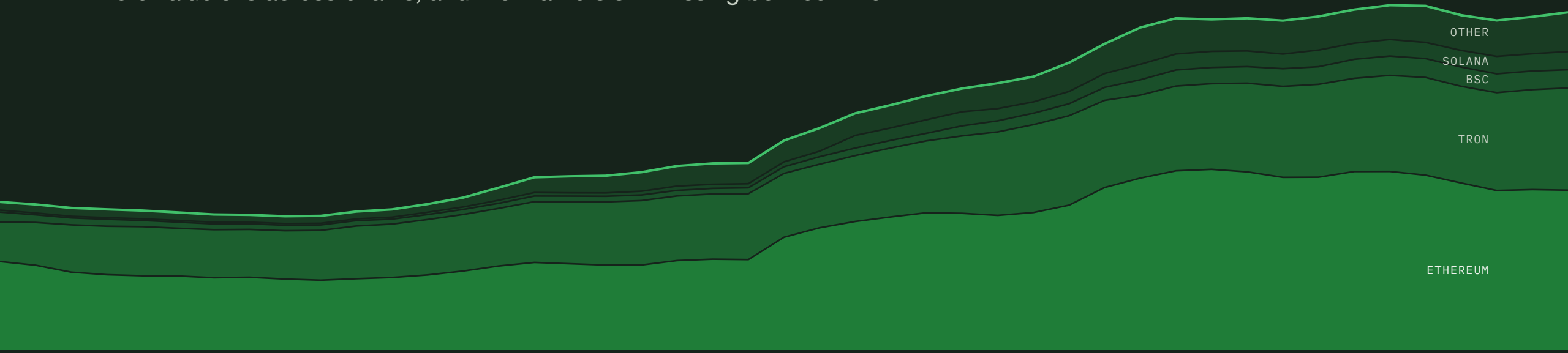
Aspens

The State of Multichain Markets 2026

Where value sits across chains, and the markets still missing between them



Market data as of September 27, 2026. Company status as of October 8, 2026.

Dollar stablecoin supply by chain, USD, January 2023 to September 27, 2026. Source: DefiLlama; Aspens analysis.

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ABOUT

Scope: value across chains, stablecoins and tokenized assets, the cost of crossing, losses where value crosses, hosted-venue terms and the missing markets.

Market data as of September 27, 2026. Company status as of the publication date on the cover.

Sources: DefiLlama, L2BEAT, CoinGecko, Hyperliquid, company documentation, filings and post-mortems, each dated in its exhibit's Source line.

Published by Aspens, a company building direct crosschain markets, which has a commercial interest in the market it describes.

Findings

01

Ten chains, most of the value

DeFi TVL was spread over more than 320 chains on September 27, 2026, yet ten held 91.2% of it and 145 held $1 million or more. The two largest chains carried 77.6% of dollar stablecoins that day, down from 89.6% in December 2023.

02

A dollar float near its high

On September 27, $311.5 billion of dollar stablecoins circulated, 2.9% below the May high and 1.8% above the end of October 2025. Perpetuals on stock, index, commodity and currency prices held 99.7% of open interest in Hyperliquid's builder markets on September 29.

03

Cheap transfers, published fees

The transfer routes surveyed charge 0 to 13 bps to move value between chains and publish that fee, and users paid $24.4 million in the 90 days to September 27 to the protocols DefiLlama classes as bridges. None of the methods surveyed has its provider publish the spread a trader pays at a stated size.

04

Losses in a few large incidents

Through September 27, bridge-tagged incidents accounted for 33.3% of the gross hack value DefiLlama records for 2026, against 1.4% in 2025. Net of returns, Kelp and Liquid account for most of the $378.9 million lost in 2026, and the largest loss of the year came from Bitget's hot wallets.

05

Hosts set what deployers commit

A market on dYdX takes a $10,000 deposit and one on Orderly $25,000; a whole Hyperliquid venue takes a stake of 500,000 HYPE, worth $45.8 million on September 27. Both term changes recorded in 2026 came in August and lowered deployers' costs or widened their control.

06

The missing market

As of October 8, 2026, none of the 24 products checked offers a spot market in which an asset on its own chain trades against value on another chain in one order book, with no bridge or custodian inside the trade and a signed record of every fill. The publisher designed and ran the test.

The headline numbers

more than 320

Chains with DeFi TVL, 145 of them at $1 million or more

DefiLlama, September 27, 2026

91.2%

DeFi TVL held on the ten largest chains

DefiLlama, September 27, 2026

$311.5 billion

Dollar stablecoins in circulation, 2.9% below the May high

DefiLlama, September 27, 2026

0 to 13 bps

Published fees on the transfer routes surveyed

Circle; USDT0; Relay; September 29, 2026

0 of 18

Methods surveyed that publish a spread at a stated size

Provider fee and documentation pages, September 29, 2026

$378.9 million

Bridge-tagged losses in 2026, net of confirmed returns

DefiLlama; post-mortems; to September 27, 2026

$3.9 billion

Open interest on markets deployers run on Hyperliquid

Hyperliquid, September 29, 2026

38

Chains on which Circle issues USDC natively

Circle, as of September 16, 2026

CHAPTER 1

Value is concentrated on a few chains, with a long, thin tail

On September 27, 2026, more than 320 chains had DeFi TVL, and ten of them held 91.2% of it. In stablecoins the concentration is easing: the two largest chains' share of the dollar float peaked at 89.6% in December 2023 and has since fallen to 77.6%. Among L2s, the four largest have held between 75.1% and 82.8% of value since January 2024. Five chains carry most spot DEX volume, and Robinhood Chain, launched in July, took 18.1% of September's.

145

Chains with $1 million or more in DeFi TVL

DefiLlama, September 27, 2026

$29.2 million

Total TVL of the chains under $1 million

DefiLlama, September 27, 2026

more than 160

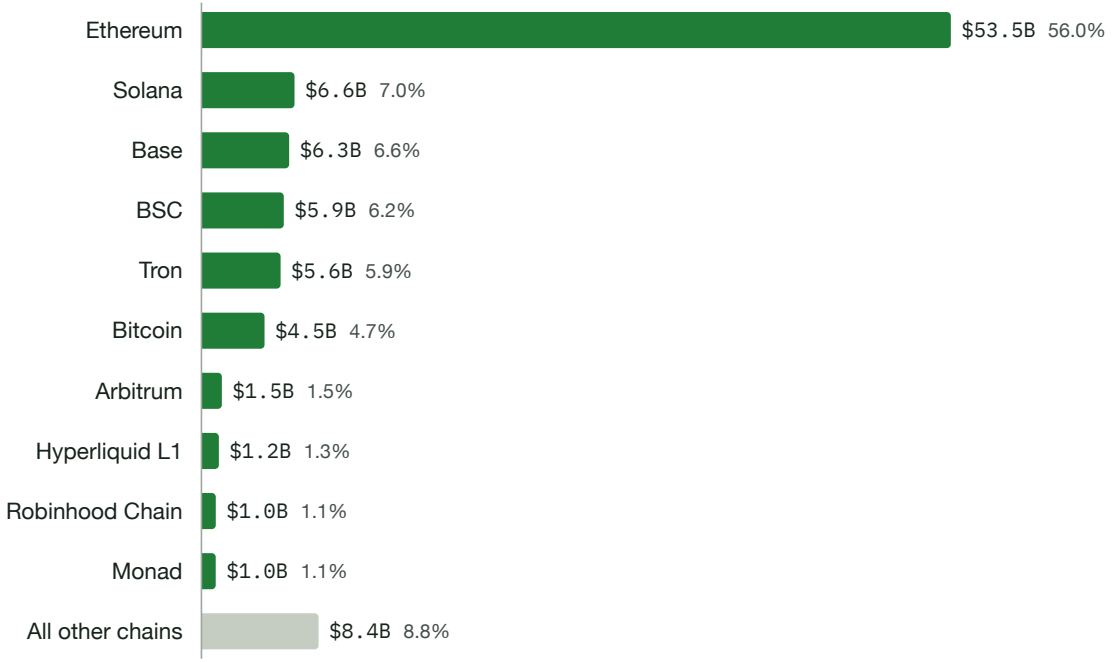
Chains carrying dollar stablecoins

DefiLlama, September 27, 2026

EXHIBIT 1

Ten chains hold 91.2% of DeFi TVL, Ethereum alone 56.0%.

DeFi TVL by chain, USD, September 27, 2026

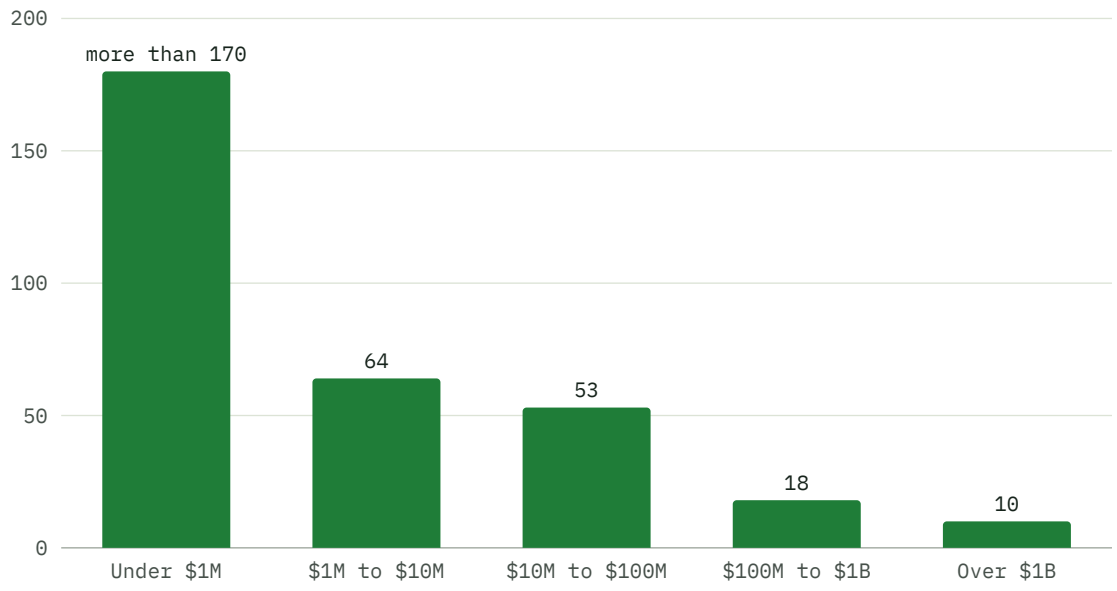


Note: DefiLlama's default TVL, which leaves out staking, pool2 and borrowed amounts; it counts assets deposited in DeFi applications, a different measure from market capitalization or stablecoin supply. Two alias records, Binance for BSC and Optimism for OP Mainnet, are removed so no chain counts twice. Shares are of all chains, $95.5 billion.
Source: DefiLlama; Aspens analysis.

EXHIBIT 2

Of more than 320 chains with DeFi TVL, 145 hold $1 million or more.

Chains by DeFi TVL, count per band, September 27, 2026



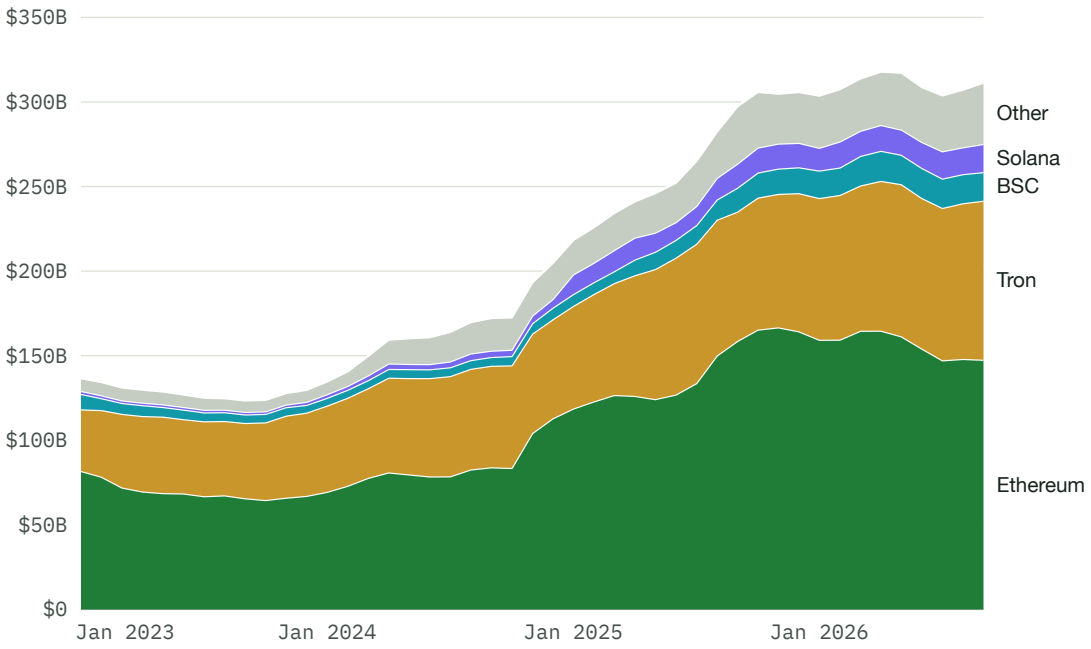
Note: Chains with no TVL are left out; each band includes its lower edge. DefiLlama's list ends in a tail of near-empty records, so the count under $1 million is a floor (more than 170).
Source: DefiLlama; Aspens analysis.

- Ethereum holds more DeFi TVL than the next nine chains combined.
- Between them, the chains under $1 million hold $29.2 million, against $87.1 billion on the ten over $1 billion.

EXHIBIT 3

Ethereum's share of dollar stablecoins: 59.9% in January 2023, 47.4% on September 27.

Dollar stablecoin supply by chain, USD, January 2023 to September 27, 2026

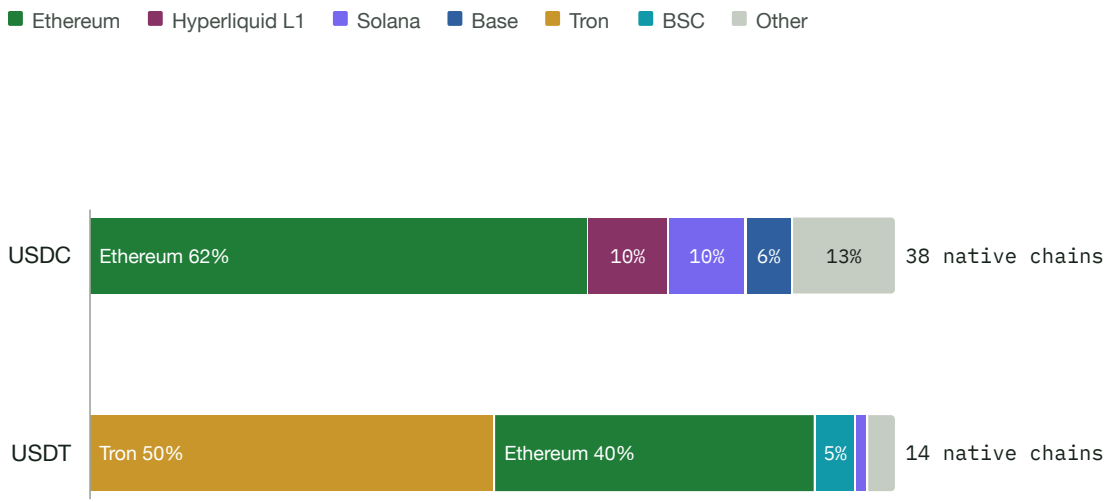


Note: Dollar-pegged stablecoins, month-ends to September 27. The window opens at Ethereum's highest share. DefiLlama's dollar list includes BUIDL, USYC and USDY, $6.1 billion or 2.0% of the float, which chapter 2 also counts as tokenized treasuries.
Source: DefiLlama; Aspens analysis.

EXHIBIT 4

USDC is native on 38 chains, but 62.0% of it sits on Ethereum.

USDC and USDT supply by chain, % of each, September 27, 2026



Note: A chain counts as native where DefiLlama's circulating supply, less what it attributes to bridges, is $1 million or more; an unattributed bridged balance counts as native. Circle's list of native networks (38, September 16) uses another method. Tether publishes no such list.
Sources: DefiLlama; Circle; Tether; Aspens analysis.

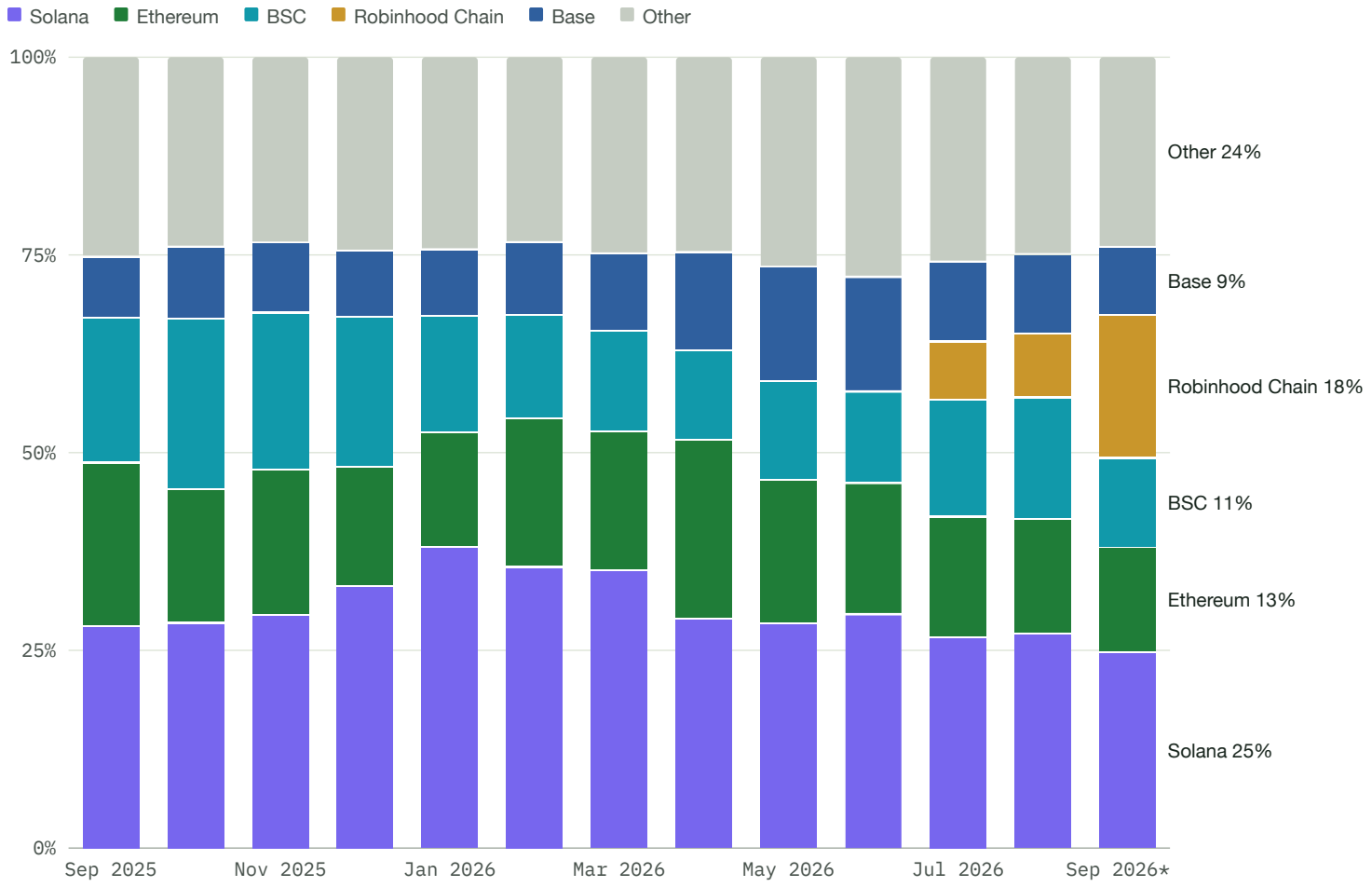
- The chains beyond Ethereum, Tron, BSC and Solana went from 5.5% to 11.6% of dollar stablecoins, with most of the gain in 2024. Tron's share also rose over the past year, to 30.2%.
- USDT is the larger float: $183.8 billion, against $75.2 billion of USDC.

EXHIBIT 5

Robinhood Chain, open since July 1, took 18.1% of September's spot DEX volume.

- 72.4% to 76.7% of monthly volume went to these five chains.
- Over the same year, Solana, Ethereum, BSC and Base fell to 58.1% of monthly volume between them, down from 74.9%.

Spot DEX volume by chain, % of each month, September 2025 to September 27, 2026



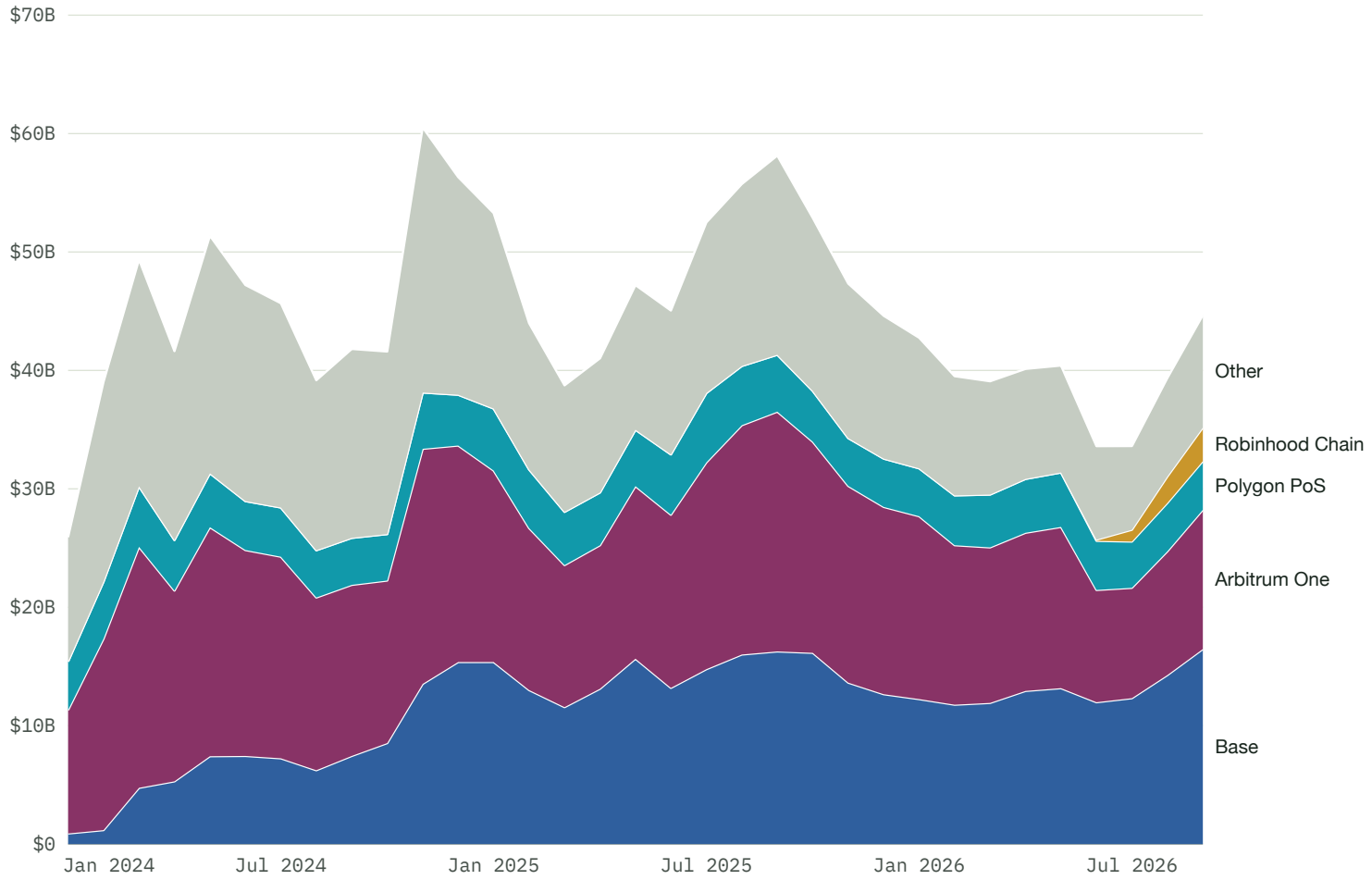
Note: Excludes aggregators and perpetuals. The monthly total fell through spring 2026, which the shares do not show. The five are fixed at their Q3 2026 ranking, so Robinhood Chain reads zero before July. *To September 27. Of Q3 volume, 5.9% has no chain attribution and sits in Other.
Source: DefiLlama; Aspens analysis.

EXHIBIT 6

L2 value fell from $57.6 billion to $44.7 billion in a year.

- Taken at each date, the four largest L2s held 82.8% of L2 value in January 2024, the period's high, and 78.8% on September 27.
- In fourth place among L2s, Robinhood Chain holds 6.3% of the value.

Value secured on L2s by chain, USD, January 2024 to September 27, 2026



Note: L2s only, as L2BEAT totals them; projects it classes as L3s, Hyperliquid among them, are left out. The four named are the largest on September 27, so their rise from 59.5% in January 2024 is a selection effect. The year's change compares daily points 365 days apart.
Source: L2BEAT; Aspens analysis.

CHAPTER 2

The dollar float holds near its high; traditional-asset exposure trades as perpetuals

The dollar float stood at $311.5 billion on September 27, 2026, within 2.9% of its May high. Tokenized assets outside stablecoins make a far smaller pool on CoinGecko's count, and more than half of it is Figure's HELOC token, worth more than all tokenized treasuries and money market funds combined. Builder markets on Hyperliquid trade stock, index, commodity and currency prices as perpetual futures.

$311.5 billion

Dollar stablecoins in circulation

DefiLlama, September 27, 2026

$796.6 million

Euro stablecoins, the largest float in another currency

DefiLlama, September 27, 2026

140

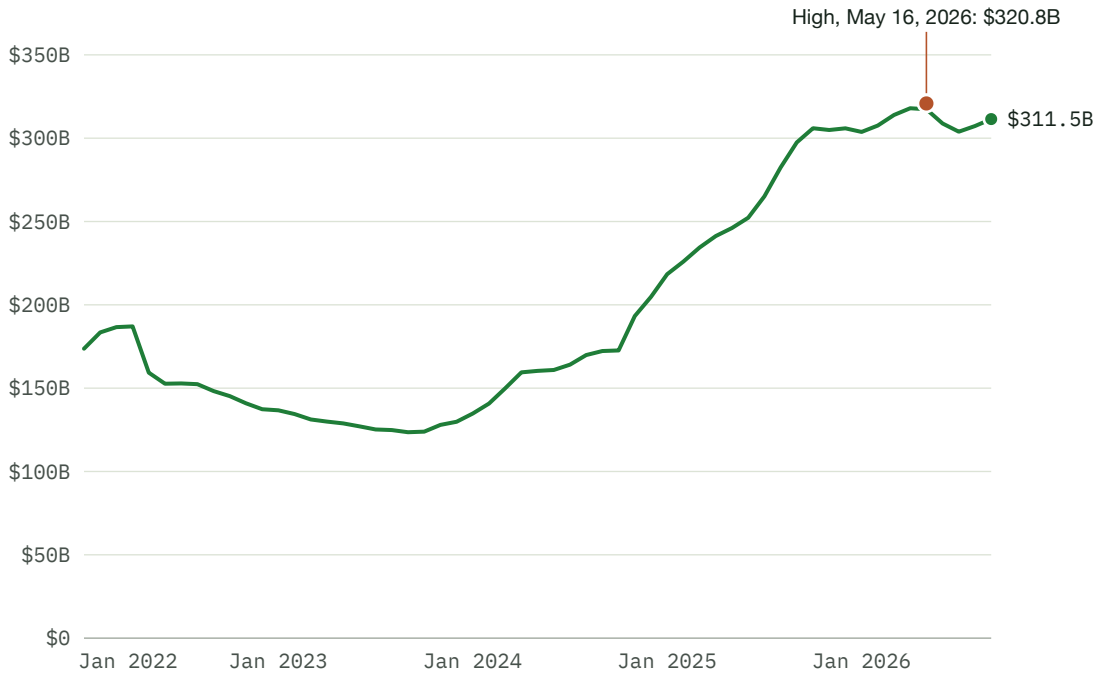
Live Hyperliquid builder markets on traditional prices

Hyperliquid, September 29, 2026

EXHIBIT 7

Dollar float: $123.6 billion at the 2023 low, $320.8 billion at the May high.

Dollar stablecoin supply, USD, month-ends, January 2022 to September 27, 2026

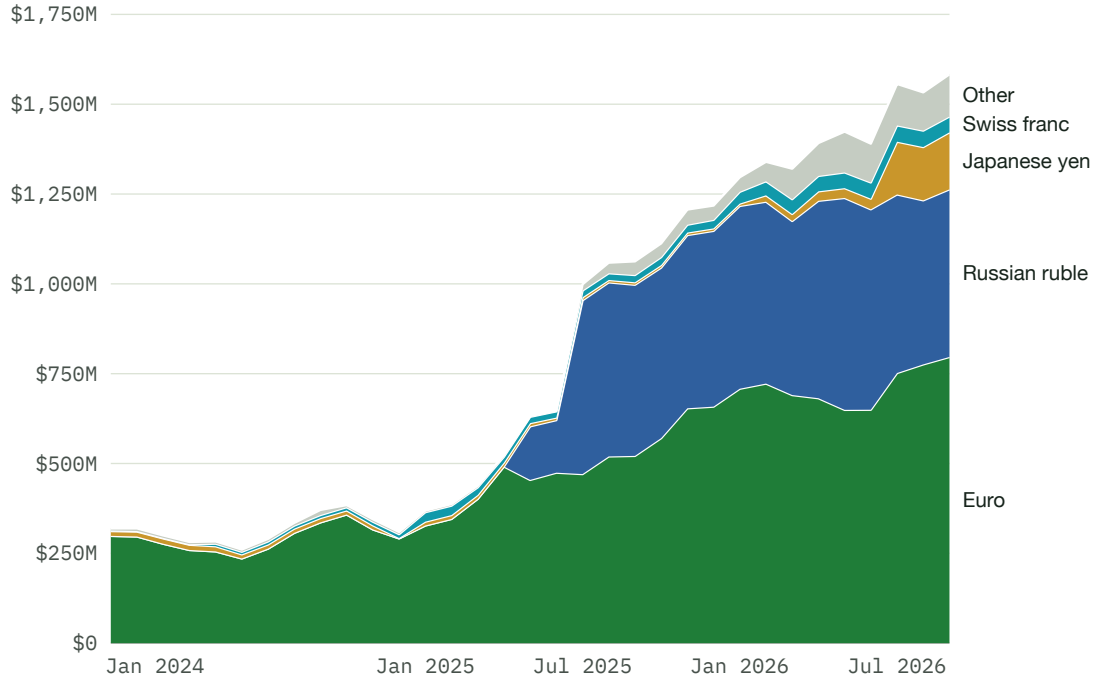


Note: Month-ends to September 27; the marker is the highest daily value. DefiLlama's series counts three tokenized funds, BUIDL, USYC and USDY: $6.1B, 2.0% of the float. CoinGecko's Stablecoins category is lower, $291.8B on September 29, a gap coverage alone does not explain.
Sources: DefiLlama; CoinGecko (data provided by CoinGecko); Aspens analysis.

EXHIBIT 8

Non-dollar stablecoins rose from $319.3 million to $1.6 billion, still 0.5% of supply.

Non-dollar stablecoin supply by currency, USD, month-ends, January 2024 to September 27, 2026



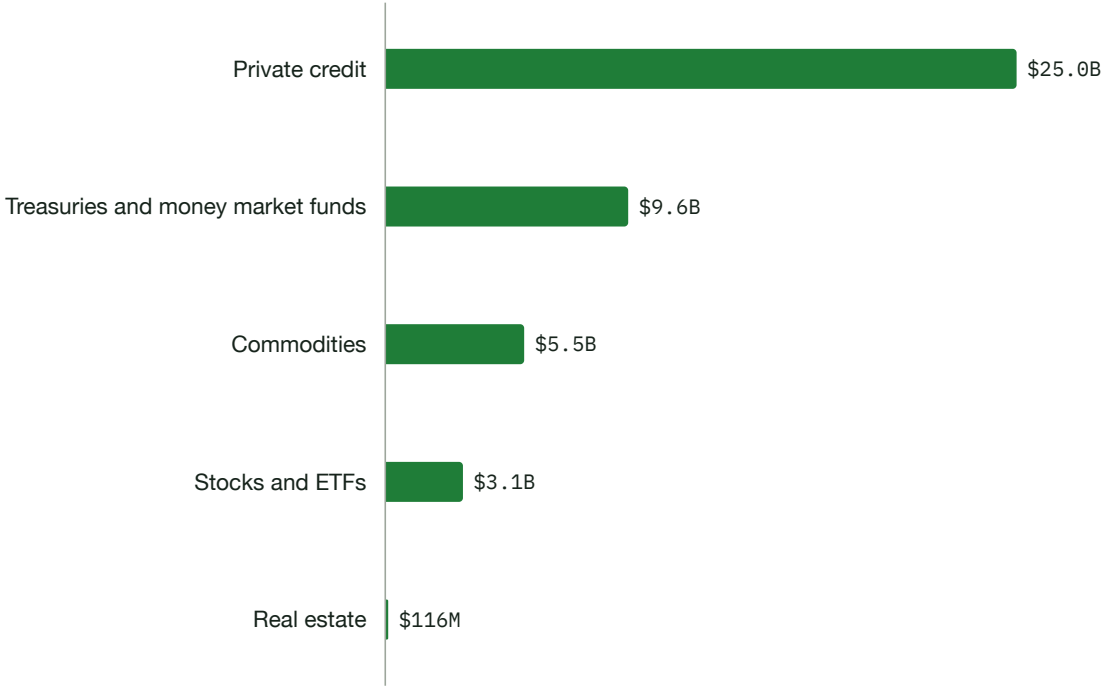
Note: Dollar values at DefiLlama's conversion, so part of the euro's rise is the exchange rate. The ruble line is almost entirely one token, A7A5, and JPYSC makes the yen's July 2026 step. The yen line's drop in December 2024 lasts a single month.
Source: DefiLlama; Aspens analysis.

- From a year earlier the float is up 5.6%, but from the end of October 2025 only 1.8%, so most of the past year's rise came before November.

EXHIBIT 9

Tokenized assets total $43.4 billion, or $20.2 billion without Figure's HELOC token.

Tokenized assets outside stablecoins by class, USD, September 27, 2026



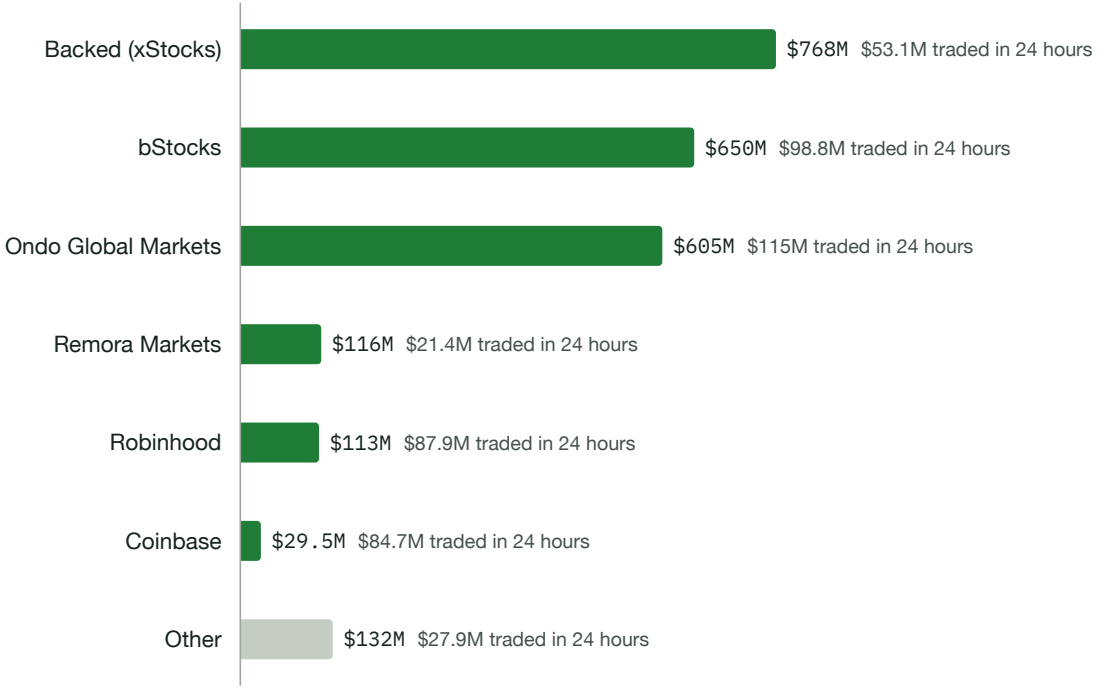
Note: Tokens CoinGecko lists in its tokenized categories, each counted once; unlisted permissioned funds are left out. Membership as of September 25; tokens under $10M valued that day. Private credit includes Figure's HELOC token. BUIDL, USYC and USDY, $6.1B, also sit in the dollar float.
Source: CoinGecko (data provided by CoinGecko); Aspens analysis.

- $23.2 billion of the $25.0 billion in private credit sits in Figure's HELOC token.

EXHIBIT 10

Three issuers hold 83.8% of the $2.4 billion in tokenized stocks.

Tokenized stock value by issuer, USD, with 24-hour volume, September 27, 2026



Note: Issuer from CoinGecko's issuer categories, otherwise from the token's name; Other holds tokens that name no issuer. Volume is one day's and moves day to day. Most tokens are valued at September 25. CoinGecko's own category total was $2.5B on September 29.
Source: CoinGecko (data provided by CoinGecko); Aspens analysis.

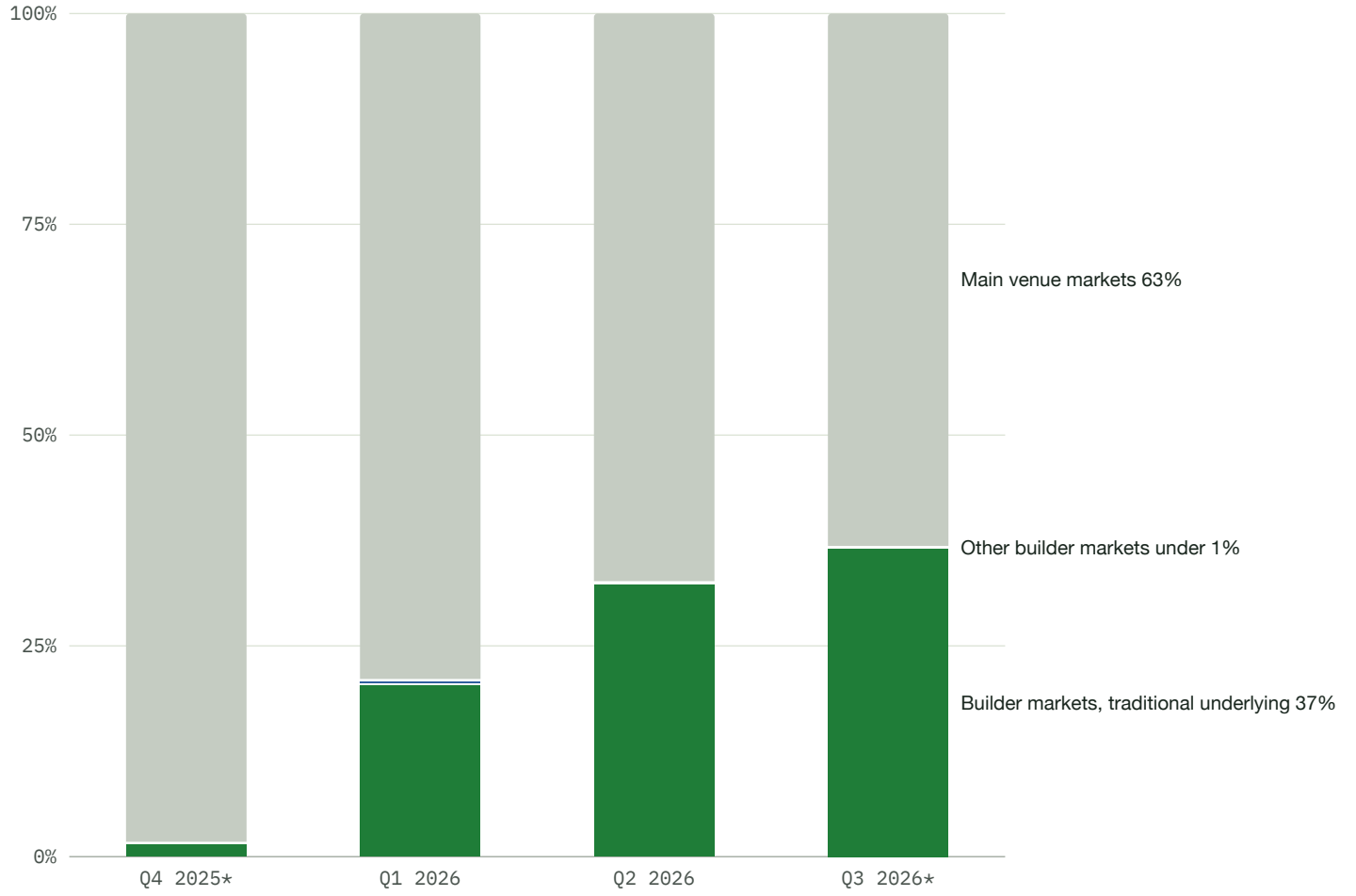
- On September 1 the London Stock Exchange said it intends to list xStocks, the largest issuer's tokens, in 2027, subject to regulatory approval.

EXHIBIT 11

Builder markets on traditional prices took 36.8% of Hyperliquid volume in Q3 2026.

- 99.7% of builder open interest sat in those markets on September 29.
- Binance lists perpetual contracts on traditional assets beside tokenized stocks, by its own account, and accepts bStocks as margin collateral.

Hyperliquid perpetual futures volume by market type, % of each quarter, Q4 2025 to Q3 2026



Note: Traditional: stocks, indices, commodities, currencies. Modeled: daily base volume times daily close. Q3 by month: July 51.1%, August 35.2%, September 24.0%. Total volume, which shares hide: $742.5B in Q4 2025, $688.3B in Q3 2026. *Builder markets from October 13, 2025; to September 27.
Source: Hyperliquid (public API); Aspens analysis.

EXHIBIT 12

Robinhood, Swift and Circle went live in 2026; NYSE, Nasdaq and DTCC have not.

Events by institution, January to September 2026, with status at publication

DATE	INSTITUTION	EVENT	STATUS
January 19, 2026	NYSE (ICE)	Announced a platform for trading and on-chain settlement of tokenized securities	Rule effective
March 18, 2026	Nasdaq	Won SEC approval of its rule change to trade securities in tokenized form	Approved
July 1, 2026	Robinhood	Launched the public mainnet of Robinhood Chain, its own Layer 2	Live
July 9, 2026	Swift	Declared its blockchain ledger ready for initial use, with live bank transactions from August	Live
July 15, 2026	DTCC	Ran live tokenized trades with participating firms ahead of an October service launch	Scheduled
August 3, 2026	Mastercard	Completed its acquisition of BVNK	Completed
September 16, 2026	Circle	Launched Arc, its own Layer 1 blockchain, on public mainnet	Live

Note: Live means in production; Swift's ledger is in its initial controlled phase. NYSE's rule change for tokenized trading took effect on filing with the SEC, and its platform has no launch date. Nasdaq expects token trading in Q2 2027.

Sources: NYSE (ICE); Nasdaq; SEC notices; Robinhood; Swift; DTCC; Mastercard; Circle; OKXICE; OKX.

- NYSE's design pairs its Pillar matching engine with post-trade systems that can support multiple chains for settlement and custody, ICE said in January.
- A venture of ICE and OKX, OKXICE, plans tokenized stock trading on OKX's chain alone.

CHAPTER 3

Crossing chains is five jobs, and transport is the one sold cheaply and openly

The transfer routes surveyed charge 0 to 13 bps to move value between chains, and each publishes that fee. On their own pages, the 18 methods surveyed state no spread a trader pays at a stated size. Fees and spreads are one of four costs a firm pays to cross chains, beside custody and counterparty exposure, risk carried on the route, and proof rebuilt after the fact.

EXHIBIT 13

Crossing chains, job by job

What each job is, who sells it today, and whether its price is published

THE JOB	WHAT THE BUYER WANTS	WHO SELLS IT TODAY	PRICE PUBLISHED
Transport	The asset moved to another chain at a known fee	Circle's CCTP, USDT0, bridges and intent networks such as Relay	Yes
Exchange	One asset swapped for another at a discovered price	Custodial exchanges, hosted venues, DEXs and solver networks	Partly
Settlement	Both legs delivered on their own chains, or neither	Custodians' off-exchange networks, each on its own books	Partly
Rebalancing	Inventory moved to the chain where the next trade needs it	The same transfer routes, run by each desk for itself	Partly
Netting	Obligations offset across chains before anything settles	Swift's ledger, for tokenized bank deposits; Everclear wound down in May	No

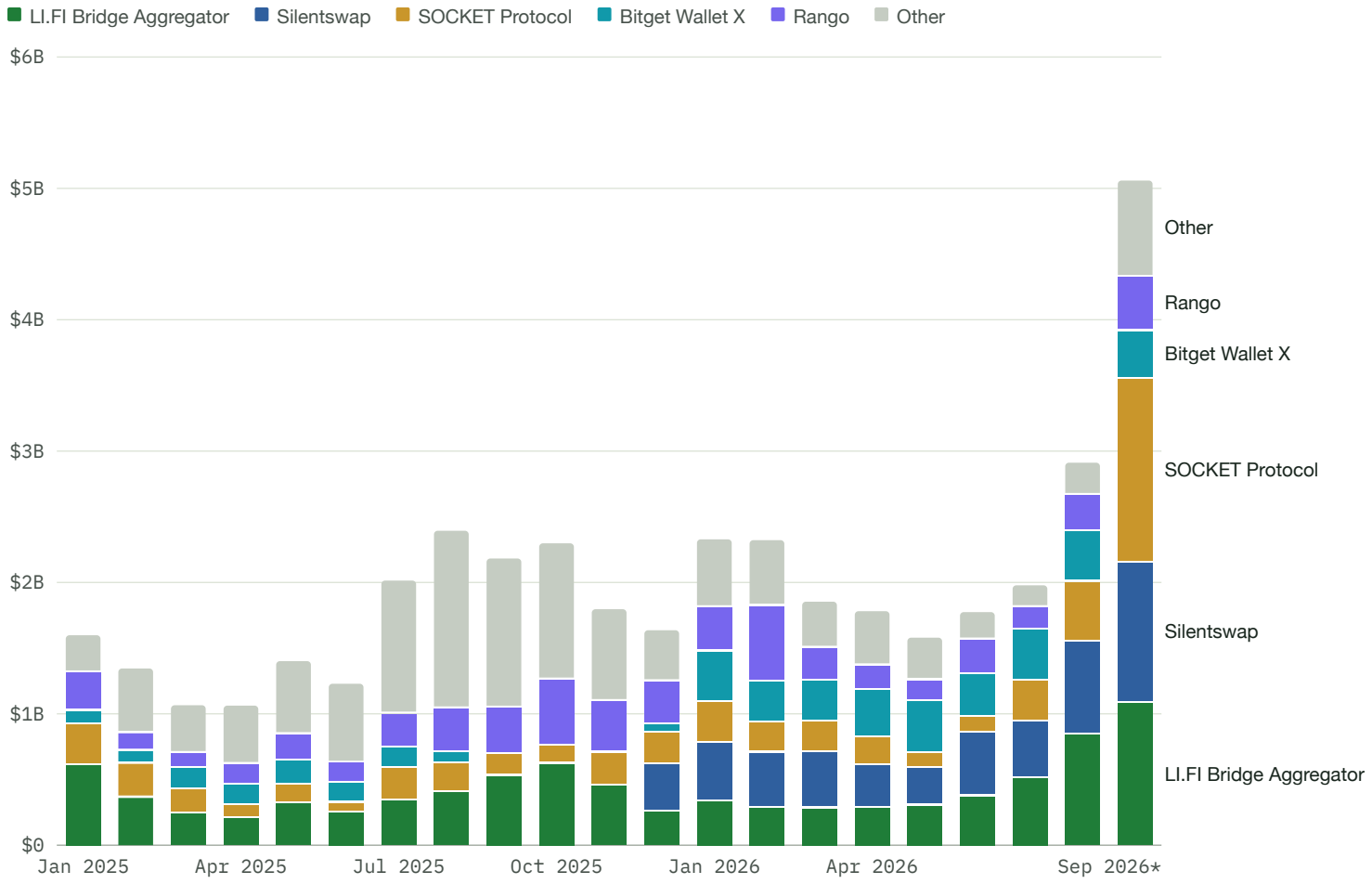
Note: Settlement means both legs delivered on their own chains, with no bridge or custodian holding either leg in between. Price published means the seller's own pages state a rate; partly means some sellers do, or state the fee but not the spread.
Sources: provider fee and documentation pages; company releases; Aspens analysis.

EXHIBIT 14

Five aggregators carried about 89% of bridge-aggregator volume in Q3 2026.

- $2.9 billion was the most routed in any month from January 2025 to August 2026, and $1.1 billion the least.
- Of Q3 volume, LI.FI carried 25.0%, more than any other aggregator.

Value routed through bridge aggregators, USD, monthly, January 2025 to September 27, 2026



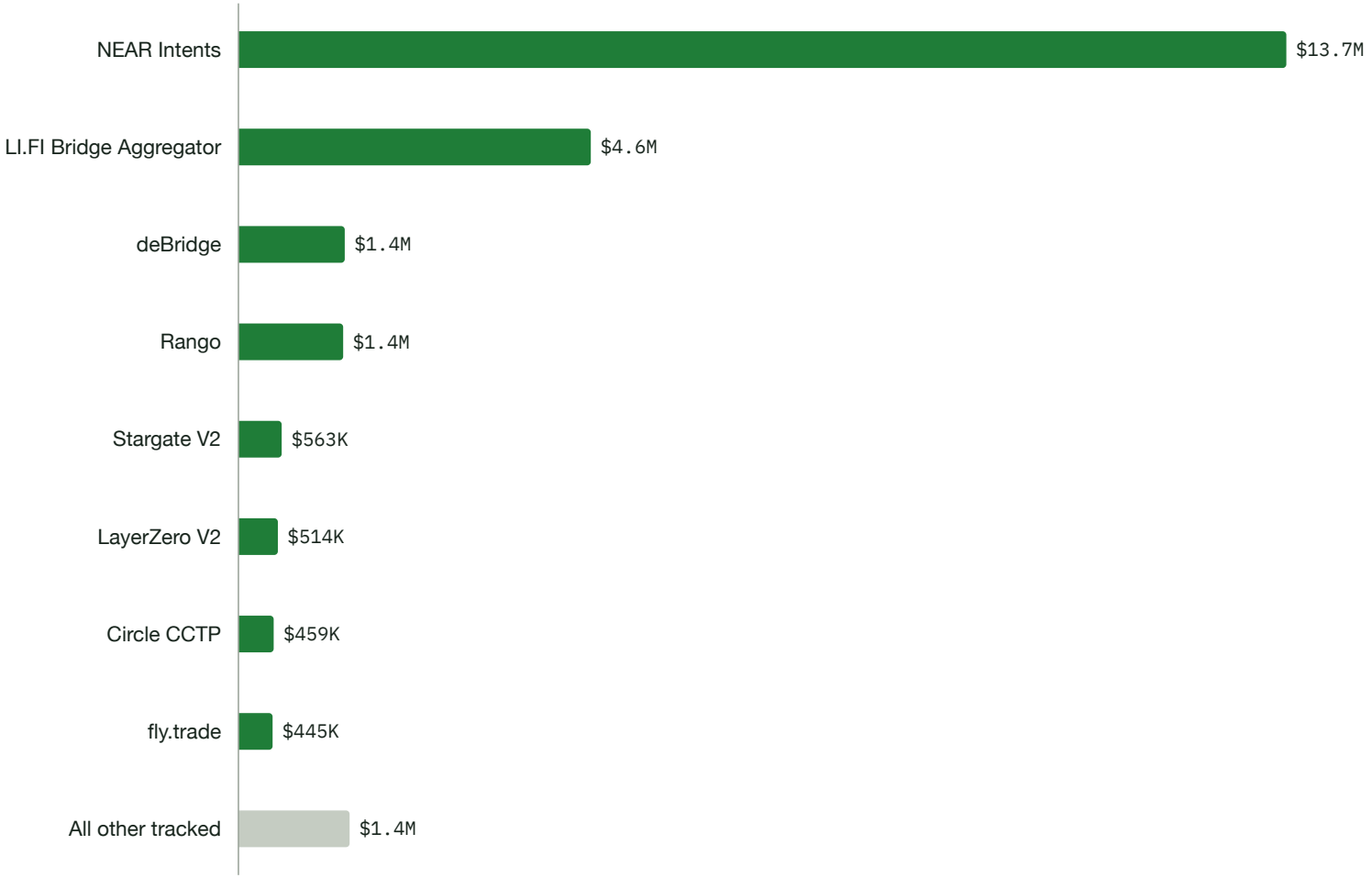
Note: The aggregator layer only, a floor on crosschain flow: transfers made directly on a rail are not counted. Top five by Q3 2026 volume. *September to the 27th, and not comparable: SOCKET's series changed method on June 11, 2026, and Silentswap entered in November 2025.
Source: DefiLlama; Aspens analysis.

EXHIBIT 15

Users paid bridge protocols $24.4 million in the 90 days to September 27.

- NEAR Intents took more than half of what users paid, and because it charges on swaps as well as transfers, part of that sum pays for exchange.

Fees paid by users to bridge protocols, USD, 90 days to September 27, 2026

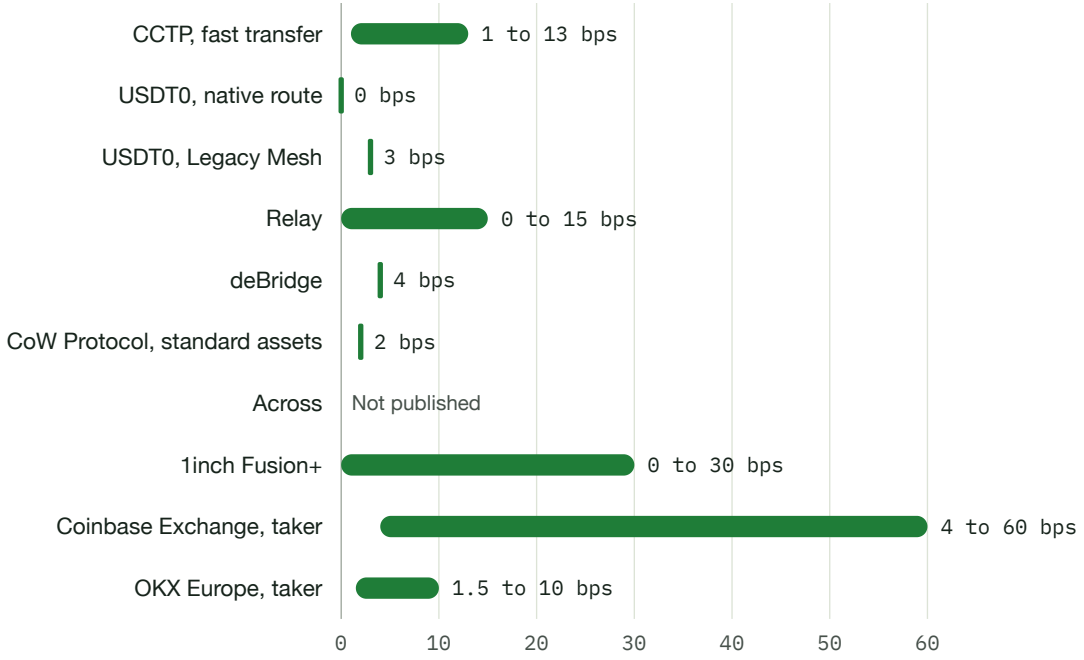


Note: What users paid, which differs from protocol revenue. The 38 protocols in DefiLlama's Bridge, Cross Chain Bridge and Bridge Aggregator fee categories, less SolvBTC and Unit, whose fees are not for moving value. Several series include swap fees. Relay has no fee series.
Source: DefiLlama; Aspens analysis.

EXHIBIT 16

Where a crossing route publishes its fee, it runs from 0 to 30 bps.

Published fee by method, bps of value moved or traded, as of September 29, 2026

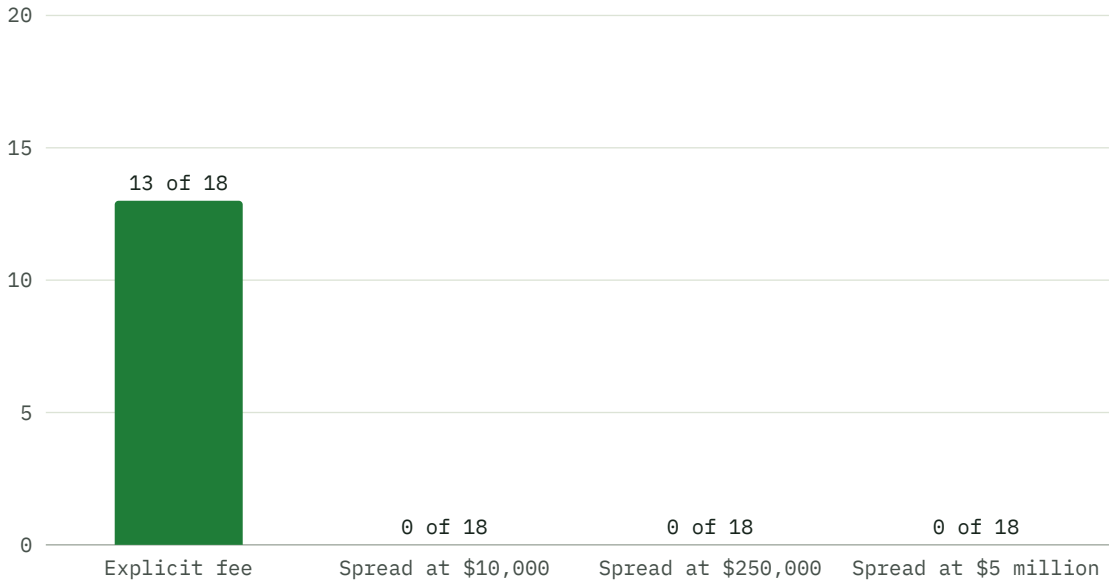


Note: Rows differ in kind. deBridge's 4 bps and CoW's 2 bps are protocol fees only; deBridge adds a flat fee and a solver margin. CCTP standard transfers are free. USDT0's native route still pays LayerZero gas. Exchange rows are taker fees by 30-day volume tier.
Sources: Circle; USDT0; Relay; deBridge; CoW Protocol; Across; 1inch; Coinbase; OKX Europe; Aspens analysis.

EXHIBIT 17

13 of 18 methods publish an explicit fee, and none a spread at size.

Methods whose provider publishes each item, of 18 surveyed, as of September 29, 2026



Note: A cell counts only when the provider publishes the figure on its own pages; third-party figures and fee policies do not count as a spread. Methods: those in the fee exhibit, five off-exchange settlement networks and four hosted venues.
Sources: provider fee and documentation pages; Aspens analysis.

- Across publishes its fee model, the spread between what a user deposits and what arrives, and says its rate parameters vary by token and route.
- OpenChainBench, a third party, reports costs only for small trades.

CHAPTER 4

Losses where value crosses chains are concentrated in a few large incidents

Through September 27, Kelp and Liquid account for most of the $378.9 million lost to bridge-tagged incidents in 2026 after confirmed returns. Because each year's total turns on a few incidents, the bridge-tagged share of the hack value DefiLlama records swings, from 52.4% of gross value in 2022 to 1.4% in 2025 and 33.3% this year. The largest loss of 2026 by net amount fell outside that tag, at Bitget, a custodial exchange, after unauthorized transfers from some of its hot wallets on September 24.

$378.9 million

Net losses in bridge-tagged incidents in 2026

DefiLlama; post-mortems; to September 27, 2026

25.5%

Bridge-tagged share of hack value since 2022, gross

DefiLlama, 2022 to September 27, 2026

$2.2 billion

All hack value DefiLlama records in 2026, gross

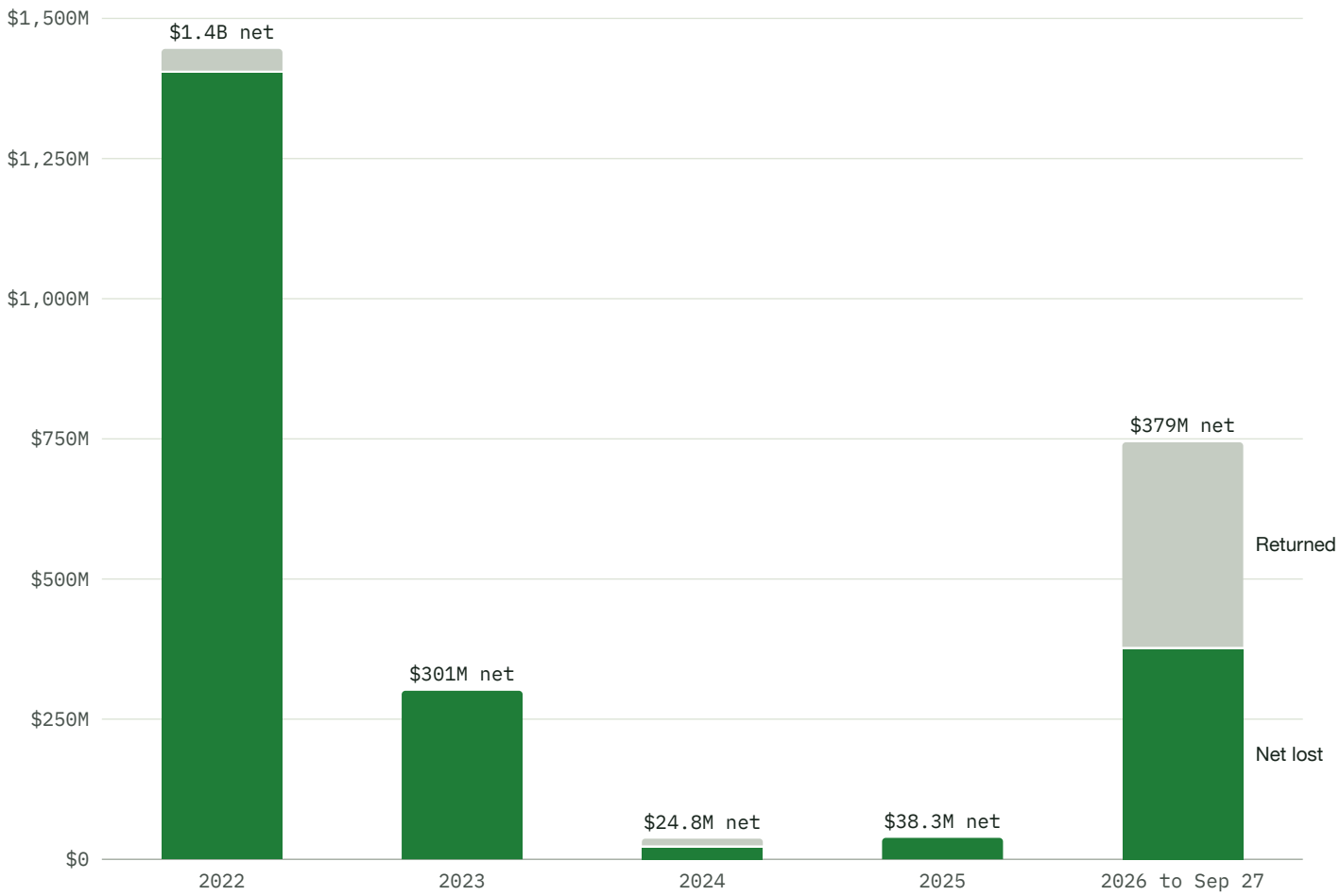
DefiLlama, to September 27, 2026

EXHIBIT 18

Bridge-tagged net losses: $1.4 billion in 2022, $378.9 million in 2026 to September 27.

- $365.0 million of the 2026 total came back to victims, nearly half the gross, mostly from Liquid and from ETH released to Kelp's recovery effort.

Losses in incidents DefiLlama tags as bridge or crosschain, USD, by year, 2022 to September 27, 2026



Note: Net of returns the victim or a primary post-mortem confirms; gross in 2026, $743.9 million. Binance Bridge counts at its realized $110M, against $570M minted. DefiLlama's bridge tag widened in 2026, so incident counts do not compare across years.

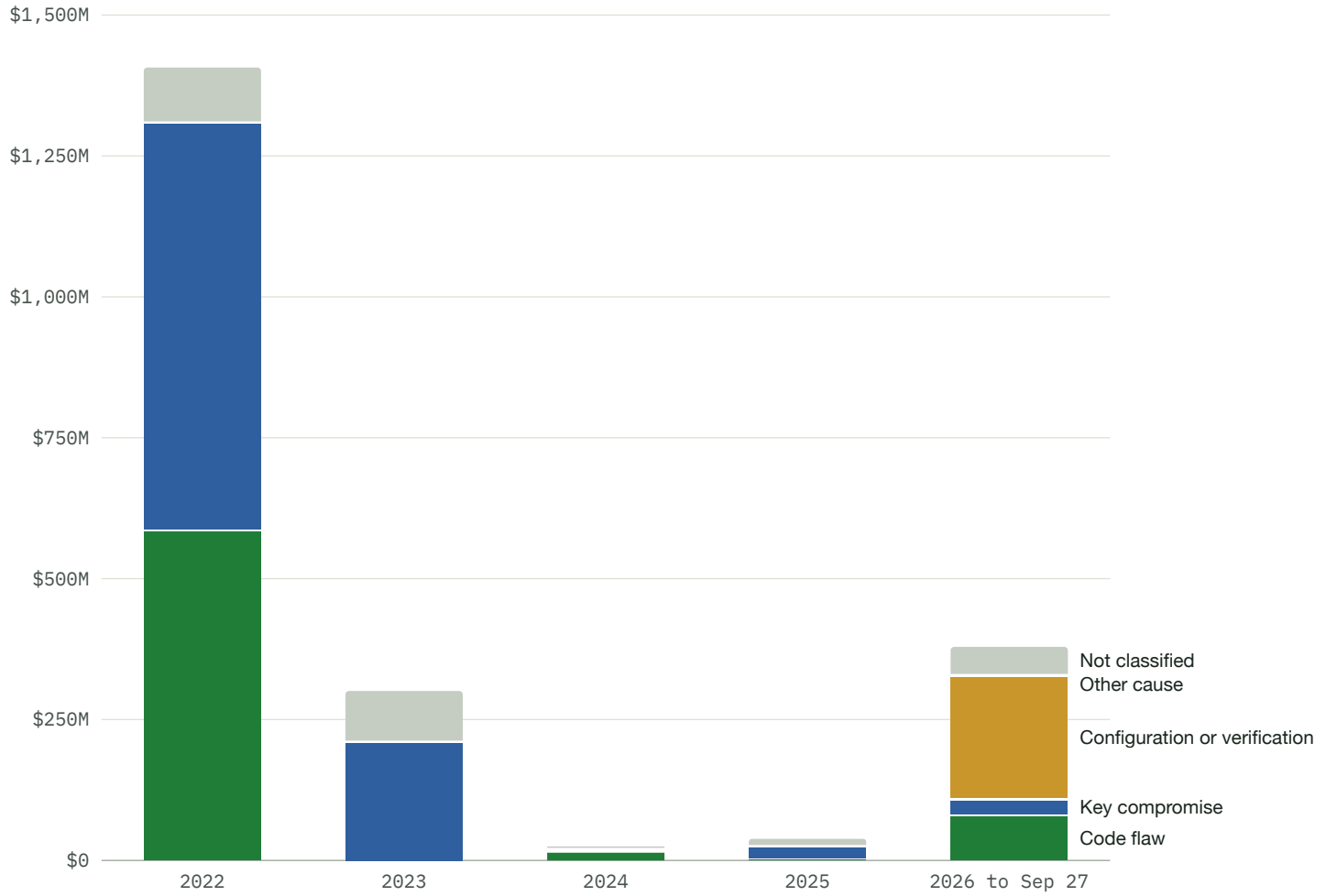
Sources: DefiLlama; incident post-mortems.

EXHIBIT 19

Key compromise led classified losses in three of five years, code flaws in one.

- The 2026 configuration loss is one incident, Kelp, at $218.5 million after returns, and its class follows LayerZero's report of a single-verifier setting, which Kelp disputes.
- LayerZero has since called that setting a mistake for high-value transactions.

Net losses in bridge-tagged incidents by root cause, classified from post-mortems, USD, 2022 to September 27, 2026



Note: Share of each year's net loss with a cause named in a post-mortem: 2022 93.2%, 2023 70.7%, 2024 89.9%, 2025 71.6%, 2026 87.3%. Each year turns on one or two incidents, so no trend in causes is drawn.

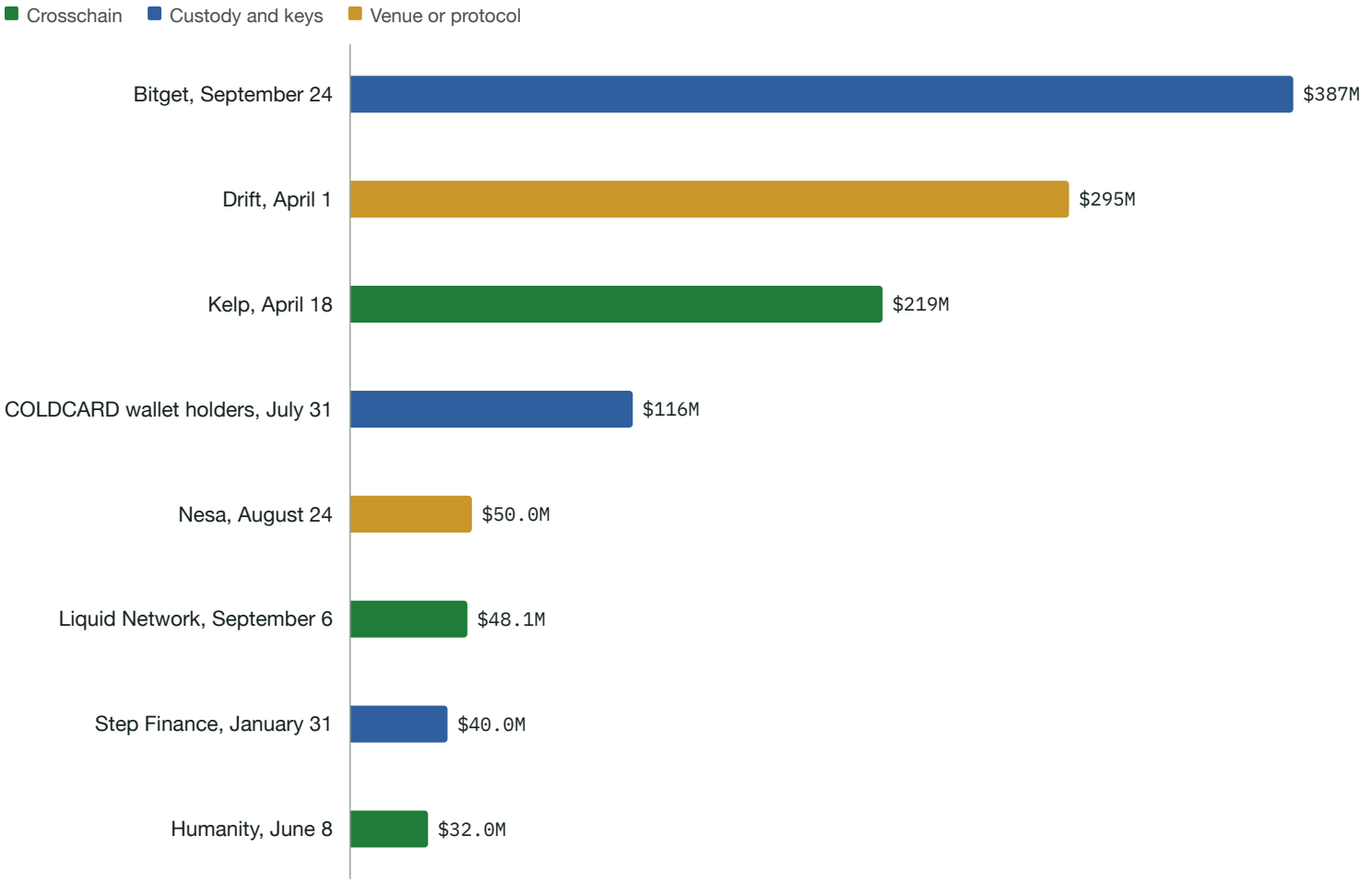
Sources: DefiLlama; incident post-mortems.

EXHIBIT 20

Three of the eight largest losses of 2026 were crosschain, by net amount.

- A compromised backend system in Bitget's wallet infrastructure let the attacker spoof transaction data, its CEO says, and Bitget has ruled out private-key compromise.
- At Drift, the failure lay in governance and admin control.

Largest losses of 2026 by net amount, USD, January 1 to September 27, 2026



Note: Net of confirmed returns, all DefiLlama categories, so incidents without the bridge tag appear. Bands record where each loss happened, from its post-mortem. Bitget states $387.5 million. COLDCARD counts holders' losses from a firmware bug. Tectonic is left out: its net loss is not established.
Sources: DefiLlama; incident post-mortems.

CHAPTER 5

Hosts set the terms; their recorded 2026 changes eased them for deployers

Each host decides what a deployer keeps: Hyperliquid's deployers may keep up to half of their markets' trading fees, and Orderly pays market creators half its base taker fees. On August 12 Hyperliquid made its deployer fee scale configurable per asset, and on August 14 Orderly halved its per-market insurance deposit to $25,000, refundable on delisting; its depth rule stands. The five institutional off-exchange settlement networks surveyed make no claim to settle a trade's two legs on different chains.

$3.9 billion

Open interest in Hyperliquid's builder markets

Hyperliquid, September 29, 2026

23.6%

Builder markets' share of all Hyperliquid open interest

Hyperliquid, September 29, 2026

4

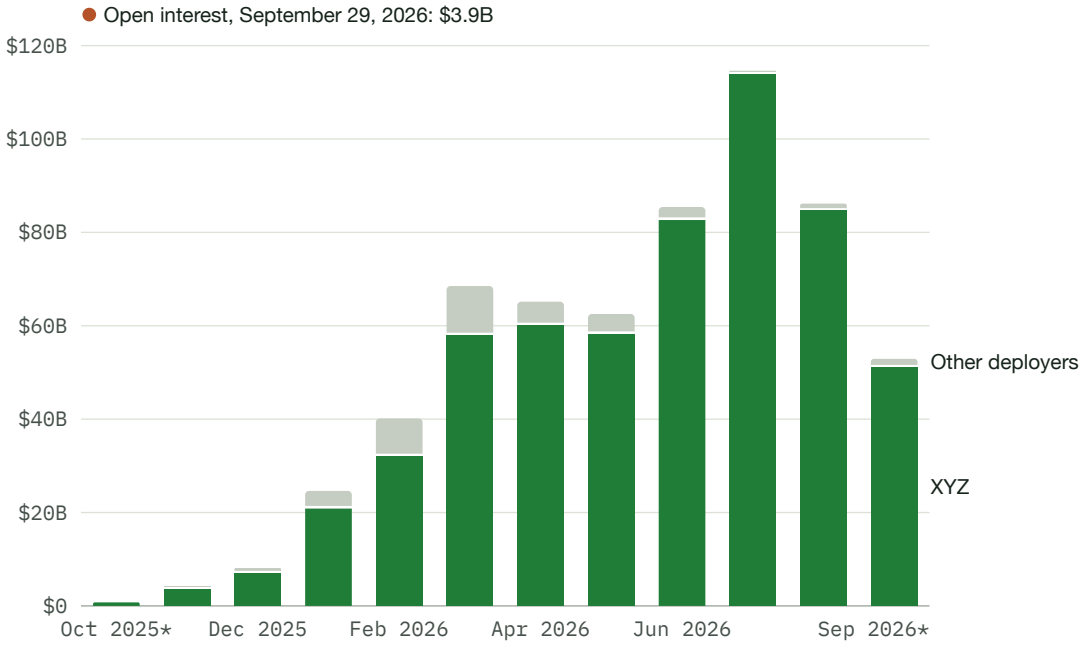
Deployer venues of 10 on Hyperliquid with a market still live

Hyperliquid, September 29, 2026

EXHIBIT 21

Builder-market volume peaked at $114.6 billion in July 2026, then fell.

Builder-market volume on Hyperliquid by deployer, USD, monthly, October 2025 to September 27, 2026



Note: Modeled: daily base volume times daily close. Open interest is one-sided, read September 29. Deployers under 2% of every month sit in Other deployers. *October 2025 from the 13th; September 2026 to the 27th.

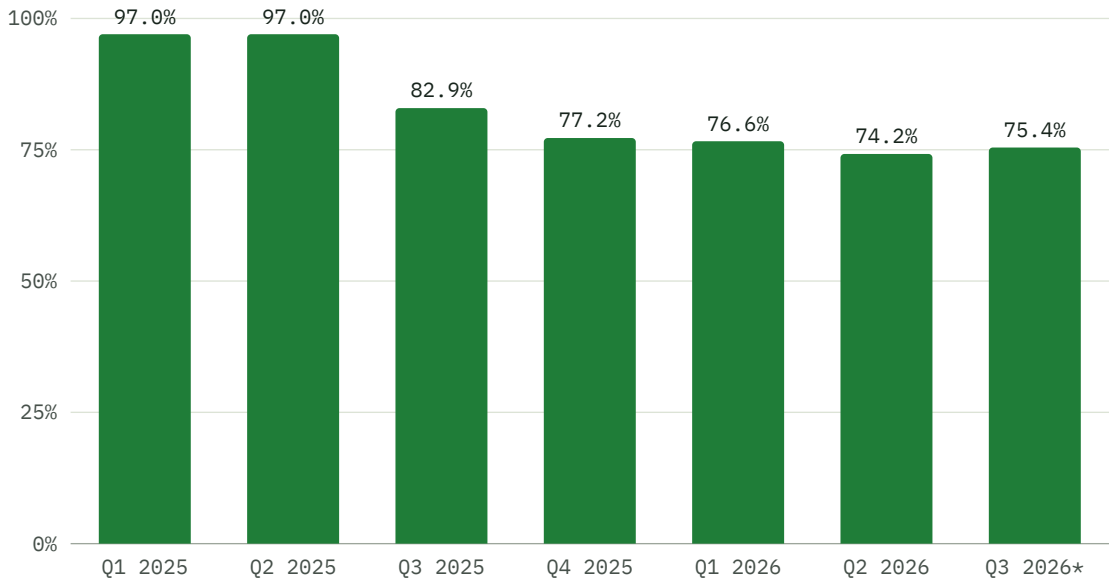
Source: Hyperliquid (public API); Aspens analysis.

- XYZ, the deployer behind trade.xyz, carried 99.0% of builder-market volume in Q3 2026, and 97.8% of open interest on September 29.

EXHIBIT 22

Hyperliquid's retained share of fees fell from 97.0% to 82.9% before builder markets traded.

Hyperliquid revenue as a share of fees, %, quarterly, Q1 2025 to Q3 2026



Note: Revenue divided by fees, as DefiLlama defines both, over the perps and spot order-book series. Builder-code fees, Unit spot fees and deployer shares count as fees but not revenue. Builder markets first traded on October 13, 2025. *Q3 2026 to September 27.

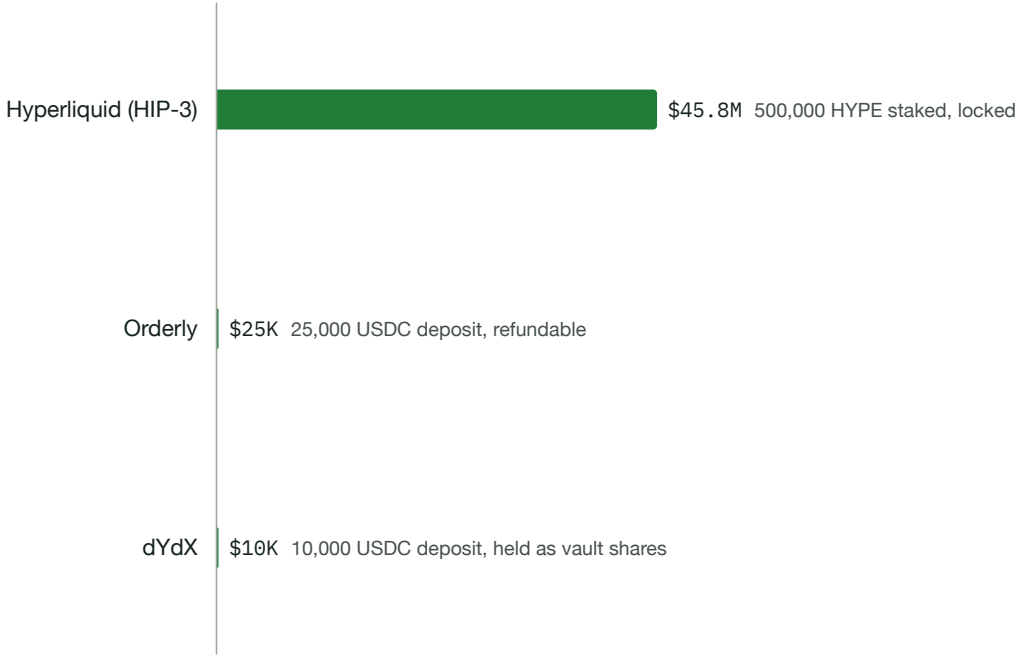
Source: DefiLlama; Aspens analysis.

- Since Q4 2025 the share has held at 74.2% to 77.2%.

EXHIBIT 23

Hyperliquid's $45.8 million stake covers a whole venue, the deposits a single market.

Capital a deployer commits to open a market, by venue, USD, September 27, 2026

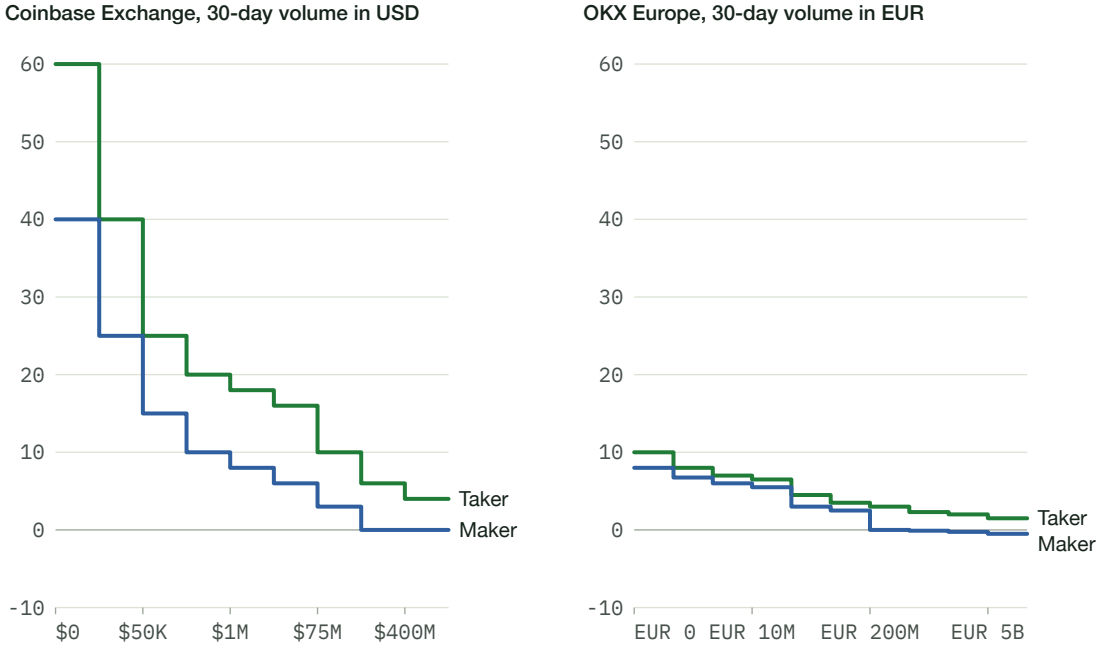


Note: Capital committed, valued at September 27, the stake at HYPE's close of $91.69; it is locked and slashable. Orderly refunds its deposit on delisting. dYdX's deposit stays the lister's as vault shares. Injective is left out: its amount is a documentation example.
Sources: Hyperliquid; Orderly; dYdX; Aspens analysis.

EXHIBIT 24

Coinbase Exchange charges its smallest takers 60 bps and its largest 4 bps.

Maker and taker fees by 30-day volume tier, bps, Coinbase Exchange and OKX Europe, as of September 29, 2026



Note: Spot fees by 30-day trading volume. Coinbase Exchange thresholds in dollars, OKX Europe's in euros. A negative maker fee is a rebate. Coinbase Advanced's schedule needs sign-in and is not shown.
Sources: Coinbase; OKX Europe.

- Validators can slash the Hyperliquid stake by a stake-weighted vote if a deployer operates a market maliciously, per Hyperliquid's documentation.
- OKX Europe's schedule ends in a maker rebate at its top tiers.

EXHIBIT 25

All five settle on their own books or on one chain.

Off-exchange settlement networks, where each settles, what it settles across, September 29, 2026

NETWORK	WHERE IT SETTLES	WHAT IT SAYS IT SETTLES ACROSS	CROSSCHAIN SETTLEMENT CLAIM
Copper ClearLoop	Its own ledger	Venues	No claim
Fireblocks Off Exchange	On one chain	Venues	No claim
BitGo Go Network	Off-chain	Counterparties	No claim
Ceffu MirrorX	Off-chain	Venues	No claim
Anchorage Digital Atlas	On one chain	Counterparties	No claim

Note: Company-stated, from each network's own page, read September 29, 2026; Ceffu's page dates from 2023 and Anchorage's from 2024. Fireblocks says transfers move across any blockchain, which is per transfer. Zodia, Komainu and FalconX pages make no such claim either.

Sources: Copper; Fireblocks; BitGo; Ceffu; Anchorage Digital (company pages).

CHAPTER 6

The same asset lives on many chains, and no product checked offers one order book across them

On September 27, 2026, thirteen of the fifteen largest dollar stablecoins lived on more than one chain. Custodial exchanges and hosted venues serve the exchange job, and bridges and intent networks serve transport. None of the six ways a firm can cross chains today serves exchange and settlement across chains in one order book with no custodian or bridge inside the trade.

EXHIBIT 26

Six ways to cross chains, by job

What each way covers of the five jobs, from provider documentation, September 30, 2026

● Served ◐ Partial ○ Not served

	TRANSPORT	EXCHANGE	SETTLEMENT	REBALANCING	NETTING
Custodial venues and off-exchange settlement	◐ Partial	● Served	◐ on the custodian's books	○ Not served	○ Not served
Bridges and burn-and-mint	● Served	○ Not served	○ Not served	◐ Partial	○ Not served
Intent and solver networks	● Served	◐ Partial	◐ some swaps, by hashed timelock	◐ Partial	○ Not served
Clearing and netting	○ Not served	○ Not served	◐ Partial	○ Not served	◐ bank deposits, on Swift's ledger
Hosted venues	◐ Partial	● Served	◐ Partial	○ Not served	○ Not served
A self-built venue	◐ Partial	● Served	◐ value from other chains is bridged	◐ Partial	○ Not served

Note: As of October 8, 2026, none of the 24 products checked offers a spot market in which an asset on its own chain trades against value on another chain in one order book, with no bridge or custodian inside the trade and a signed record of every fill.

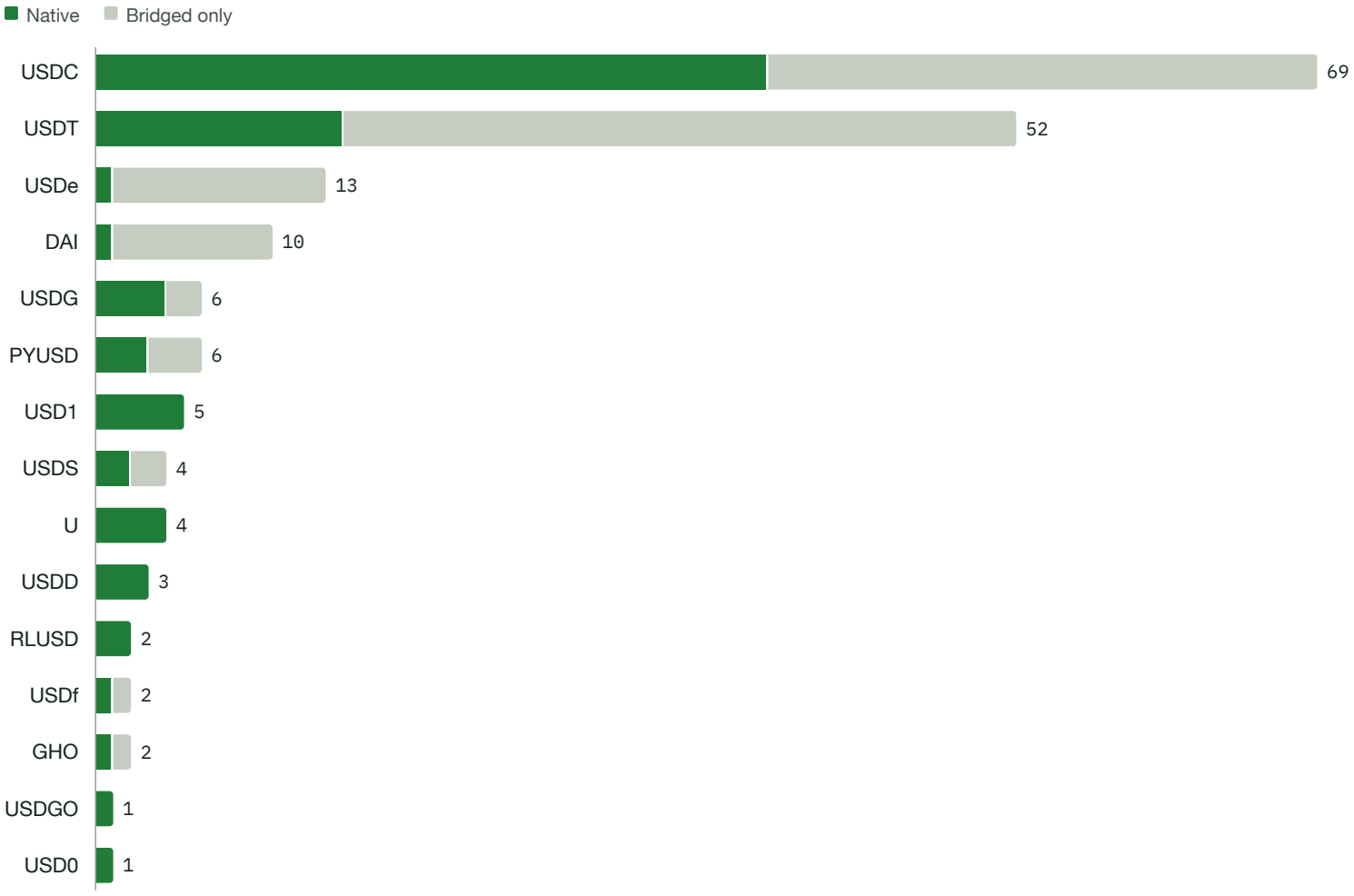
Source: Aspens analysis of provider documentation.

EXHIBIT 27

Chains per dollar stablecoin: 69 for USDC, 52 for USDT.

- Since September 2, USDT0 has been live on Stellar through LayerZero's OFT standard.
- On September 10 Circle said it is discontinuing USDC and CCTP V1 on Noble, and the wider CCTP V1 deprecation begins on October 31.

Chains with $1 million or more of each stablecoin, native and bridged only, September 27, 2026



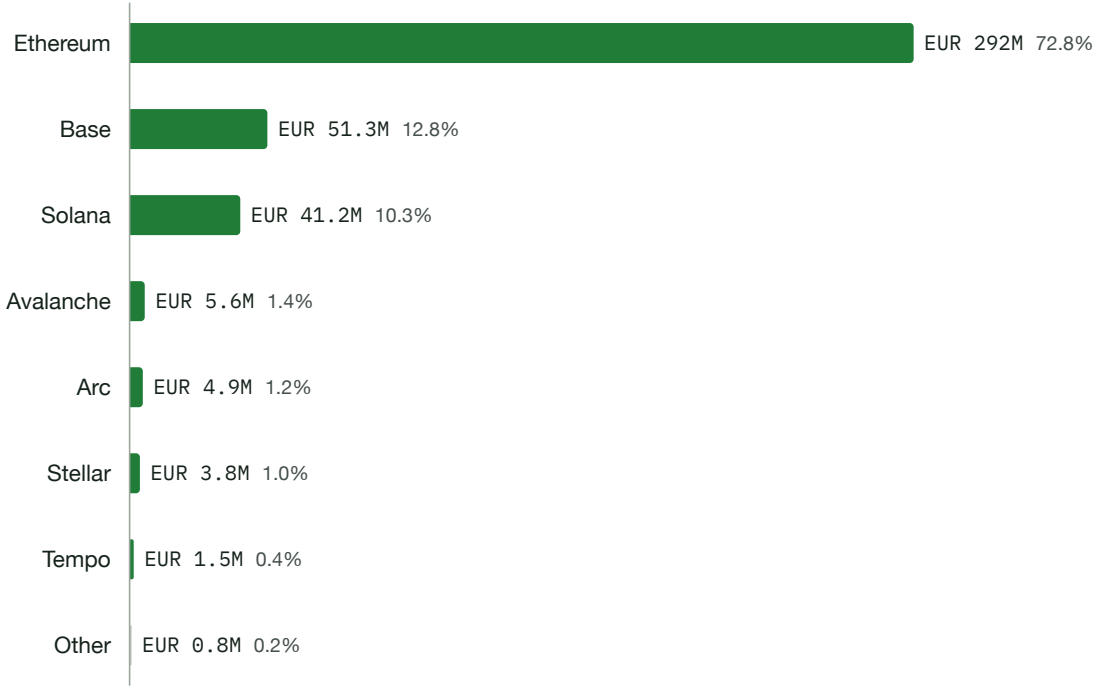
Note: The fifteen largest dollar stablecoins; tokenized funds (BUIDL, USYC, USDY) are left out. Native means circulating supply less what DefiLlama attributes to bridges, so some USDT0 deployments may read as bridged. Supply on a chain is not liquidity there.

Source: DefiLlama; Aspens analysis.

EXHIBIT 28

Ethereum holds 72.8% of the EURC spread across 7 chains.

EURC supply by chain, EUR, chains with EUR 1 million or more, September 27, 2026



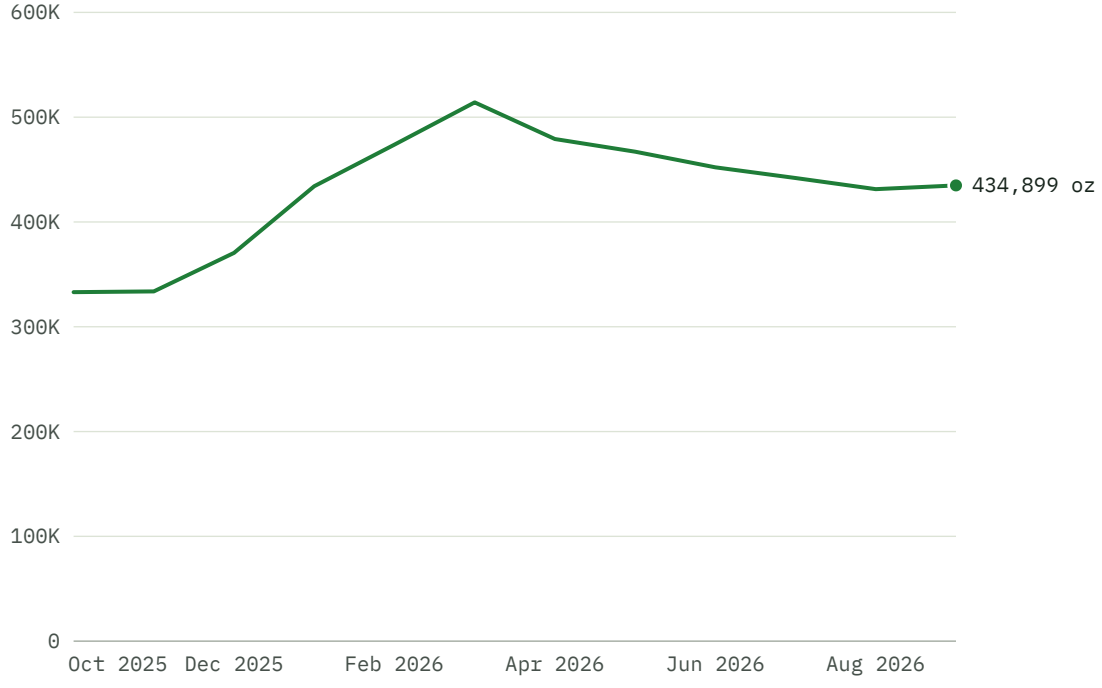
Note: Total EUR 401.2 million, or $456.0 million at DefiLlama's price. Circle states EUR 404.3 million in circulation as of September 24.
Sources: DefiLlama; Circle; Aspens analysis.

- EURC has moved natively between Ethereum and Base since September 2.

EXHIBIT 29

PAXG supply peaked at 514,129 ounces in March, then fell to 434,899.

PAXG supply, troy ounces, month-ends, October 2025 to September 27, 2026



Note: Ounces are market value divided by price; PAXG's value on September 27 was $1.9 billion. XAUT is not charted: CoinGecko's supply for it does not match the 709,324 ounces Tether reports issued as of September 29.
Sources: CoinGecko (data provided by CoinGecko); Tether; Aspens analysis.

- PAXG's dollar value peaked in February, a month before its ounces, because the value moves with the gold price.

EXHIBIT 30

No product checked offers one order book across chains for these five markets.

Five markets, the demand on record, what exists today and the bound

THE MARKET	THE EVIDENCE	WHAT EXISTS TODAY	THE BOUND
An allocator's venue	Morpho holds $11.0 billion across 38 chains	Transfers through Relay and Across	TVL measures deposits, so crosschain trading demand is inferred
Tokenized gold	$1.9 billion of PAXG and Darley's bilateral OTC options since March 2026	Single-chain spot venues and B2C2's OTC spot and CFDs	Gold spot depth sits on established venues, so a new book needs its own counterparties
A registry owner's venue	Bullish's Equiniti deal and Injective's and Securitize's transfer agents	Bullish's tokenized equity trades on its own exchange	The Equiniti deal is expected to close in January 2027
A long-tail issuer's book	2025 listing terms one project says Binance offered	Exchange listings and single-chain pools	One project's account, with Binance denying it profits from listings
A currency-corridor book	EURC: EUR 401.2 million across 7 chains	Circle StableFX: quotes on request, permissioned, settling on Arc	MXNB, a peso token, traded $11,387 in one day

Note: As of October 8, 2026, by the test in the methodology. These assets trade on single-chain venues and on exchanges; missing means no single order book across chains. MXNB figures are single-day values.

Sources: DefiLlama; CoinGecko (data provided by CoinGecko); company releases; Aspens analysis.

- LayerZero says ATLAS is coming later this year, and Polyester's order-book exchange has been on testnet since September 24.

CHAPTER 7

Aspens: direct crosschain markets, designed for any asset

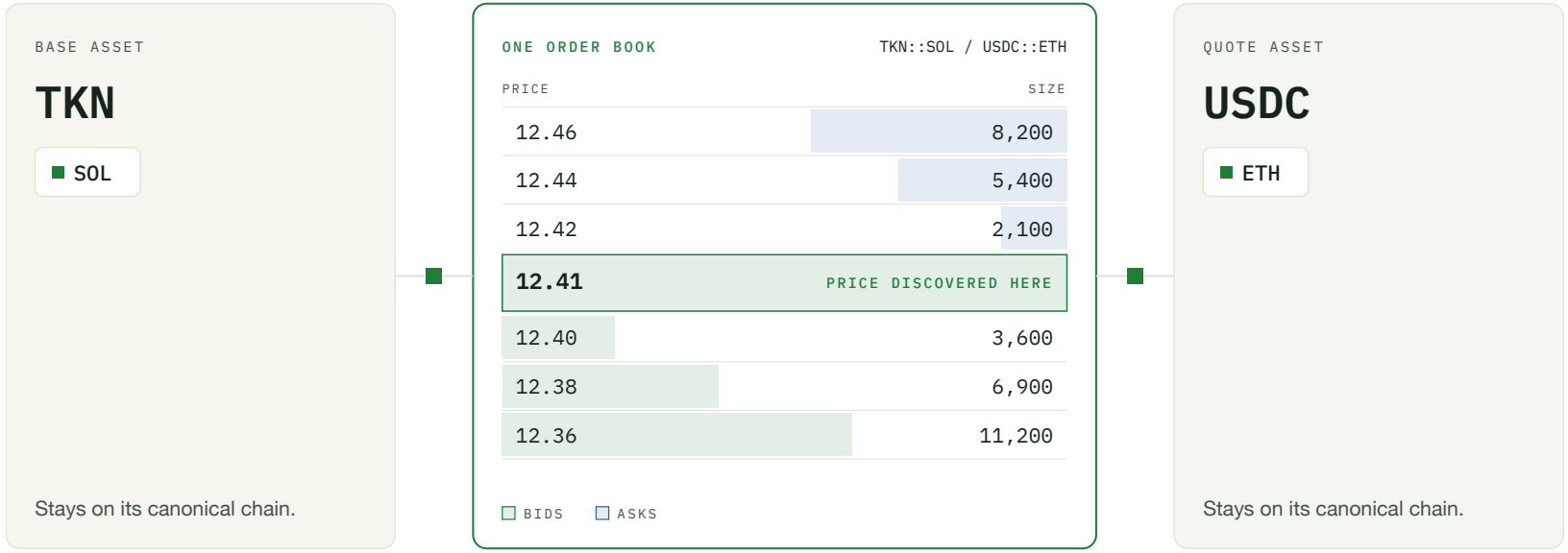
Aspens is built to give a firm a market for the route it needs: an asset on its home chain trading against stablecoins on other chains in one order book, custody kept by the trader until settlement, and a signed record of every fill in the holder's hands. Changing euros for dollars burns no euro and mints no dollar, and the design treats crossing chains the same way, as an exchange with no bridge or custodian inside the trade and the price discovered in the book. Settlement batches and withdrawals are signed inside an Intel TDX enclave, so the signer sits in the settlement and withdrawal path.

EXHIBIT 31

One Aspens trade, from deposit to signed record

One pair on two chains, as designed, with an illustrative order book

ILLUSTRATIVE, NOT SAMPLE TRACTION



- No bridge inside the trade.
- No wrapped synthetic copy.
- Custody until the moment of settlement.

01 A trader connects a wallet on each chain and deposits into that chain's trading contract, where the funds stay under the trader's control.

02 Placing or cancelling an order takes a signature and no on-chain transaction, so it costs no gas.

03 The engine checks the signature, reserves the committed amount and matches against the book in microseconds.

04 On a match, balances move at once in the off-chain ledger.

05 A background settler nets those changes onto each chain in batches, and both legs land natively.

06 Each fill produces a signed journal entry that the holder can show a counterparty or an auditor.

Note: Prices and sizes are illustrative, and the steps describe the design. The settler's batches and every withdrawal need the enclave signer's signature, so the signer sits in the settlement and withdrawal path.

Source: Aspens.

EXHIBIT 32

What a direct market changes in each of the four costs

Four costs of crossing chains through an exchange or a bridge today, against a direct market as designed

THE COST	TODAY	IN A DIRECT MARKET
Fees and spreads	Paid to venues the firm does not control	The price is discovered in the route's own book
Custody and counterparty exposure	Handed to the exchange, or locked in the bridge, along the way	The trader keeps custody until settlement
Risk carried on the route	The exchange or bridge holding the funds sits inside the trade	No bridge or custodian inside the trade, though keys, configuration and the enclave remain
Proof rebuilt after the fact	Execution reconstructed afterward from venue exports	A signed record of every fill, kept by the holder

Note: No fee terms are quoted. Keys and configuration include the enclave signer, which sits in the settlement and withdrawal path.
Source: Aspens.

EXHIBIT 33

The five jobs, with Aspens's design added as a seventh row

Six ways and a direct crosschain market, by job, September 30, 2026

● Served ◐ Partial ○ Not served ◌ By design, not yet live

	TRANSPORT	EXCHANGE	SETTLEMENT	REBALANCING	NETTING
Custodial venues and off-exchange settlement	◐ Partial	● Served	◐ Partial	○ Not served	○ Not served
Bridges and burn-and-mint	● Served	○ Not served	○ Not served	◐ Partial	○ Not served
Intent and solver networks	● Served	◐ Partial	◐ Partial	◐ Partial	○ Not served
Clearing and netting	○ Not served	○ Not served	◐ Partial	○ Not served	◐ Partial
Hosted venues	◐ Partial	● Served	◐ Partial	○ Not served	○ Not served
A self-built venue	◐ Partial	● Served	◐ Partial	◐ Partial	○ Not served
Direct crosschain market (Aspens) BY DESIGN, NOT YET LIVE	○ not needed inside the trade	◌ By design, not yet live	◌ By design, not yet live	○ a separate service	○ a separate service

Note: By design, not yet live: the seventh row describes Aspens's documented design, and no Aspens market had a trading record at publication. Rows 1 to 6 repeat the six ways as of September 30, 2026.
Sources: Aspens analysis of provider documentation; Aspens.

EXHIBIT 34

The route today, audience by audience

Six audiences, from token issuers to exchanges, against a direct market as designed

AUDIENCE	THE ROUTE TODAY	WHAT A DIRECT MARKET CHANGES
Token issuer	An exchange listing on the venue's terms, or a pool seeded on one chain	A market for your token on its own chain, against the stablecoins that matter on other chains
Chain or foundation	Ecosystem assets reach other chains as bridged or wrapped copies	Your ecosystem's assets, directly tradable against the basket of other chains with no wrapped copy
Market maker	Quotes on single-chain venues, with inventory moved between chains to meet them	Quotes on routes with no direct market today, from inventory that stays on its home chain until settlement
OTC desk or large holder	Off-exchange settlement on a custodian's own books, or on one chain	A crosschain block with both legs settling natively and a signed record of the fill
Fintech or payments firm	Stablecoin conversion bought from an exchange or a market maker	The stablecoin conversion you pay away today, internalized on the route you need
Exchange	A custodial house book, with users depositing on each chain it supports	A crosschain, self-custody line added beside your house book

Note: Each line describes the design, and no fee or listing term is quoted.
Source: Aspens.

Limits and trade-offs

The first book

A new Aspens market opens thin, without a venue's existing users. A market is two sides meeting, and its first two sides are usually the issuer, the treasury or the community closest to the asset. The book is designed to set its price from its own orders, and because the same asset already trades on its home chain, arbitrage limits how far that price can drift.

Who it is not for

Four kinds of business gain little from an Aspens market, starting with a firm whose whole business sits on one chain. A desk whose rails already handle its occasional small flows at a few basis points is well served, and switching does not pay. An issuer whose asset cannot change hands freely belongs on a permissioned venue built for that constraint. And a business with no two-way flow, such as a fixed-rate payout rail, has no price to discover.

The signer and the hardware

The enclave signer signs the settlement batches and the withdrawal vouchers, so it sits inside the settlement and withdrawal path: if it is down, withdrawals wait until it is restored, and no documented exit path bypasses the enclave. TEEs are not perfect. The design uses Intel TDX, a hardware class with a documented history of side-channel research, and the trust that remains after attestation sits with Intel's supply chain and the host.

Where Aspens stands

At publication, aspens.xyz lists one beta venue running Aspens, Axby Beta-1. No Aspens market has a trading record to show. Its commercial terms are unpublished, and Aspens makes no legal representation about any market or its operator, in any jurisdiction.

The configuration objection

The fair objection is that configuration and keys are where losses happen, and nothing in the design makes a market's own settings correct. Before trusting the signer, a counterparty can compare the running build byte for byte against a known-good version, and the signing keys are minted inside the enclave and never leave it. Every fill also carries a signed record of the trade.

Four questions before a new market

One. What do you need tradable, against what?

Name the asset and the route. If one of the six ways already serves that route well at your size, keep using it.

Two. Do your assets transfer freely?

Where every transfer needs approval, as it does for a restricted security token, a permissioned venue serves the asset better. An order book across chains is the wrong tool.

Three. Is there a real two-sided spread to discover?

A flow that only needs to arrive more cheaply has no price for a book to discover. Everclear said in August 2025 that it had "scaled to +$500M in monthly clearing volume", and it still wound down in May 2026.

Four. Do you bring flow, supply, or capital to seed a book?

A new book starts empty and fills only when someone with a stake in the asset brings the first orders. Without that, stay with today's route.

Who runs a given market is a later conversation, after the route and the outcome, and if a firm wants that market to be its own, it can be.

If there is an asset you hold, issue, or make markets in, and the direct market for it does not exist, come speak with us. Tell us what you want to build and the route it needs, and we will see whether an Aspens market is the right choice.

Methodology and sources

DATES AND SCOPE

Market data runs to September 27, 2026. For DefiLlama, L2BEAT and CoinGecko, the value for a date is the daily point stamped 00:00 UTC on the next day, so the cut-off value is the point stamped September 28, and a month-end is the point stamped on the first of the following month. Hyperliquid prices are daily closes. September 2026 and Q3 2026 run to September 27 and are labeled that way. Sources with no daily history carry their own date: CoinGecko category membership is as of September 25, Hyperliquid's market lists and open interest as of September 29, and company pages as of the date in each Source line. Company status is as of publication.

SOURCES BY CHAPTER

Chapter 1 rests on DefiLlama for TVL, stablecoin supply by chain and spot DEX volume, and on L2BEAT for value on L2s. Chapter 2 adds CoinGecko's tokenized categories, Hyperliquid's public API and company releases. Chapter 3 uses each provider's own fee and documentation pages and DefiLlama's bridge-aggregator and fee series. Chapter 4 uses DefiLlama's hack records, each set against the incident's post-mortem. Chapter 5 uses Hyperliquid, Orderly and dYdX documentation, the Coinbase Exchange and OKX Europe fee schedules and five settlement networks' own pages. Chapter 6 uses DefiLlama, CoinGecko, Circle, Tether and company releases, and chapter 7 Aspens's own documentation.

CONFIDENCE CLASSES

Every value carries one of five classes. Verified primary means the figure comes from the source that owns it, through its API or its own page. Company-stated means a firm's account of itself, such as Circle's count of 38 networks where USDC is native. Single-source means one source with no second route to the figure. Modeled means computed from inputs that do not state the figure: builder-market volume is daily base volume times the daily close, and the HIP-3 stake's dollar value is 500,000 HYPE at the cut-off close. Third-party estimate covers trackers' loss totals, DefiLlama's included.

CONFLICTS LEFT STANDING

Where trackers disagree, both figures print. DefiLlama put the dollar float at $311.5 billion at the cut-off and CoinGecko's Stablecoins category at $291.8 billion on September 29, and coverage alone does not explain the gap, since CoinGecko's category total sits below the sum of its own largest members. The float includes BUIDL, USYC and USDY, $6.1 billion, which the tokenized total also counts. For the first half of 2026, TRM Labs counts $972 million stolen and CertiK $1.32 billion lost, against $981.6 million in DefiLlama's records, and Chainalysis had no public 2026 total on September 29. Bitget states $387.5 million, against DefiLlama's $387.0 million. Tether reports 709,324 troy ounces of XAUt issued, which CoinGecko's supply does not match, so XAUT stays out of the gold chart.

COVERAGE GAPS

Four gaps remain. No open, republishable source reports crosschain volume by rail, so chapter 3 measures the bridge aggregators DefiLlama tracks, a set that includes some DEX aggregators. Across the 18 methods surveyed, no provider publishes the spread a trader pays at a stated size, and no spread is modeled here. Of Q3 spot DEX volume, 5.9% sits in DefiLlama's total but in no chain's series, and DefiLlama's own wash-trading filter is the only one applied. Post-mortems name a cause for 87.3% of the bridge-tagged net losses in 2026, and the classified share is below 90% in four of the five years.

VALUE, STABLECOINS AND TOKENIZED ASSETS

TVL is DefiLlama's default, assets deposited in DeFi applications without staking, pool2 or borrowed amounts. L2 value is L2BEAT's total for L2s, which leaves out L3s. OP Mainnet ranked among the four largest at most month-ends until July 2026, Polygon PoS sits in L2BEAT's Other category, and Arbitrum One's value may include USDC bridged to Hyperliquid. The ruble line is almost entirely one token, A7A5, and July's yen step is JPYSC. The tokenized total counts coins of at least $10 million in ten CoinGecko categories, de-duplicated in a fixed order, with wrapped forms not merged and unlisted permissioned funds absent, so it is a partial count of tokenized assets. Tokenized-stock issuers come from CoinGecko's issuer categories or the token's own name, and Ondo's and Robinhood's own figures differ from CoinGecko's.

Chapter notes and the missing-market test

CROSSING COSTS

Aggregator series powered by another series are left out. SOCKET changed its method on June 11, so September does not compare with earlier months, and 0x's September was restated later. NEAR Intents, LI.FI, deBridge, Rango, fly.trade, Symbiosis and Maya charge on swaps, so their fees include exchange. SolvBTC and Unit are left out because their fees do not pay for moving value. Taker fees buy a trade and exclude withdrawal fees, and OKX Europe sets its tiers in euros. A fee policy differs from a spread, so CCTP and USDT0 count as publishing none.

LOSSES

The bridge tag is DefiLlama's, widened in 2026 to include an impersonation scam on a fake GIWA chain, and one duplicate record is removed. Net losses subtract returns the victim or a primary post-mortem confirms: Nomad in 2022, Ronin in 2024, Verus and Syscoin in 2026, Blockstream's 3,400 BTC for Liquid, and the ETH released to Kelp's recovery on June 15, 2026, valued on the incident day. Binance Bridge counts at its realized loss, and at the $570.0 million minted, code flaws would lead 2022. Aspens classified each cause from the post-mortem. Kelp's class follows LayerZero's account, which Kelp disputes, and Bitget's fund coverage is compensation, never a return.

HOSTS AND CHAINS

On September 29 Hyperliquid listed 10 builder venues, 4 with a market still live, and 144 delisted builder markets. Markets removed from its list earlier cannot be counted. The HIP-3 stake is locked for at least 183 days and can be slashed, dYdX locks its deposit for about 30 days, and Orderly's April 9 terms asked for a $50,000 insurance fund per market and a depth rule. Hyperliquid's retained share sums its Perps and Spot fees and leaves out HLP, whose fees sit inside both. Stablecoin chain counts use a $1 million floor, and MXNB's supply was 52.2 million tokens at the cut-off.

THE MISSING-MARKET TEST

As of October 8, 2026, none of the 24 products checked offers a spot market in which an asset on its own chain trades against value on another chain in one order book, with no bridge or custodian inside the trade and a signed record of every fill. Each product was judged on its own pages against those five parts, with a custodian read as any third party that holds either leg, or can release it, between order and settlement. For on-chain books the signed-record part is waived: their fills sit on chain.

Aori, deBridge, Relay, Across, OpenFX and Garden fill quotes with no order book, and UniversalX, Infinex, Chainflip, NEAR Intents, THORChain and Maya Protocol also route through a bridge, vault or pool. Renegade, Circle StableFX, Silhouette, o2 Exchange and RUJI Trade work within one chain or network, Orderly, Hibachi and Forknet offer perpetual or leveraged trading, and Finery Markets settles through custodians or verified wallets. Native Core, the nearest case, runs a live spot order book, but its own documentation says the vault takes custody of deposits and its signer network releases withdrawals. LayerZero says ATLAS is coming later this year, and Polyester has been on testnet since September 24. Garden settles both legs by hashed timelock with no custodian, so the sentence is false without "in one order book".

THE PUBLISHER

Aspens designed and ran the missing-market test and classified the loss causes. It builds direct crosschain markets, sits outside the 24, and its design puts an enclave signer in the settlement and withdrawal path, which raises the custody question the test puts to Native Core. Each Source line carries the attribution its source's terms require.

Glossary

Attestation A report signed by the hardware, chaining to its manufacturer, that shows which build is running inside a TEE before anyone relies on it.

Basis point (bps) One hundredth of a percentage point.

Batched net settlement Settlement that folds many fills into one net change per chain at intervals, so no single fill needs its own transaction.

Bridge A system that moves an asset's value between chains, usually by locking it on one chain and issuing a representation on the other.

Builder market A perpetual market a deployer opens on Hyperliquid under HIP-3, backed by the deployer's stake and run on the deployer's terms within Hyperliquid's rules.

Burn-and-mint A transfer in which the issuer destroys tokens on one chain and creates the same amount on another, as Circle's CCTP does for USDC.

Cold start The first stretch of a new market, when the book is thin and depth comes from whoever brings the first orders.

Hosted venue A venue run on another operator's exchange, where the host sets what a deployer commits and keeps.

Intent and solver networks Systems in which a user states the outcome wanted and competing solvers fill it, usually from their own inventory.

Maker and taker A maker posts an order that rests in the book, and a taker trades against a resting order.

Native and bridged supply Native supply is issued on the chain where it sits, and bridged supply represents an asset issued elsewhere and moved in.

Netting Offsetting obligations against one another so that only the difference settles.

Off-exchange settlement An arrangement in which a custodian holds a trader's assets while the trader uses them on an exchange, and settles on the custodian's own books.

Open interest The value of futures positions still open at a point in time, counted on one side.

Order book The resting buy and sell orders for one market, matched by price and then by time.

Perpetual future A futures contract with no expiry that tracks an underlying price through periodic funding payments.

Signed journal An append-only log in which every fill is a signed entry referencing the one before it, so the record replays and can be checked.

Spread The gap between the best buying and selling prices, or what a trader pays against a reference price.

TEE A trusted execution environment: hardware-isolated memory whose running code can be checked through attestation. Aspens's design uses Intel TDX.

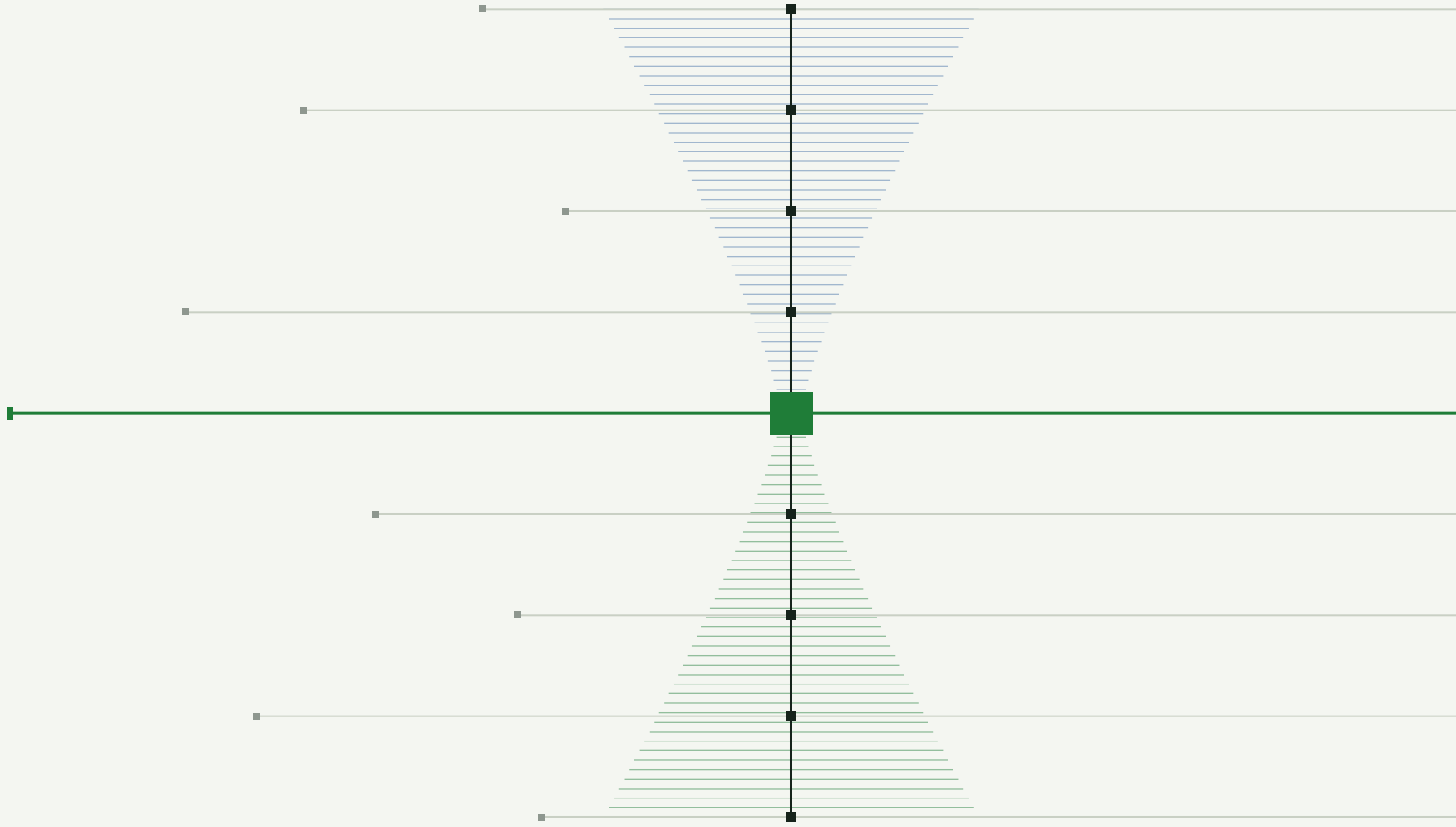
TVL Total value locked: assets deposited in DeFi applications, as DefiLlama counts them by default.

Wrapped asset A token on one chain that stands for an asset held elsewhere and is redeemed through whoever holds the original.

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