), (ii) the added execution-liquidity buffer (purple segment), and (iii) the currently configured haircut (yellow marker). For BTC, ETH, NEAR and USDe, the configured haircuts sit above the combined stress-plus-buffer level, indicating a conservative calibration. By contrast, for the alt-L1 cohort (XRP, DOGE, SOL, ADA, SUI, ZEC, AVAX) the yellow markers fall several percentage points below the empirical requirement, implying that a repetition of historical 3-day shocks plus a realistic liquidation cost would exhaust or exceed the current haircut. For USDT and USDC, the small haircuts are consistent with their negligible 3-day drawdowns and minimal execution buffer.





Haircut Analysis Summary

Blockworks Advisory

Asset	Worst 1d Log Return	Worst 3d DD	Q99 3d DD	Buffer	Haircut Required	Haircut Config	Margin
XRP	-20.76%	21.02%	13.14%	5.00%	26.02%	20.00%	-6.02%
DOGE	-24.74%	25.28%	17.07%	5.00%	30.28%	25.00%	-5.28%
SOL	-22.33%	20.01%	16.18%	5.00%	25.01%	20.00%	-5.01%
ADA	-28.41%	24.73%	15.80%	5.00%	29.73%	25.00%	-4.73%
SUI	-25.87%	28.20%	17.29%	5.00%	33.20%	30.00%	-3.20%
ZEC	-24.46%	27.32%	17.84%	5.00%	32.32%	30.00%	-2.32%
AVAX	-30.00%	27.03%	17.37%	5.00%	32.03%	30.00%	-2.03%
USDT	-0.46%	0.50%	0.22%	1.00%	1.50%	0.00%	-1.50%
USDC	-0.36%	0.44%	0.24%	1.00%	1.44%	0.00%	-1.44%
HYPE	-15.90%	20.34%	16.58%	5.00%	25.34%	25.00%	-0.34%
ETH	-15.86%	16.89%	13.67%	3.00%	19.89%	20.00%	0.11%
NEAR	-18.77%	23.76%	19.33%	5.00%	28.76%	30.00%	1.24%
USDE	-2.27%	2.25%	0.65%	5.00%	7.25%	10.00%	2.75%
BTC	-9.03%	11.17%	8.23%	3.00%	14.17%	20.00%	5.83%

Data as of Dec 1, 2025 | Source: Blockworks Advisory

For large-cap majors, BTC's the worst observed 3-day DD is $\approx 11.2\%$ and the 99% 3-day DD is $\approx 8.2\%$. With a 3% execution-liquidity buffer, the required haircut comes out at $\approx 14.2\%$. Against this, Spark Prime applies a 20% haircut, leaving a positive margin of $\approx 5.8\%$. Under our historical sample and assumed horizon, this is conservative since even a repeat of the worst 3-day BTC path plus execution-liquidity buffer would still leave a meaningful equity cushion for

the lender. From a pure market risk perspective (ignoring counterparty/venue risk), **the BTC haircut could be reduced without breaching historical stress, so maintaining 20% reflects a deliberately cautious stance.** ETH is notably higher. Worst 3-day DD is $\approx 16.9\%$, the 99% tail $\approx 13.7\%$ and with 3% execution–liquidity buffer, the required haircut is $\approx 19.9\%$, essentially identical to the configured 20% (margin $\approx +0.1\%$). In other words, **the ETH haircut is calibrated almost exactly to the historical worst 3-day loss plus execution–liquidity buffer.** That is acceptable if the objective is to just cover past tail events, but leaves a little residual buffer for model error, intraday gaps or regime shifts. **If Spark intends to run a position close to the ETH exposure cap, this argues either for keeping 20% but combining it with tight monitoring and conservative utilisation, or modestly increasing the haircut of the risk appetite is lower.**

For high-beta L1s, SOL, DOGE, ADA, XRP, worst 3-day DD cluster in the 20 – 25% range (SOL $\approx 20\%$, ADA $\approx 24.7\%$, DOGE $\approx 25.3\%$, XRP $\approx 21\%$), with 99% 3-day tails around 13 – 17 %. With a 5% execution–liquidity buffer, the required haircuts lie between 25 – 30%, where SOL required haircut $\approx 25\%$ (margin $\approx -5\%$), DOGE required haircut $\approx 30.3\%$ (margin $\approx -5.3\%$), ADA required haircut $\approx 29.7\%$ (margin $\approx -4.7\%$), XRP required haircut $\approx 26\%$ (margin $\approx -6\%$). **All four appear undercollateralised relative to their historical tails under a 3-day liquidation assumption.** In other words, if Spark Prime lent up to the maximum allowed LTVs and the asset then repeated its worst 3-day path, the collateral would not have been sufficient to keep the loan fully covered, under the described assumptions. **For a prime brokerage exposed to volatile L1s, this warrants a risk adjustment. Haircuts on this bucket should be lifted by roughly 5 - 10%, or exposure limits need to be tightened materially.**

The more “long-tail” set show similar but slightly more nuanced results with SUI (required haircut $\approx 33.2\%$, margin $\approx -3.2\%$), AVAX (required haircut $\approx 32\%$, margin $\approx -2\%$), ZEC (required haircut $\approx 27.3\%$, margin $\approx -2.3\%$), NEAR (required haircut $\approx 23.8\%$, margin $\approx +1.2\%$), HYPE (required haircut $\approx 25.3\%$, margin $\approx -0.3\%$). **For SUI, AVAX and ZEC the configured 30% haircut is almost enough but still 2 - 3% below the required level. There are borderline but still underprotected sides if Spark wants a high confidence that collateral remains sufficient even under adverse 3-day paths.** NEAR is the only asset in the cluster with a clearly conservative haircut as the configured 30% leaves $+1.2\%$ of margin. **For HYPE, the configured haircut sits essentially on top of the historically required level, leaving almost no risk buffer, meaning even a modest increase in stress severity or liquidation costs would push the position beyond its current collateral cushion. Given HYPE’s idiosyncratic risk and likely thinner liquidity, this suggests either treating it more like SUI/AVAX/ZEC (30%), or at least keeping exposure limits tight if the haircut remains at 25%.**

For stablecoins USDC and USDT, the raw price series show very small historical 3-day DD ($\approx 0.44 - 0.50\%$) and negligible 99% tails ($\approx 0.22 - 0.24\%$). With conservative 1% execution–liquidity buffer, the required haircut for both is about 1.4 - 1.5%, while the configured haircut is 0%, yielding margins of $\approx -1.5\%$. In other words, our analysis incorporates robustness to the worst observed 3-day DD plus execution–liquidity buffer. Spark Prime treats USDC/USDT as cash-equivalent collateral with no price haircut. That is a reasonable design choice in DeFi

practise, however from a strict testing perspective it leaves no buffer for transient depegs, exchange-specific pricing anomalies, or off-par exits during stressed conditions. **The conclusion here is not that USDC/USDT haircut must necessarily become >0, but that if they remain at 0%, stability risk must be addressed via issuer limits, venue diversification, and concentration caps.**

USDe stands out in that its historical path risk has been modest so far, worst 2-day DD $\approx 2.25\%$, 99% tail $\approx 0.65\%$. With a deliberately high 5% execution–liquidity buffer, the required haircut is $\approx 7.25\%$, giving a margin of $\approx +2.75\%$. Given USDe's shorter history and structural basis/depeg risk, this overcollateralisation is appropriate. The current haircut is calibrated to absorb both the worst path and a substantial additional depeg/impact shock. If anything, the 10% level is arguably the minimum consistent with a conservative stance on algorithmically hedged stables. **There is no strong argument from history to reduce it at this stage.**

3 Liquidity and exit capacity risk of marginable assets

To assess whether the proposed exposure limits for Spark Prime are compatible with observable market liquidity, we conduct a simple but transparent liquidity analysis for all marginable spot assets in the Arkis configuration. The objective is to map the per-asset exposure caps into (i) multiples of daily trading volume, (ii) indicative exit times under realistic participation rates, and (iii) a stylised price-impact proxy.

We use daily volume data from CoinDesk for spot markets on the main Arkis venues (Binance, Bybit, OKX plus Bitget, Coinbase and Hyperliquid). For each asset we retain only pairs quoted in USD, USDT or USDC, treating these quotes as effectively USD-equivalent for notional purposes. For every trading day t and asset j , we aggregate quote volume across all included markets and quotes:

$$ADV_{j,t} = \sum_{\text{market } m}^M \sum_{\text{quotes } q}^Q volume_{j,m,q,t}$$

This yields a time series of total daily USD notional volume per asset. ADV statistics are computed conditional on positive trading days, to characterise market depth when liquidity is present. In addition, we record the share of days with effectively zero observable volume on the tracked venues. For assets where zero-volume days are non-negligible, liquidity risk manifests both through thin books on trading days and through occasional complete absence of trading, during which exits are infeasible regardless of participation rate assumptions. The analysis is conducted over the **most recent 365 calendar days** for each asset (or the full available history if listing is more recent), so that the liquidity statistics reflect the current market regime.

For each asset j , we compute the following liquidity statistics over this 365-day window:

- Mean daily volume $\overline{ADV}_j$,
- Median daily volume,

- 10th percentile (“stressed”) daily volume $ADV_j^{(p10)}$,
- Minimum observed daily volume,
- Number of days with valid observations.

The 10th percentile is used as a simple stress proxy as it approximates a low-liquidity regime without focusing only on the single worst day.

To map exposure caps to trading capacity we let C_j denote the Spark Prime exposure cap (in USD) for asset j . We first express the cap as a multiple of average and stressed daily volume:

$$\frac{C_j}{ADV_j} \text{ and } \frac{C_j}{ADV_j^{(p10)}}$$

These ratios indicate how many days of average (or stressed) spot turnover the full capped position represents. Values $\ll 1$ imply that the cap is small relative to daily liquidity; values $\gg 1$ indicate that exiting the full cap would require trading across multiple days even at substantial participation rates. To translate caps into indicative exit times, we assume that Spark Prime can reasonably account for **10% of aggregate daily spot volume** ($RP = 10\%$) when unwinding positions across the approved venues. Under this assumption, the expected number of days required to fully exit a position of size C_j is:

- Under average liquidity: $ExitDays_j^{(mean, 10\%)} = \frac{C_j}{0.1 \cdot ADV_j}$
- Under stressed liquidity (10th percentile): $ExitDays_j^{(p10, 10\%)} = \frac{C_j}{0.1 \cdot ADV_j^{(p10)}}$

We also compute the **required participation rate** to exit within a fixed horizon of **three trading days**:

$$RP_j^{(mean, 10\%)} = \frac{C_j}{3 \cdot ADV_j} \text{ and } RP_j^{(p10, 10\%)} = \frac{C_j}{3 \cdot ADV_j^{(p10)}}$$

These quantities answer the question: *“If Spark wants to be flat in three days, what fraction of all spot volume across Binance/Bybit/etc. would it need to represent?”* Values well below 10% are comfortable, whereas values between 10 – 50% indicate aggressive but potentially feasible execution; values near or above 100% signal that a three-day unwind is unrealistic at historical liquidity levels.

Finally, we attach a simple square-root impact proxy to the cap size. Following the standard stylised form used in market microstructure, we assume that expected impact grows with the square root of traded size as a multiple of ADV. For each asset we define:

$$Impact_j^{(mean)} = k \cdot \sqrt{\frac{C_j}{ADV_j}} \text{ and } Impact_j^{(p10)} = k \cdot \sqrt{\frac{C_j}{ADV_j^{(p10)}}}$$

with $k = 2\%$. By construction, this implies an expected impact of $\approx 2\%$ when the position size equals one day of volume ($C_j = \overline{ADV_j}$), rising to $\approx 4\%$ at $4 \times ADV_j$, $\approx 6\%$ at $9 \times ADV_j$, etc. We report these impacts in percentage terms. This proxy is not meant as a precise execution cost model, but as a **comparative indicator** of how demanding each cap is relative to the depth of its underlying markets.

In the following, the graphs are based on the stressed liquidity.

Figure 3 – Required Participation Rate to Exit in 3 Days

The bar chart reports, for each asset, the participation rate in stressed daily volume (10th-percentile ADV) that would be required to fully unwind the position within three trading days at the current exposure cap. For USDe, HYPE and ZEC the implied participation exceeds 100% of stressed ADV ($\approx 1230\%$, 397% and 363%), i.e. even monopolising all observable liquidity for several days would not suffice to exit. NEAR and AVAX sit in an intermediate zone, with required participation of $\approx 19\%$ and 12% , while the large-cap assets (ADA, ETH, SOL, DOGE, SUI, XRP, BTC) require only low single-digit percentages. The figure thus isolates a small subset of assets where caps are clearly inconsistent with realistic three-day exit horizons.

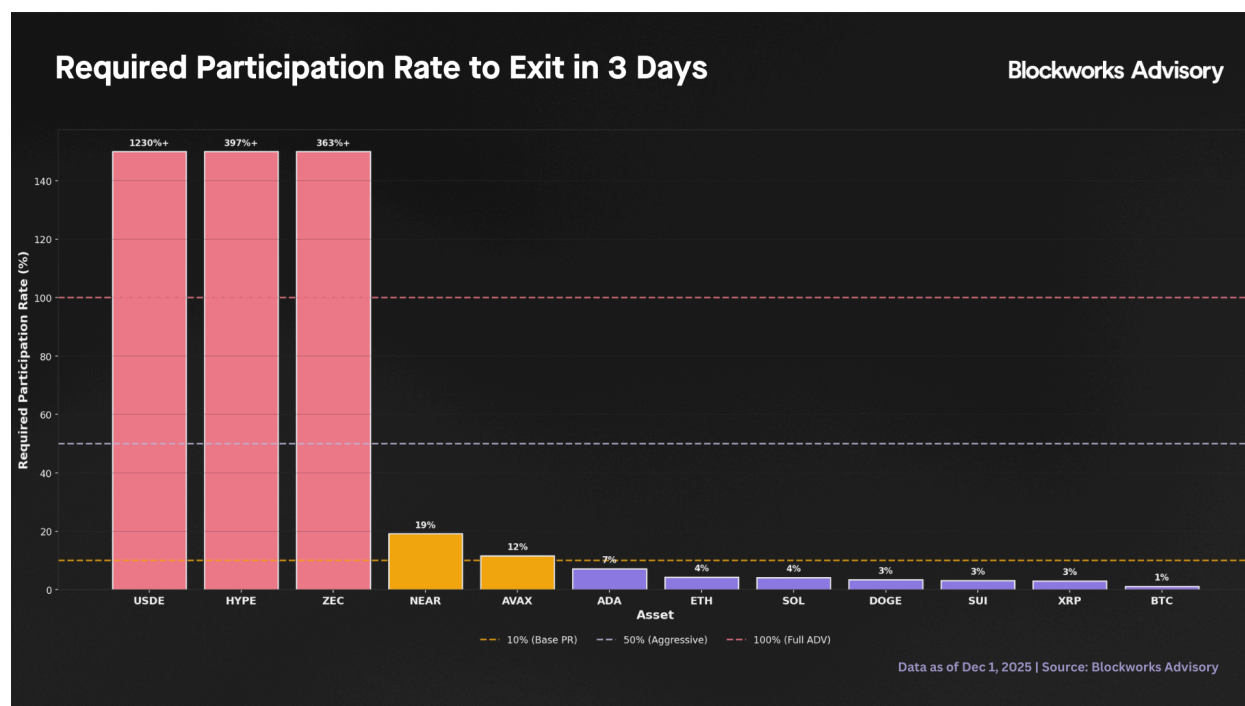


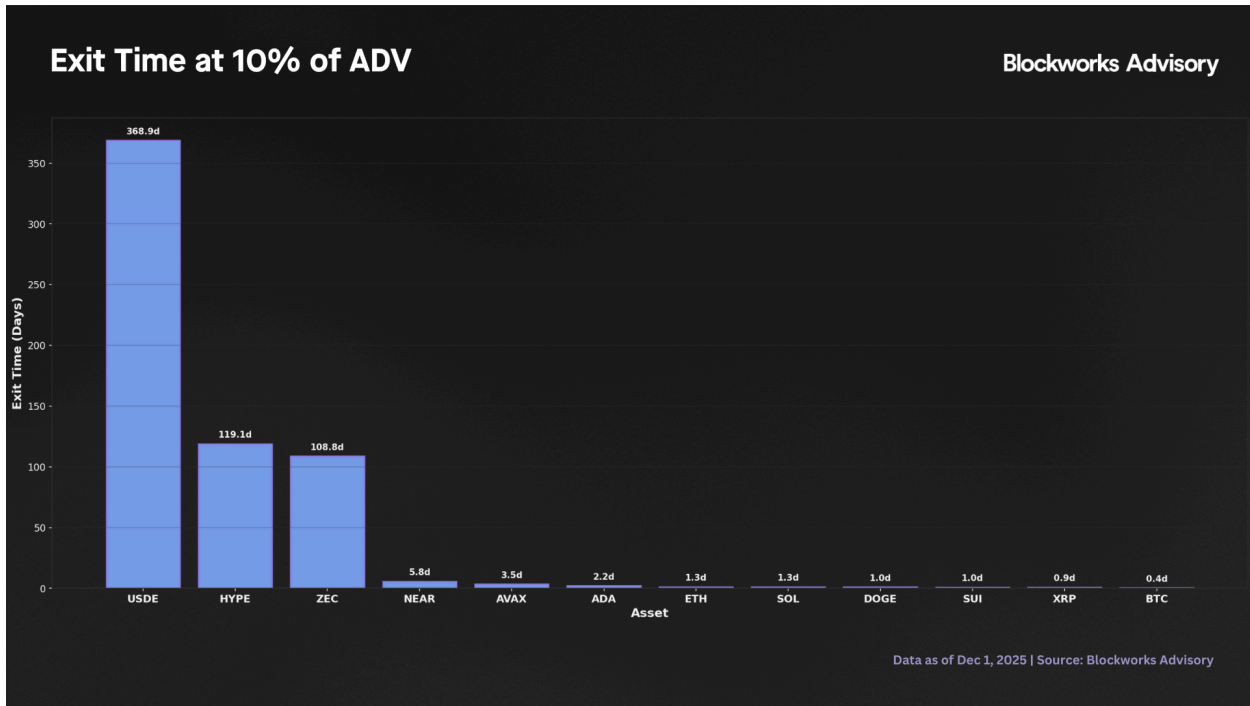
Figure 4 – Exit Time at 10% of ADV

This figure fixes a conservative execution policy, i.e., trading 10% of stressed daily volume per day, and plots the resulting exit horizon for a fully utilised cap. Under this assumption, USDe

would require roughly one calendar year to unwind, while HYPE and ZEC would require approximately four months. By contrast, NEAR and AVAX can be exited within about one trading week, and ADA within two days. For BTC, ETH, SOL and the remaining majors, the cap can be unwound in roughly one day or less. The chart therefore complements Figure 3 by translating participation requirements into time-to-liquidity in a concrete execution scenario.

Figure 5 – Exposure Cap vs Stressed Daily Volume

This chart expresses each exposure limit as a multiple of stressed daily volume ADV(p10). USDe appears as a clear outlier, with a cap corresponding to $\approx 37\times$ stressed ADV, while HYPE and ZEC stand at $\approx 12\times$ and $\approx 11\times$. NEAR and AVAX are capped at well below one day of stressed volume ($\approx 0.6\times$ and $\approx 0.4\times$), and the large-cap L1s (BTC, ETH, SOL, XRP, DOGE, SUI, ADA) cluster around $0.1 - 0.2\times$. From a risk perspective, this implies that a full-cap position in USDe, HYPE or ZEC would be large relative to observable market capacity, whereas caps in the major assets are small in relation to their trading depth.



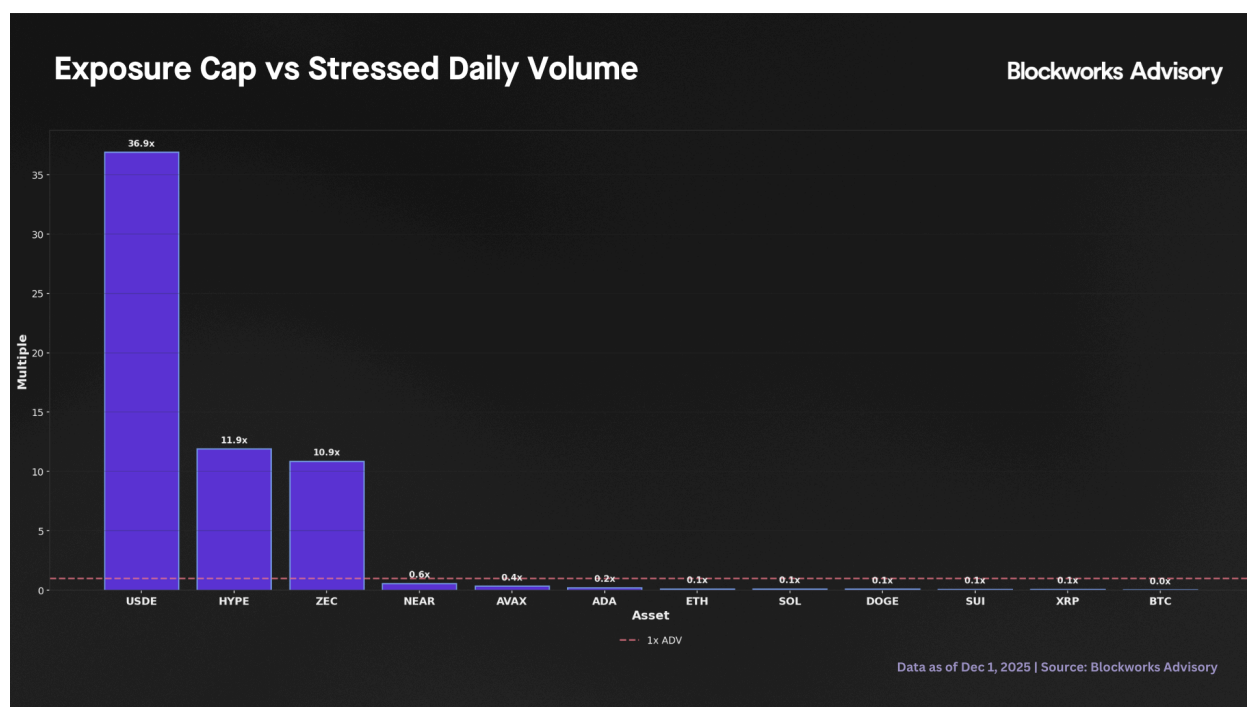
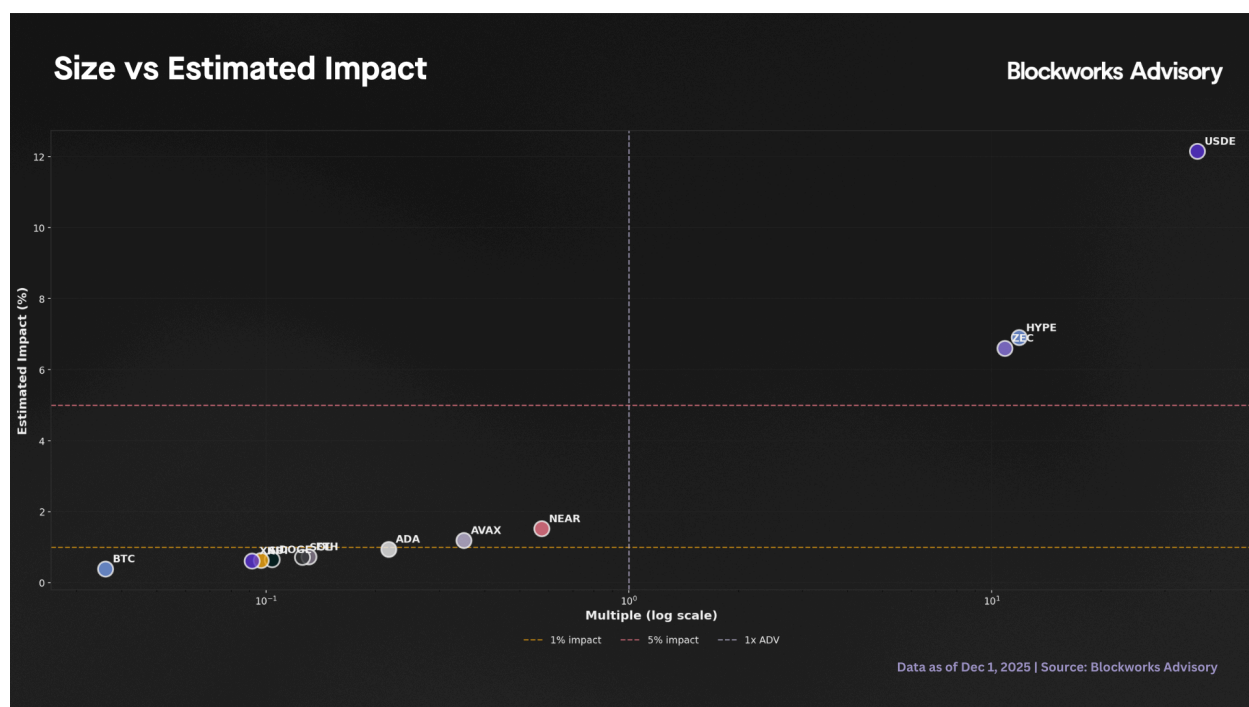


Figure 6 – Size vs Estimated Impact

The final panel maps the same multiples into an estimated execution impact using a stylised square-root impact proxy. On the vertical axis we show the implied percentage price move if the full cap were liquidated against stressed ADV. The horizontal axis (log scale) shows the cap as a multiple of ADV(p10). BTC, ETH, SOL and the other highly liquid majors lie in the lower-left region, with estimated impacts well below 1% at their current caps. NEAR and AVAX move into a 1–2% impact band, while USDe, HYPE and ZEC sit in the upper-right quadrant with estimated impacts of roughly 6–12%. Taken together with Figures 3 – 5, this scatter plot highlights where the combination of cap size and market depth makes Spark Prime structurally reliant on either long exit horizons or material price concessions.



In the following, the graphs are based on the mean liquidity.

Figure 7 – Required Participation Rate to Exit in 3 Days (Mean ADV)

This panel asks the inverse question: what share of average daily volume would Spark need to internalise to fully unwind a max-size position within three trading days? For BTC, ETH, SOL, DOGE, SUI, XRP and ADA, the required participation is very low ($\approx 1 - 3\%$), suggesting that even relatively cautious execution would be sufficient to exit within the 3-day horizon. AVAX, ZEC and NEAR require somewhat higher participation ($4 - 8\%$), still within an aggressive but realistic regime for institutional execution. HYPE sits just above 10% , meaning that a three-day unwind would already consume a sizable fraction of observable flow. Again, USDe stands out, the implied participation exceeds 200% of mean ADV, which is mechanically infeasible and indicates that the current cap can only be exited over much longer horizons unless liquidity deepens materially.

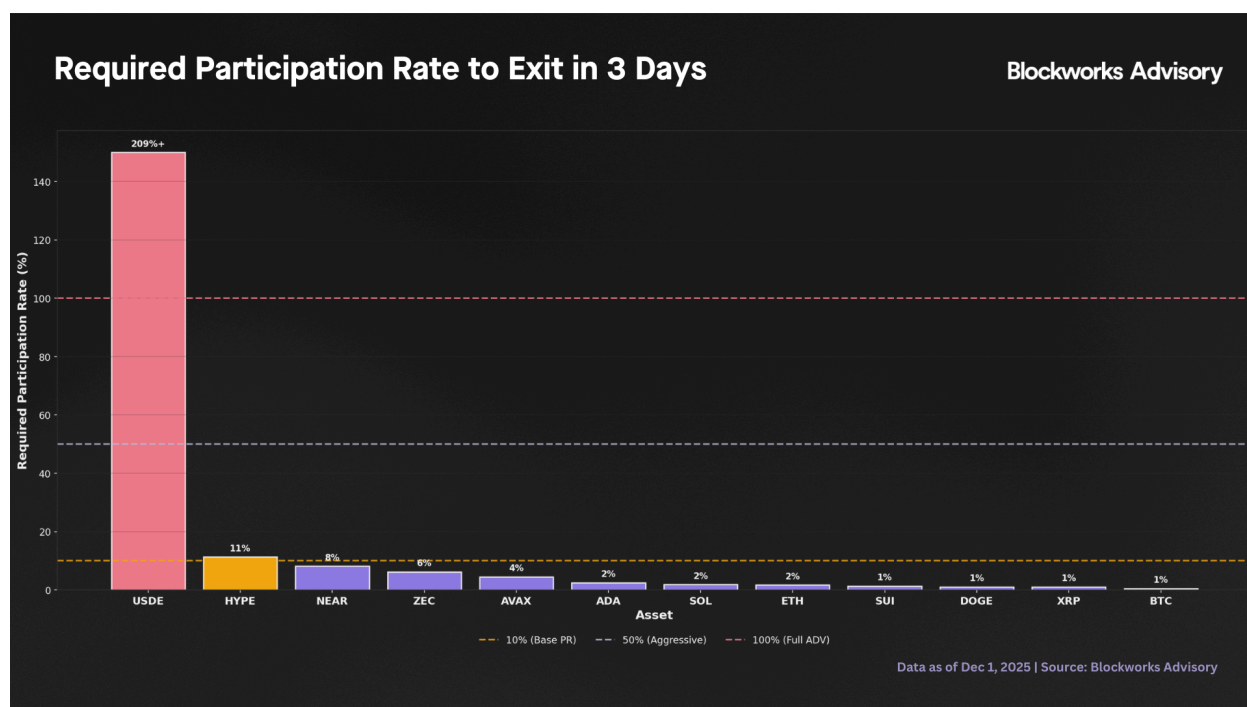


Figure 8 – Exit Time at 10% of Mean ADV

Here we assume Spark can trade 10% of average daily volume without excessive footprint. For BTC, ETH, XRP, DOGE, SUI, SOL and ADA, this assumption yields sub-day to $\approx$ 1-day exit times, consistent with very deep, liquid markets. AVAX, ZEC and NEAR move into the 1 – 3 day range, signalling that these caps are still feasible but start to rely on sustained execution over several sessions. HYPE requires around 3 – 4 days to fully exit at 10% participation, already approaching the operational boundary of what is comfortable for a margin lender. USDe is the outlier, at the current cap it would take more than 60 days to exit at 10% ADV, highlighting a significant mismatch between the cap size and observed spot liquidity.

Figure 9 – Exposure Cap vs Mean Daily Volume

This bar chart compares each asset's exposure cap to its average ADV. For BTC, ETH, SOL, DOGE, SUI, XRP and ADA, the caps correspond to only 2 – 7% of mean ADV (multiples well below 0.1x), meaning that even full-size Spark Prime positions would be small relative to typical trading flow in these markets. AVAX and NEAR sit somewhat higher, at $\approx$ 0.1 – 0.25x ADV, but still within a range where execution should be manageable under normal conditions. By contrast, the proposed USDe cap is $\approx$ 6.3x mean ADV, implying that a fully utilised limit would represent several days worth of trading volume and would be materially more difficult to unwind without significant market impact. HYPE's cap is also non-trivial (0.34x ADV), but remains an order of magnitude below the USDe multiple.

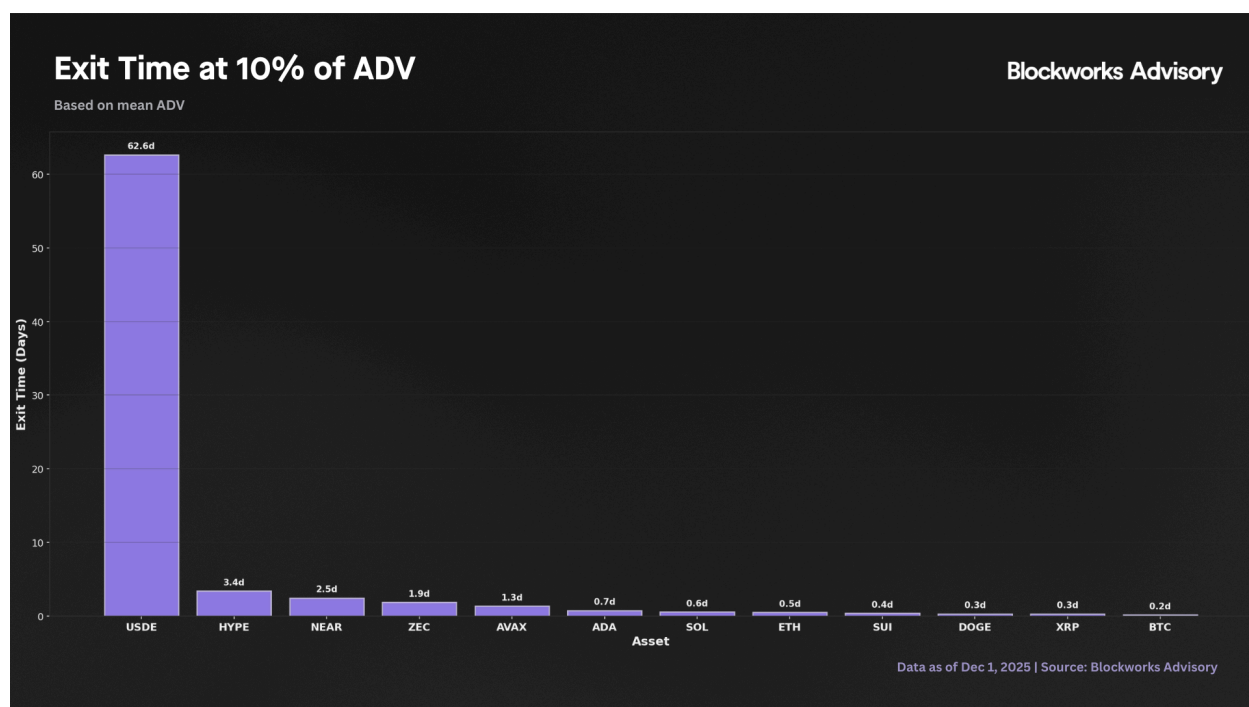
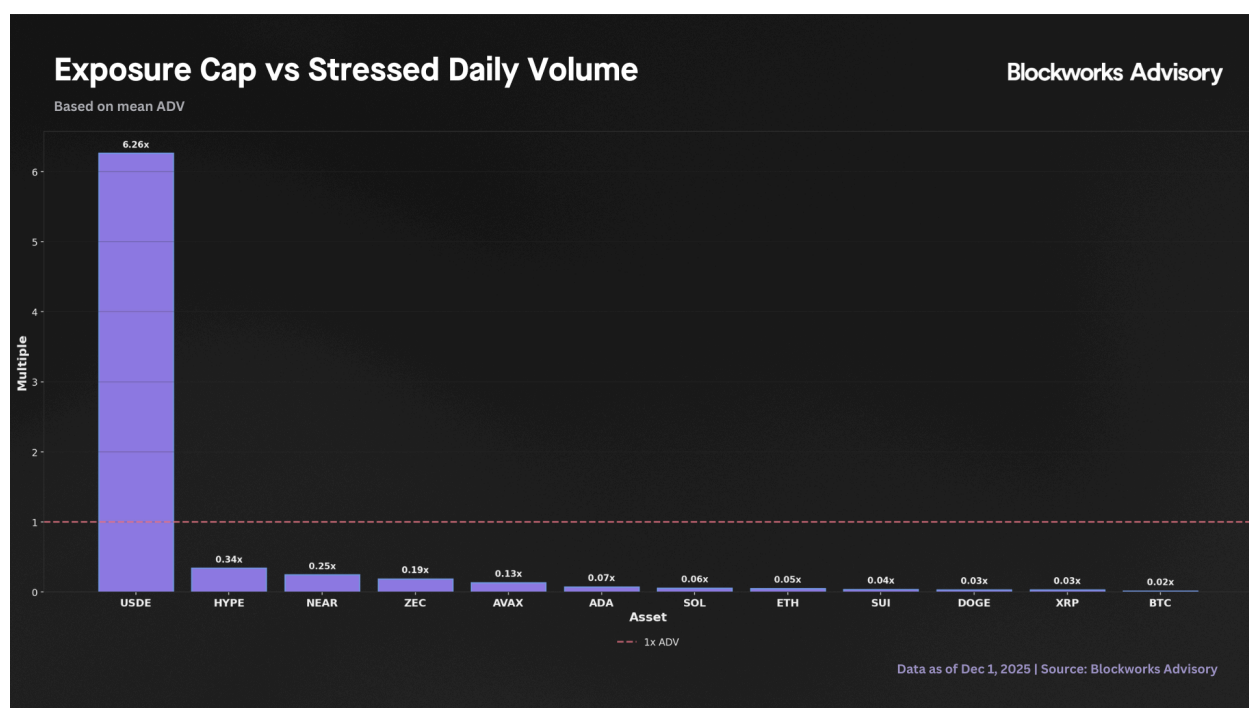
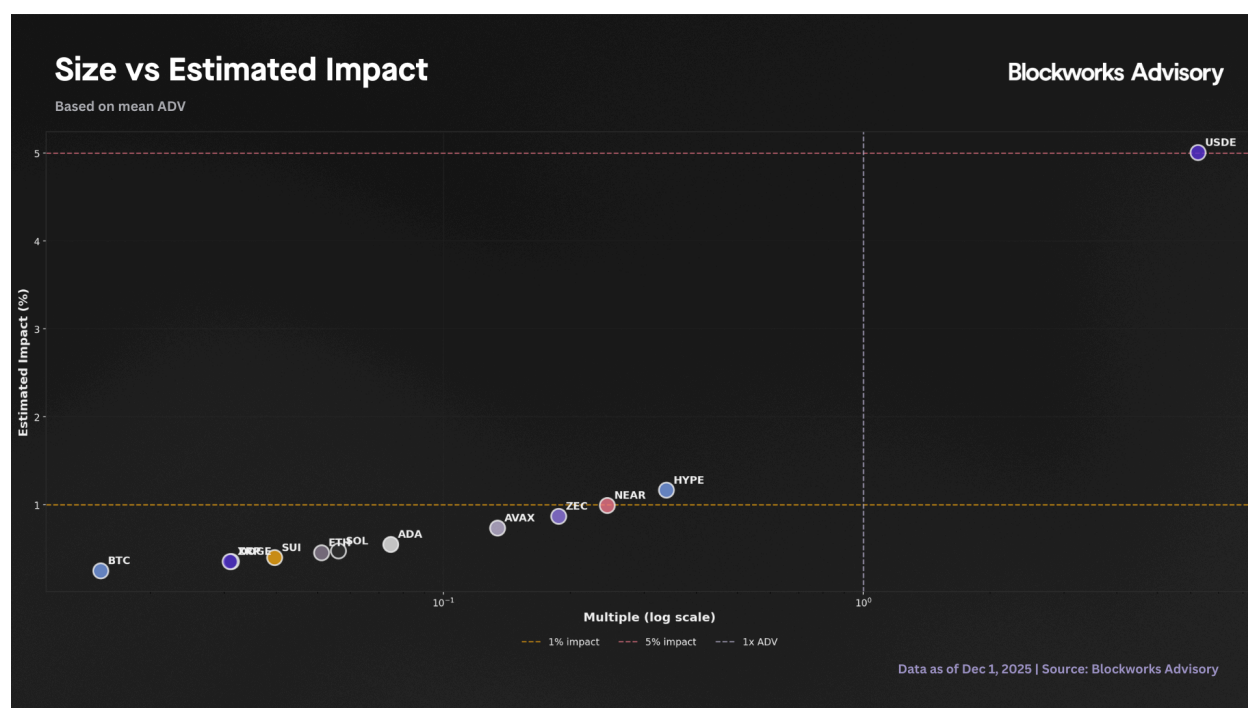


Figure 10 – Size vs Estimated Impact (Mean ADV)

The scatter plot links the multiple on a log scale (x-axis) to a stylised square-root price-impact proxy (y-axis) based on mean ADV. For major assets (BTC, ETH, SOL, DOGE, SUI, XRP, ADA) the combination of small multiples and deep markets keeps the estimated impact well below 1%, even when exiting the full cap. Mid-cap assets such as AVAX, ZEC and NEAR lie higher on

both axes, with implied impacts around 0.8 – 1.5%, indicating that sizable but still manageable execution costs should be expected at the limit. HYPE sits in the same band but with slightly higher impact for a given multiple, reflecting its thinner liquidity. USDe again occupies the extreme upper-right corner, with a cap more than six times mean ADV and an implied impact around 5%. From a risk perspective, this figure reinforces the message that USDe carries a structurally different liquidity profile from the rest of the margin set and that its cap should be treated as a distinct risk bucket.



In the following analysis, we focus exclusively on **stressed liquidity conditions**, measured by the 10th-percentile of daily trading volume ADV(p10), rather than by mean ADV volumes.

The resulting metrics naturally split the marginable assets into three tiers. For the large-cap majors BTC, ETH, SOL, XRP, DOGE, SUI and ADA, the proposed caps are small relative to stressed volume. BTC's 100 million USD limit sits against an ADV(p10) of approximately 2.77 billion USD, yielding a multiple $\approx 0.04\times$, a three-day exit requiring only about 1.2% of stressed volume, and an impact proxy of 0.38%. ETH's 250 million cap corresponds to $0.1\times$ stressed ADV, with an expected exit time of 1.3 days at 10% participation, a required three-day participation of 4.4% and an impact proxy of 0.72%. SOL, XRP, DOGE, SUI and ADA all sit in a similar band where multiple lies between $0.1\times$ and $0.2\times$, exit days at 10% participation are on the order of one to two days, required 3-day participation rates are between roughly 3% and 7%, and the impact proxy remains below 1%. **For this group, spot-liquidity risk is not the binding constraint since even under stressed volumes, Spark could fully unwind Prime-sized exposures over a short horizon without dominating flow, and expected price impact from its own trading remains in the low single digits.** For these assets, haircut

calibration and overall market-risk appetite are likely to be more important than spot depth in setting limits.

Liquidity Analysis Summary					Blockworks Advisory		
Asset	CAP	Mean ADV	ADV(p10)	Multiple CAP/ADV(p10)	Exit Days (p10, RP10%)	Required PR (3 days p10)	Impact (p10)
USDE	\$500m	\$79.9m	\$13.6m	36.9x	368.9d	1229.60%	12.15%
HYPE	\$50m	\$147.3m	\$4.2m	11.9x	119.1d	396.90%	6.90%
ZEC	\$20m	\$106.4m	\$1.8m	10.9x	118.8d	362.50%	6.60%
NEAR	\$20m	\$81.5m	\$34.7m	0.6x	5.8d	19.20%	1.52%
AVAX	\$20m	\$148.7m	\$57.0m	0.4x	3.5d	11.70%	1.19%
ADA	\$25m	\$333.8m	\$114.7m	0.2x	2.2d	7.30%	0.93%
ETH	\$250m	\$4877.9m	\$1904.2m	0.1x	1.3d	4.40%	0.72%
SOL	\$100m	\$1778.8m	\$793.5m	0.1x	1.3d	4.20%	0.71%
DOGE	\$25m	\$799.7m	\$240.4m	0.1x	1.0d	3.50%	0.64%
SUI	\$20m	\$504.8m	\$206.2m	0.1x	1.0d	3.20%	0.62%
XRP	\$50m	\$1611.1m	\$546.0m	0.1x	0.9d	3.10%	0.61%
BTC	\$100m	\$6548.2m	\$2768.2m	0.0x	0.4d	1.20%	0.38%
USDT	NA	\$269.7m	\$29.0m	NA	NA	NA	NA
USDC	NA	\$1828.3m	\$711.1m	NA	NA	NA	NA

Data as of Dec 1, 2025 | Source: Blockworks Advisory

A second tier is formed by NEAR and AVAX, where the caps are still below stressed ADV but much closer to it. For NEAR, a 20 million USD cap versus ADV(p10) $\approx$ 34.7 million implies multiple $\approx$ 0.6x, an expected exit time of about 5.8 days at 10% participation, a required 3-day participation of 19.2% and an impact proxy of 1.52%. AVAX's 20 million cap against ADV(p10) $\approx$ 57.0 million gives multiple $\approx$ 0.4x, roughly 3.5 days to exit at 10% participation, a 3-day participation requirement of 11.7% and an impact proxy of 1.19%. These figures are still compatible with a senior secured prime book, but they are materially more demanding operationally than the majors since under stress, a full-cap unwind calls for double-digit shares of daily volume and will start to become visible to the market. The low-single-digit impact proxies suggest that price impact alone is unlikely to be catastrophic, but combined with gapping and correlation stress they can erode the effective cushion implied by current haircuts. **From a risk perspective, these assets look acceptable at the proposed limits, but they are natural candidates for tighter internal sub-caps, longer assumed exit horizons in capital models, and more active monitoring of realized execution conditions.**

The third tier comprises USDE, HYPE and ZEC, which appear clearly stretched relative to their observed market capacity. For USDE, the 500 million USD exposure cap is set against an ADV(p10) of only 13.6 million, leading to multiple $\approx$ 36.9x. At a 10% participation rate, a full unwind would, on this simple model, take approximately 369 trading days and to exit within three days, Spark would need to transact at roughly 1,230% of stressed daily volume, which is mechanically impossible without assuming an order-of-magnitude increase in market depth. The associated impact proxy is 12.15%, i.e., a double-digit expected adverse move purely from

Spark attempting to exit the full cap under current stressed-volume conditions. HYPE and ZEC are somewhat smaller but still highly demanding. HYPE's 50 million cap versus 4.2 million stressed ADV yields multiple $\approx 11.9\times$, a 119-day exit at 10% ADV, required 3-day participation near 397%, and a 6.9% impact proxy. ZEC's 20 million cap against 1.8 million stressed ADV gives $10.9\times$, a 109-day exit at 10% ADV, 363% 3-day participation and a 6.6% impact proxy. **In all three cases, the limits are more akin to long-term theoretical ceilings than to realistic "recallable" risk limits under current spot liquidity. If a borrower in this bucket needed to be liquidated in a stress event, Spark would either have to accept large price concessions or carry the exposure over many months of unwinds, with significant mark-to-market and gap risk.**

Finally, the stablecoins USDT and USDC appear without explicit caps but with substantial depth (mean daily volumes of approximately 270 million and 1.83 billion USD, respectively; stressed volumes of 29 million and 711 million). Since they have no protocol-level exposure limits in the Arkis configuration, they do not enter the cap-to-ADV metrics directly. However, their volume profiles confirm that any eventual cap on these assets would be shaped primarily by issuer and correlation risk considerations rather than by spot liquidity at the scale relevant for Spark Prime.

Overall, the liquidity analysis indicates that the proposed Spark Prime caps are comfortably conservative for the major assets (BTC, ETH, SOL, XRP, DOGE, SUI, ADA), operationally feasible but non-trivial for the intermediate assets (NEAR, AVAX), and aggressive for the tail assets (USDe, HYPE, ZEC) when measured against observed stressed volume on Binance, Bybit, OKX, Bitget, Coinbase and Hyperliquid. **If Spark Prime is to be treated as a senior-secured, recallable facility, the current limits for USDe, HYPE and ZEC would warrant either a downward revision, an explicit linkage to rolling ADV, or, at minimum, a much more conservative exit-horizon assumption and corresponding capital charges.** The framework also provides a clear ranking of asset-specific liquidity risk, which can be used to prioritise where internal sub-limits, monitoring triggers, or dynamic scaling rules are most needed.

Ultimately, the analysis suggests that this proposal can be supported without creating undue risk **provided that haircuts and exposure caps** (especially for USDe, HYPE and ZEC) **are tightened** in line with observed drawdowns and liquidity before the mandate is put to a vote.