

Data Insights: Liquid Staking and LSDfi Heat Up

July 2023



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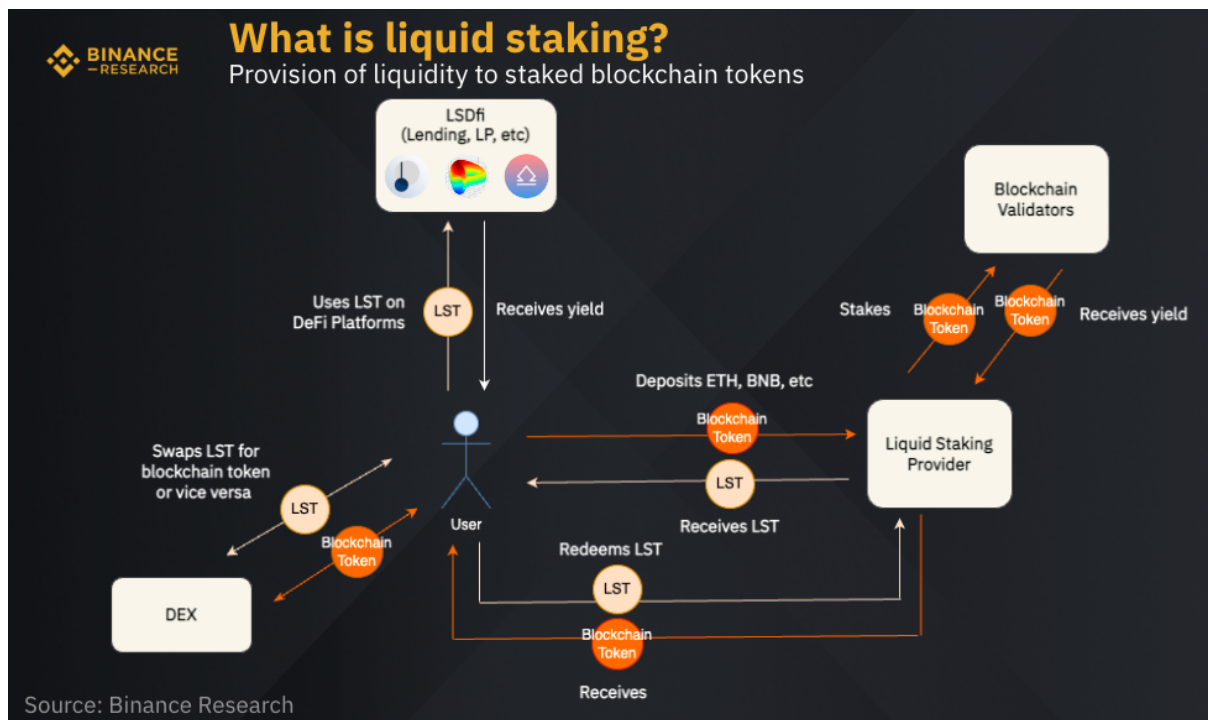
Key Takeaways

- ❖ **Liquid staking:** Overall staked ETH is experiencing exponential growth as a result of reduced withdrawals, which can be attributed to lower liquidity risks and the growing popularity of LSDfi protocols. Having overtaken DEXes, liquid staking now ranks number one in total value locked (“TVL”) across different DeFi sectors.
- ❖ Four primary methods exist for staking Ether, including pooled staking service providers, centralized exchanges (“CEXes”), staking-as-a-service (“SaaS”), and solo staking.
- ❖ With a 32.0% market share, pooled staking through Lido is the most prevalent approach currently. Nonetheless, other contenders like Frax seek to expand their market share by introducing a decentralized, inventive peer-to-pool lending marketplace.
- ❖ **Top LSDfi categories:** LSDfi has many categories, including CDP stablecoins, DEXes, Index LSTs, yield strategies, and more. **Lending** currently holds the top position with a TVL of US\$2.59 billion, while CDP stablecoins trail closely behind with a TVL of US\$2.35 billion.
- ❖ **LST yields and TVL:** Typically, yields for LSTs are the highest on secondary or derivatives protocols like Pendle, Convex, and Aura. However, TVL is usually greater on primary DEXes such as Curve.
- ❖ **Protocols spotlight:** While many LSDfi projects have been gaining popularity, we highlight Pendle and EigenLayer, which have recently seen bumps in their social metrics. Pendle serves as a yield-trading protocol; and EigenLayer enables restaking for both ETH and LSTs.

2 Introduction

In our previous LSDfi [report](#), we discussed the outlook for LSDfi and its potential growth. This Data Insights report will dive deeper into liquid staking and LSDfi from a data-driven perspective, starting with a quick recap of what they are.

Figure 1: Liquid staking



On Proof-of-Stake (“PoS”) networks, liquid staking allows users to stake network tokens (e.g., ETH or BNB) to earn potential yield while providing liquidity for these staked tokens via wrapped tokens. These wrapped tokens, known as liquid staking tokens (“LSTs”), are also used interchangeably with liquid staking derivatives (“LSDs”).

Increased capital efficiency, yield farming opportunities, and stronger network security with more staked network tokens are some of the benefits of liquid staking. However, one should be aware of the risks, such as slashing or smart contract risks. Slashing risks can be mitigated through insurance funds introduced by market leaders such as Lido.

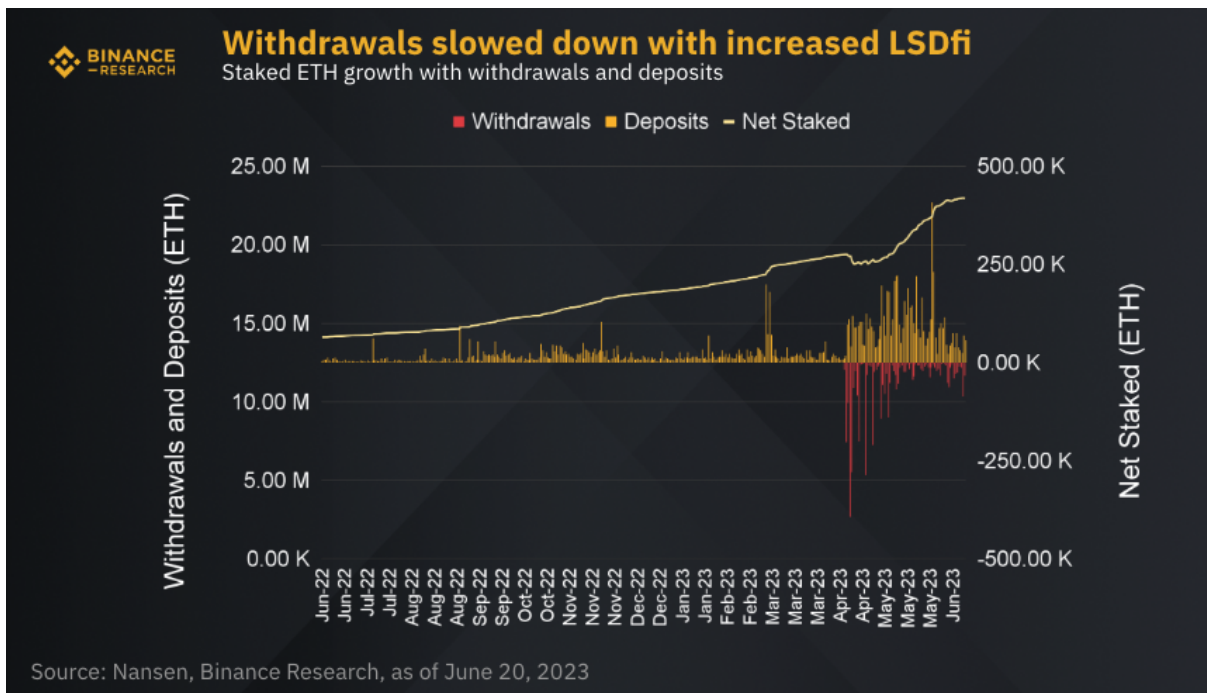
Potential conflict may also arise between the governance and LST holders due to differences in goals. For example, misalignments in interests may arise due to differences in the holding time horizon of LST and governance holders. However, LST holders do not have any voting rights. This conflict could be eased through a **dual governance system** where LST holders receive veto power over decisions to protect their interests. To better understand other types of risks, refer to our previous report [here](#).

2.1 Market Statistics

❖ Staked ETH growth

Following Ethereum’s Shapella upgrade, user confidence in staking increased due to the ability to withdraw. Although there were heavy withdrawals during the first few days, they slowed down with **decreased liquidity risks** and the **increased popularity of LSDfi protocols**. LSDfi provides users with new opportunities to boost their yield, which we will discuss further in a later section of this report.

Figure 2: Staked ETH growth

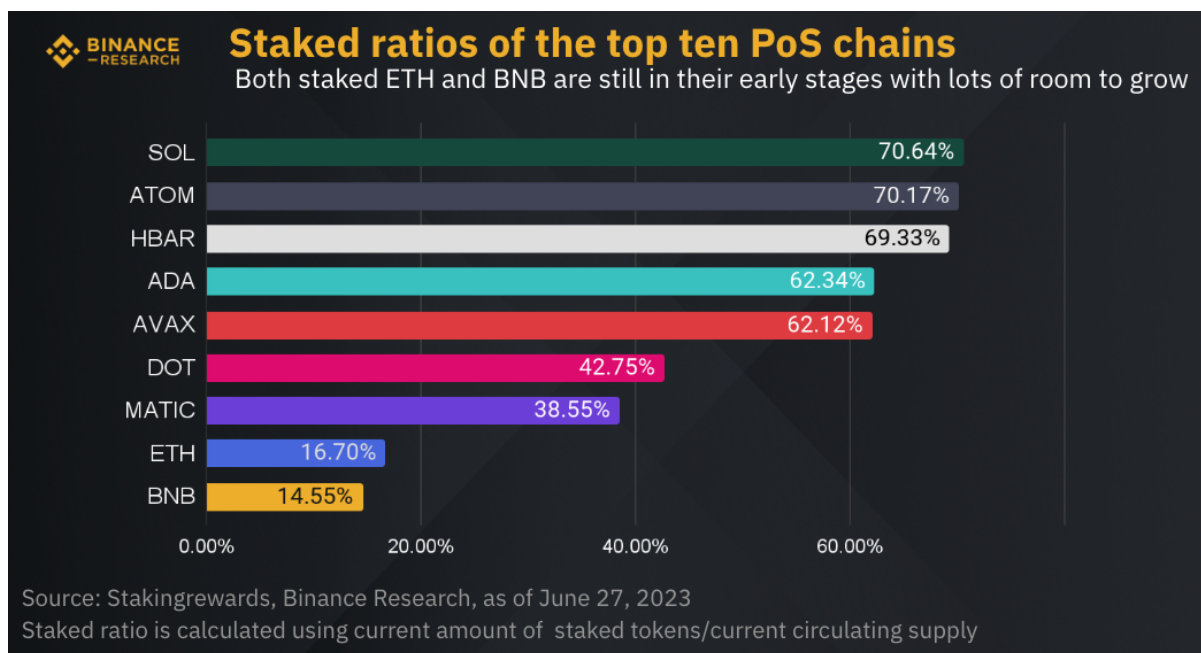


A sudden spike in deposits on June 1, 2023, was contributed to by Celsius, which withdrew 428K ETH from Lido. According to [21Shares](#), 192K was deposited into the Celsius staking pool, while another 99K was staked via Figment, an institutional staking provider.

❖ Staked ratio

As of June 27, 2023, the ratio of staked ETH tokens compared to its circulating supply is 16.70%, whereas the ratio for BNB is 14.55%. These numbers show that both chains have plenty of opportunities to grow bigger, considering how the remaining top ten PoS chains by staking market capitalization (“market cap”) have an average staked ratio of 49.67%.

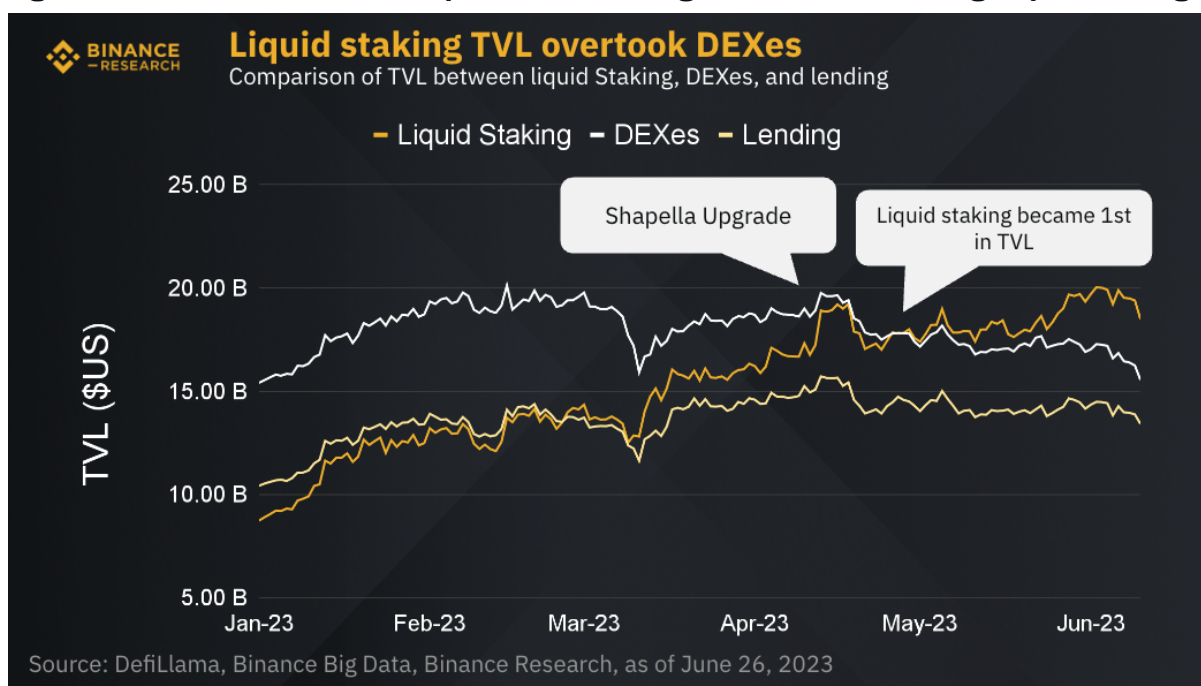
Figure 3: Top ten PoS chains by staking market cap



❖ Liquid staking TVL

With **US\$18.48B** in total value locked (“TVL”), an **increase of 131.67%** since the start of the year, liquid staking now ranks number one in TVL across different DeFi sectors. It first dethroned DEXes by a US\$6.8M difference in TVL on April 28, 2023, which had been the leader of TVL for the longest time.

Figure 4: Historical TVL of the top three DeFi categories (DEXes, lending, liquid staking)

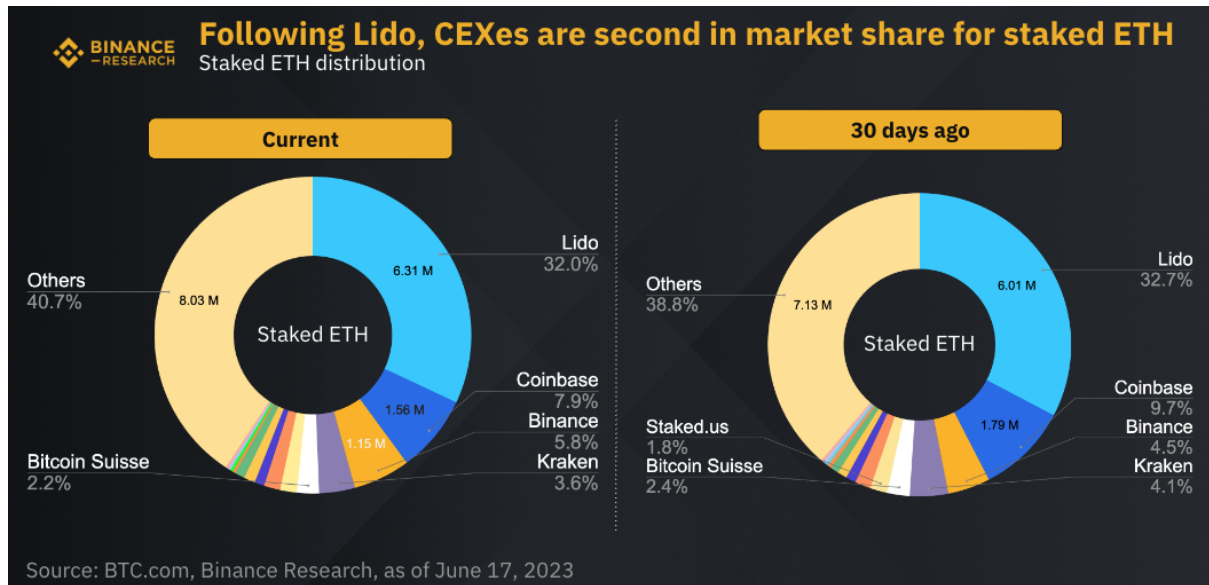


3

Liquid Staking on Ethereum

There are a few ways to stake ETH, including pooled staking through service providers, centralized staking services, staking-as-a-service (SaaS), and solo staking. Users can select their preferred approach according to factors such as staking simplicity, potential returns, and more.

Figure 5: Net staked ETH by top entities



Lido has maintained a market share of around 32% in the last 30 days. Overall, most entities have either gained or maintained their market share, except for Coinbase and Kraken, which have lost 1.8% and 0.5% of their market share, respectively.

Note that too high a dominance for ETH staking is not exactly healthy. Exceeding the critical consensus thresholds of $\frac{1}{3}$, $\frac{1}{2}$, and $\frac{2}{3}$ could result in Ethereum being easily manipulated or attacked. Further growth of Lido can potentially pose a systemic risk and allow cartelization of block space.

Hence, new solutions or disruptive competitors are encouraged, especially since self-limiting deposits have been [voted against](#) in Lido.






3.1 Pooled Staking

Target audience: Crypto and DeFi native users

Top providers (TVL): Lido, Rocketpool, Frax, Stakewise, Ankr

The typical fee appears to be around 10%, with exceptions for Ankr and Rocketpool. Despite having the lowest fee of 5%, Ankr's TVL lags behind, as shown in Figure 6 below.

Figure 6: Top five pooled staking Ethereum service providers (based on TVL)

	Name	LST	Fees	30d Avg. Yield	LST TVL (US\$)	Yield Pools
	Lido	stETH	10%	4.1%	14.11B	175
	Rocketpool	rETH	15%	3.13%	1.84B	99
	Frax	frxETH, sfrxETH	10%	4.62%	439.38M	69
	Stakewise	sETH2, rETH2	10%	4.82%	180.52M	6
	Ankr	ankrETH	5%	4.02%	90.01M	21

Source: DefiLlama, Binance Research, as of June 26, 2023

Do note that the yield pools here may not be comprehensive, and excludes other types of yield such as lending

Among the mentioned protocols, Frax seems to be progressing the most toward decentralization, especially with the introduction of frxETH V2. Under the current frxETH V1 design, the Frax team exercises full control over all validator nodes using a 3/5 multi-signature mechanism.

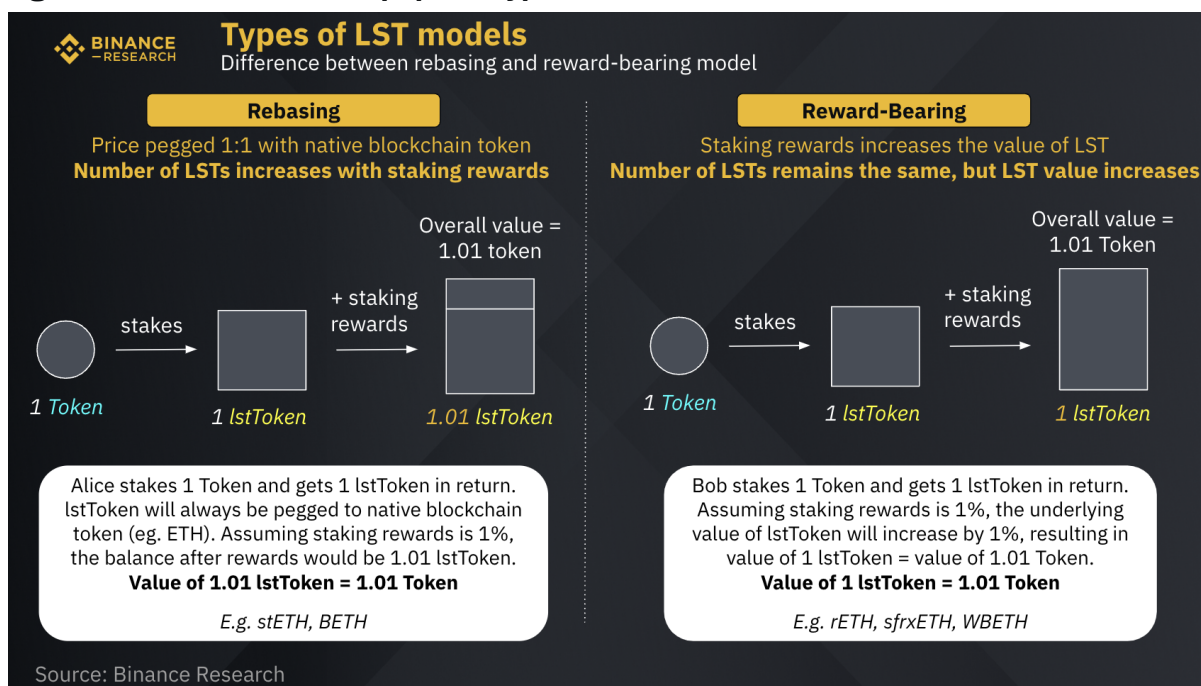
frxETH V2 will be a **decentralized, permissionless ETH borrowing market for node validators** using a **peer-to-pool model**. It enables operators to borrow ETH at market rates for validation without extra fees or commissions, only paying interest driven by market forces. This **enhances efficiency and decentralization** while **reducing reliance on central authorities**. Unutilized ETH enters the Curve AMO smart contract to provide deeper liquidity for frxETH holders. Moreover, sfrxETH holders can potentially earn interest from their holdings. These upgrades could possibly boost Frax's TVL upon launch.

❖ Types of LST models

There are three main types of LST models:

- 1. Rebasable tokens** (e.g., stETH)
 - Token supply will alter algorithmically as a result of staking rewards or possible slashing penalties
 - Theoretically pegged 1:1 to the native token
- 2. Reward-bearing tokens** (e.g., rETH, ankrETH)
 - Tokens that increase in value over time to reflect staking rewards
- 3. Base tokens + reward tokens** (e.g., Frax, StakeWise)
 - One will be pegged 1:1 while the other accrues rewards
 - Frax: base (frxETH) and reward (sfrxETH)
 - StakeWise: base (sETH2) and reward (rETH2)

Figure 7: Illustration of the popular types of LSTs



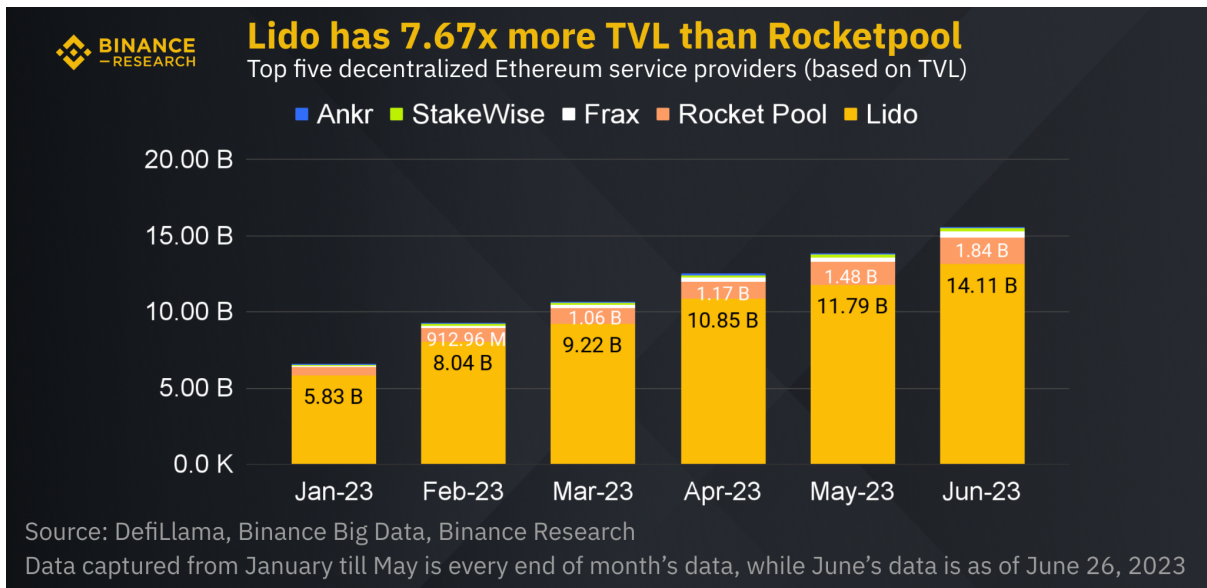
Note that **not all DeFi protocols support rebasable tokens**. For instance, the stETH/ETH trading pair on Uniswap encounters compatibility issues with rebasing tokens, which can potentially cause a loss in stETH's staking rewards.

When a user chooses to wrap their rebasable token, like stETH, the **wrapped token typically becomes a reward-bearing token**. For instance, stETH is wrapped to become wstETH. The wstETH balance remains constant over time, but its value grows.

Suppose a user wraps 1 stETH and receives 0.98 wstETH. If the wstETH price increases by 5%, the user can unwrap 0.98 wstETH and obtain 1.05 stETH as a result.

❖ Overall TVL

Figure 8: TVL of Ethereum-based LSTs from the top five decentralized service providers

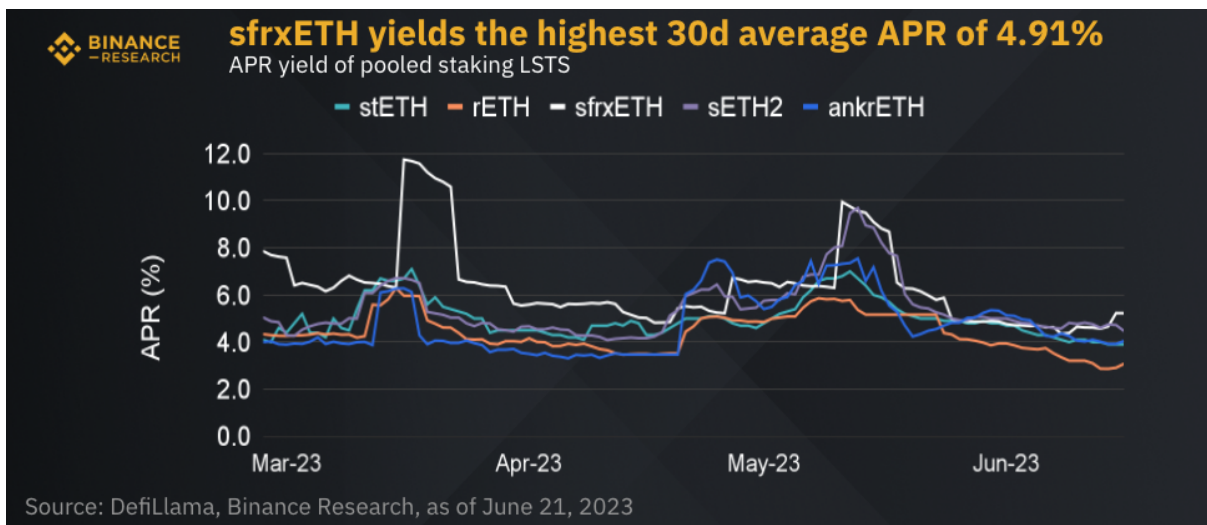


Lido, the undisputed market leader among the top five decentralized service providers, has experienced a **142.02% growth in TVL** since the beginning of the year. Established in December 2020, its early **first-mover advantage** has contributed to retaining its stronghold in the Ethereum liquid staking domain, even though its yield may not be the highest.

This hierarchy also means deeper liquidity for stETH. Most protocols and pools have integrated with stETH as compared to the rest of the LSTs, making it more attractive and flexible for users to earn yield and swap their LSTs in the DeFi ecosystem. Thus, it attracts more new users and stake amounts, effectively creating a positive feedback loop.

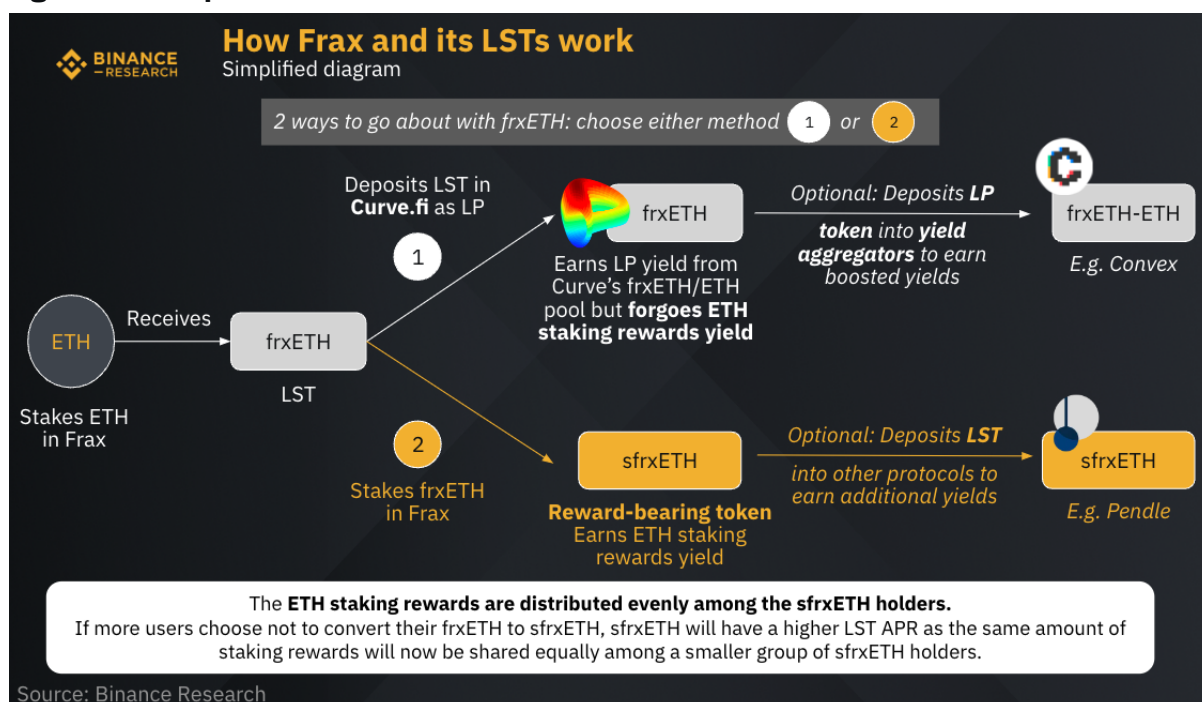
❖ Which LST garners the highest yield?

Figure 9: Pooled staking LSTs' yield trend



Frax yields the highest 30-day average APR of 4.91%, followed by Stakewise at 4.83%.

Figure 10: Simplified illustration of Frax’s LSTs mechanism



The higher yield may be partly due to **Frax’s** design, where users can opt to **either stake frxETH in an ERC-4626 vault to receive sfrxETH, or to put it into the frxETH/ETH Curve pool**. If choosing the latter, they will have to forgo their ETH staking rewards but will earn their yield as a liquidity provider (“LP”) instead.

sfrxETH holders will be able to earn staking rewards from the frxETH supply. **sfrxETH is a reward-bearing token, where one sfrxETH represents 1 ETH plus staking rewards accrued**. Those who opt not to stake frxETH for sfrxETH, will have their unclaimed ETH staking rewards equally shared among all sfrxETH holders.

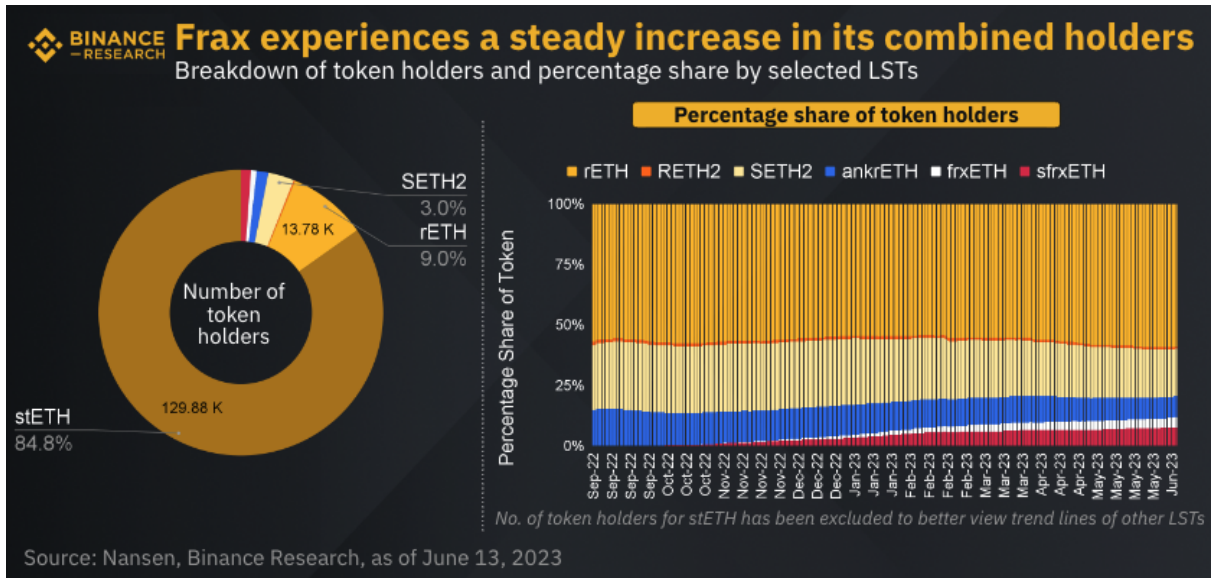
Should a greater number of users decide against converting their frxETH to sfrxETH, sfrxETH holders will experience an increased LST APR. This is because the same quantity of staking rewards will be equally distributed among a reduced pool of sfrxETH holders.

60.28% of frxETH is currently staked on Frax; hence, ETH staking rewards will be equally distributed among these staked sfrxETH holders.

In the case of **Stakewise**, it separates its deposits and rewards system. sETH2 is pegged 1:1 to ETH, while rETH2 represents the rewards earned. This helps users avoid impermanent losses but may bring segmented liquidity by doing so.

❖ Token holders

Figure 11: Holders distribution among selected LSTs



Undeniably, stETH possesses the greatest share of token holders due to its dominance in both staked ETH and TVL.

Since September 2022, the percentage share of token holders for both ankrETH and SETH2 has decreased, particularly as Frax made its entrance into the liquid staking market.

Frax holds the third position in TVL among the top five pooled staking providers, even with one of the smallest numbers of token holders. Nonetheless, the protocol consistently shows growth. In the past 30 days, the number of frxETH and sfrxETH holders increased by 22.87%, reaching a total of 2.74K.

The introduction of frxETH V2, along with enhanced marketing and education, may help Frax attract more retail users and whales due to its higher yield and innovative designs.



3.2 CEX Service Providers

Target audience: DeFi newbies and CEX users

Providers: Binance, Coinbase, Kraken

CEX service providers are another form of custodial pool staking. On Ethereum, Coinbase cbETH has the highest TVL among the centralized exchanges, followed by Binance WBETH.

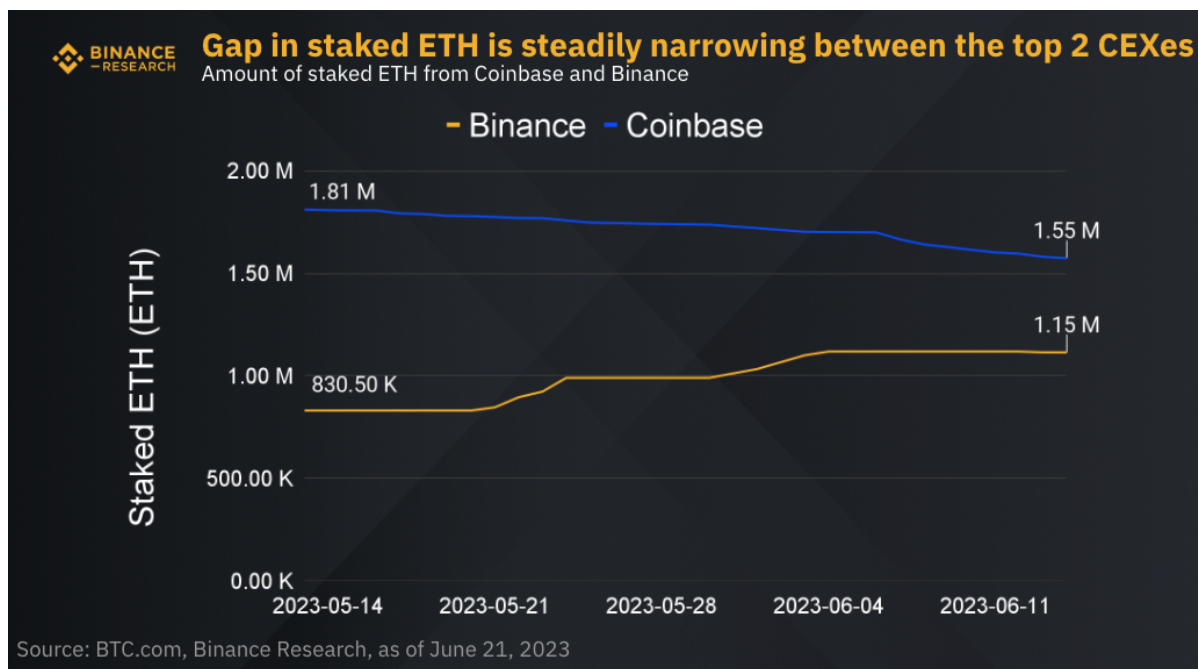
Figure 12: Comparison of CEX Ethereum service providers

	Name	LST	Fees	30d Avg. Yield	LST TVL (US\$)	Yield Pools
	Coinbase	cbETH	25%	3.27%	2.15B	7
	Binance	BETH, WBETH	5%	4.33%, 3.85%	136.06M*	12

Source: DefiLlama, Nanoly, Binance Research, as of June 26, 2023. *BETH TVL is not included

Do note that the yield pools here may not be comprehensive, and excludes other types of yield such as lending

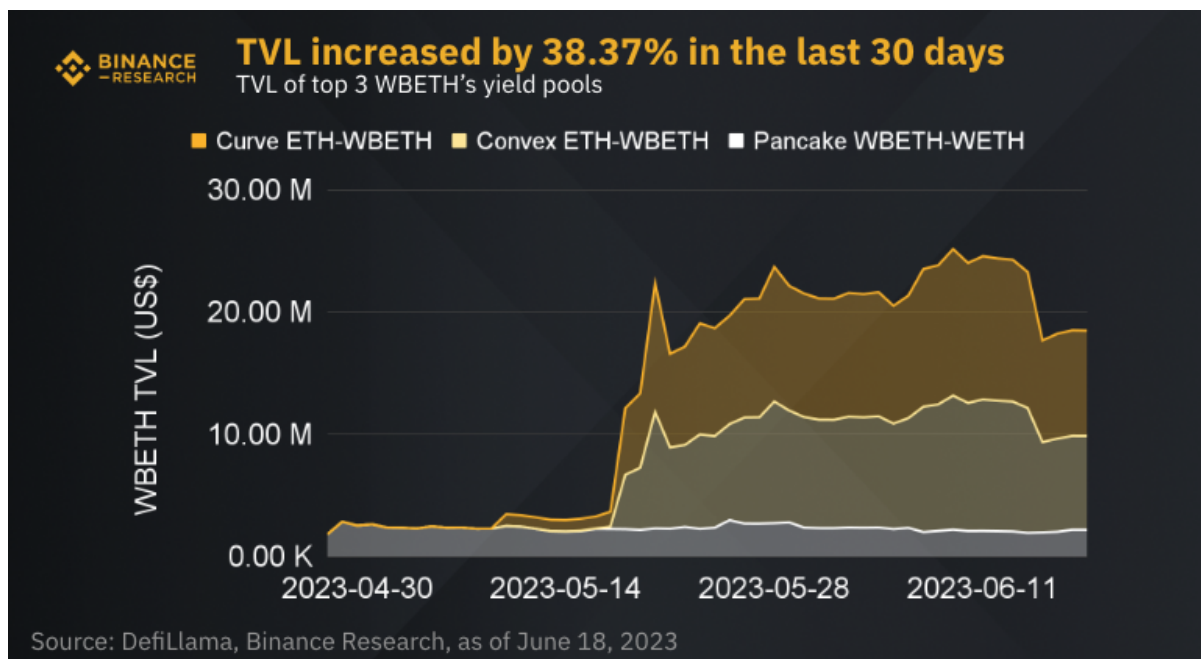
Figure 13: Staked ETH by Coinbase and Binance



The **staked ETH gap between Coinbase and Binance is gradually decreasing over time**. In the last 30 days, Binance's staked ETH increased by 38.03%, whereas Coinbase's staked ETH decreased by 12.62%.

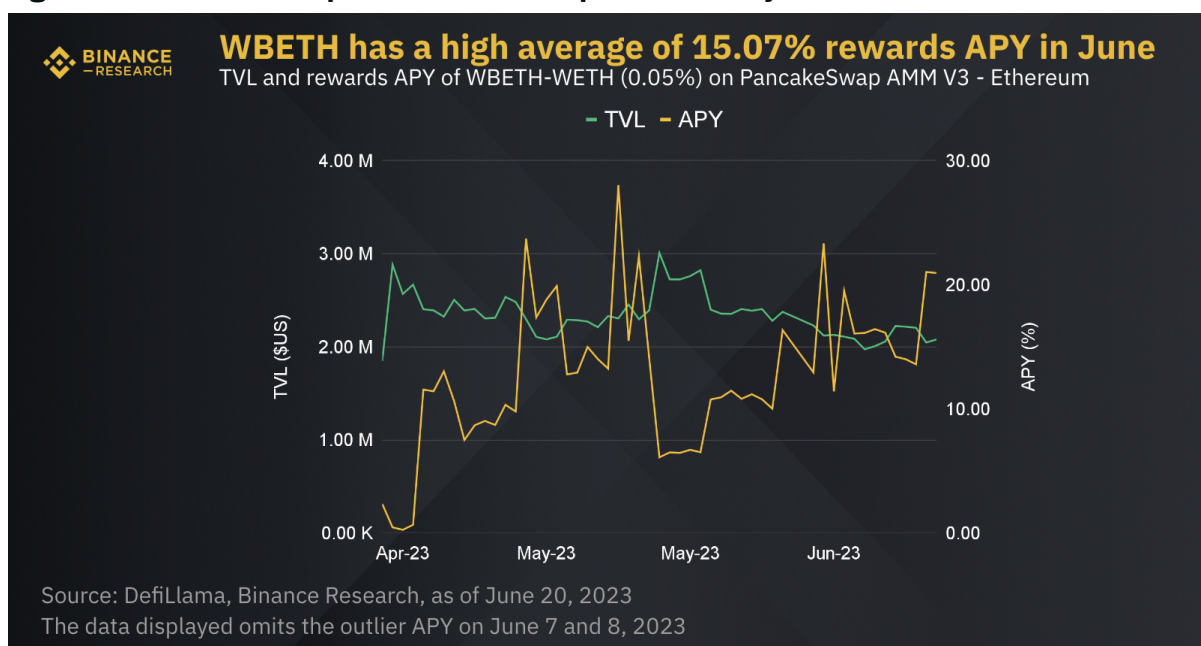
Binance uses **two types of LSTs: BETH and WBETH**. BETH stands for *Beacon ETH*, while WBETH refers to *Wrapped Beacon ETH*. The main difference is that WBETH, a reward-bearing token, is mainly used for DeFi applications, while BETH is a rebasing token for in-exchange use. Refer to this [article](#) for in-depth differences between the two.

Figure 14: WBETH TVL across tracked Ethereum pools



WBETH can be minted or withdrawn from Binance and used on DEXes such as PancakeSwap and Curve, with **annual percentage yields (“APYs”) of rewards going as high as 21.03%** as a liquidity provider after including incentives. TVL across tracked DEX pools has reached US\$18.51M and is expected to grow with increased adoption of LSTs.

Figure 15: PancakeSwap’s WBETH-WETH pool TVL and yield with incentives



3.3 Staking-as-a-Service (“SaaS”)

Target audience: Institutions or individuals with at least 32 ETH

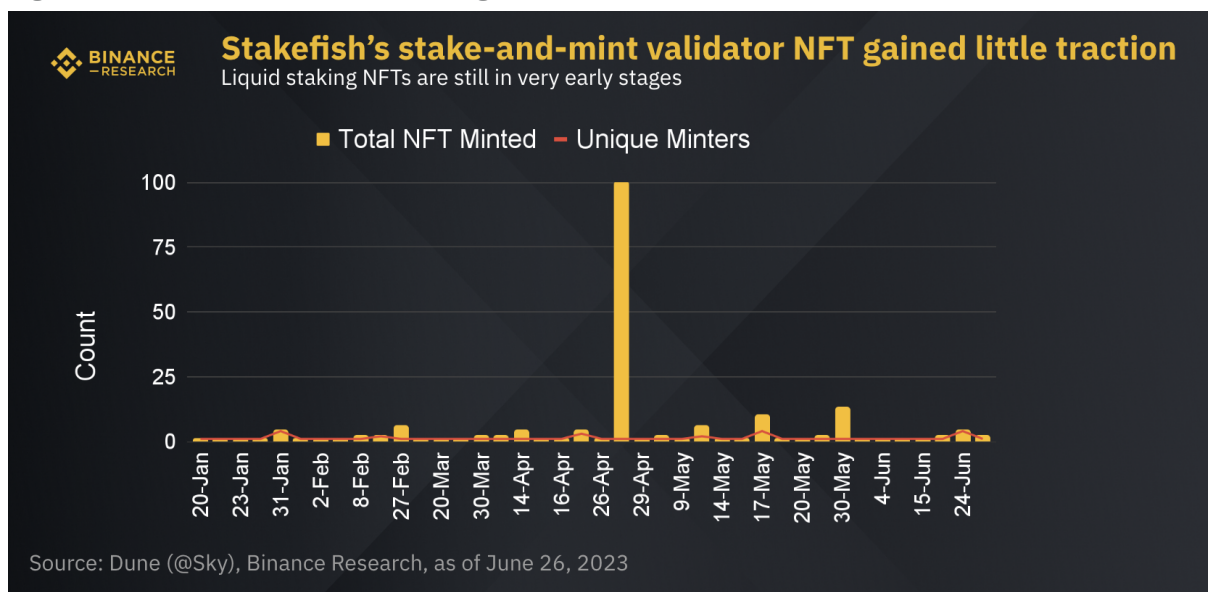
Providers : stakefish, Staked.us, Figment, Kiln

SaaS provides infrastructure and node operators to those who do not want to be exposed to technical risks or reduced rewards from pooled staking.

Some examples are stakefish and Staked.us, which charge 25% execution layer (“EL”) fees and a 10% fee on all rewards, respectively. According to Nansen, stakefish **gained 4.3% market share in the last year**. This may be due to its zero fees for ETH staking (but higher EL fees), as well as an influx of institutional clients now that there are fewer liquidity risks with the ability to withdraw.

Stakefish also introduced an innovative NFTfi concept, where users can **stake their ETH and mint validator NFTs**. One stakefish validator NFT represents 32 ETH plus staking rewards plus tips and MEV fees.

Figure 16: stakefish’s liquid staking NFT adoption



However, its stake-and-mint liquid staking NFT did not manage to gain much adoption. Only 182 NFTs have been minted thus far. The outlier of 100 NFTs minted were all by the same address that was freshly funded three days before the mint.

3.4 Solo Stakers

Target audience: Individuals who can run a validator

As of the end of 2022, solo stakers on Ethereum constitute approximately **6.5%**⁽¹⁾ of **active stakers**. Solo staking is suitable for those who do not want to be reliant on any SaaS or service provider and have at least 32 ETH. The validator queue stands at 93,683⁽²⁾, representing the number of validators waiting to enter or exit the network. This means new validators will have to **wait for 46 days**⁽²⁾ before being able to stake.

This presents a **time-reward opportunity cost** that may deter potential solo stakers. It is not an issue for pooled staking and CEXes, as the yields generated are being distributed evenly across all their users.

If solo stakers are able to wait, they could potentially earn more by being their own validator due to the absence of third-party fees. Nevertheless, the overall cost calculation should also factor in hardware and cloud hosting expenses.




4

Liquid Staking on BNB Chain

Liquid staking, popularized by Ethereum, is also accessible on chains like BNB Chain. The top three main service providers – pStake, Ankr, and Stader – all have the same set of standard fees, with BNBx yielding the highest 30-day average APY of 3.62%.

All three LSTs - BNBx, ankrBNB and stkBNB are **reward-bearing tokens**.

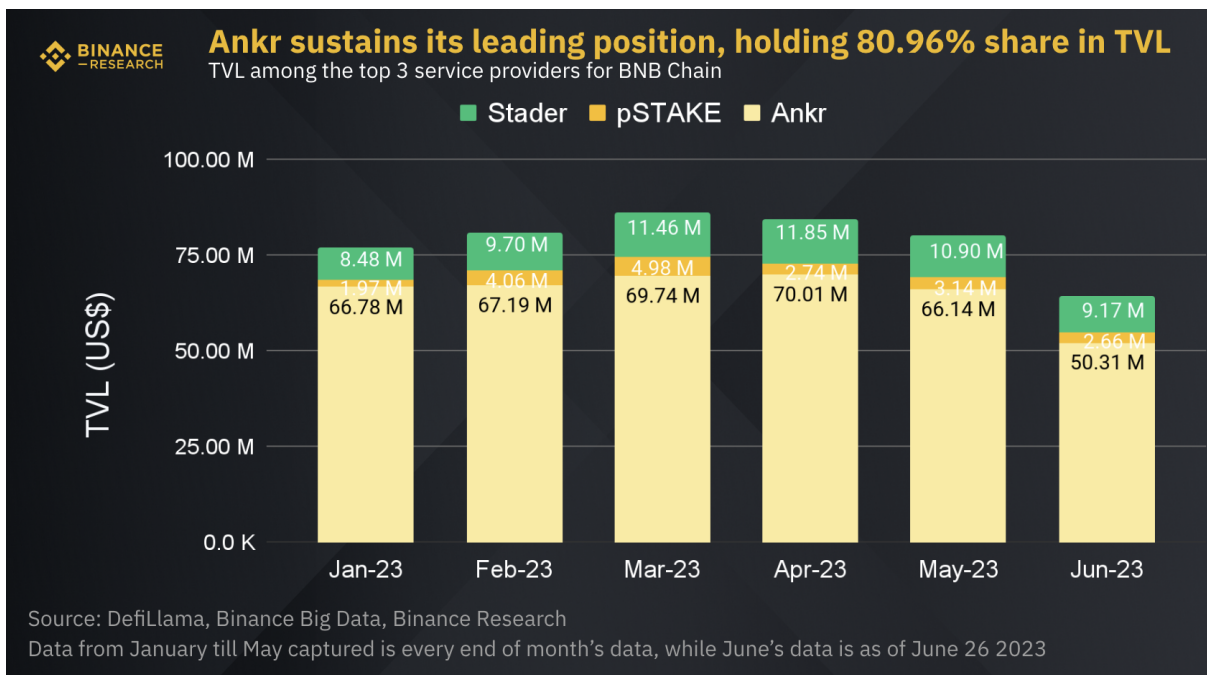
Figure 17: Comparison of BNB Chain liquid staking service providers

	Name	LST	LST TVL (US\$)	Fees	30d Avg. Yield	Yield Pools
	Ankr	ankrBNB	50.31M	10%	3.36%	13
	Stader	BNBx	9.17M	10%	3.62%	5
	pStake	stkBNB	2.66M	10%	3.25%	3

Source: DefiLlama, Nanoly, official websites, Binance Research, as of June 26, 2023

❖ Overall TVL and yield

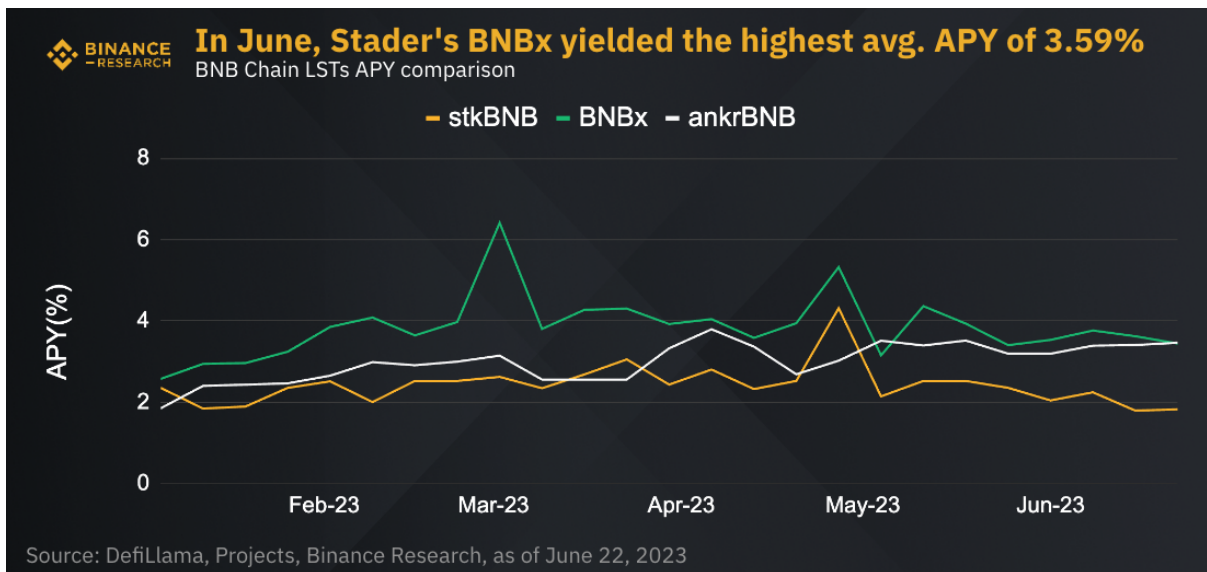
Figure 18: TVL of top BNB Chain liquid staking service providers



To be one of the top 21 elected validators on BNB Chain, one will need approximately 100,000 BNB. This may not be feasible for the majority of retail users. Hence, pool staking has been introduced, where one can delegate their BNB to an elected node.

Ankr dominates BNB Chain’s liquid staking market, holding an 81.18% share among top providers (based on TVL). This dominance could be attributed to its status as the **sole liquid staking collateral choice on the BNB Chain ecosystem** that allows users to mint a stablecoin. Moreover, its market presence on Ethereum and [partnership with Microsoft](#) may have contributed to increased brand recognition among users.

Figure 19: Yield of top BNB Chain LSTs



In terms of yield, Stader boasts the highest average APY of 3.59%, with Ankr coming in 2nd with an average of 3.36% in the recent month. Nevertheless, as an LP on DEXes, stkBNB yielded the highest returns on Thena, whereas ankrBNB generated the top returns on PancakeSwap and Wombat, as evident from Figure 20 below.

Figure 20: Yield of BNB Chain LSTs on prevalent BNB Chain DEXes

AnkrBNB and stkBNB yield the highest APY, on top BNB Chain DEXes
BNB Chain LSTs’ APY on DEXes comparison

LST	Thena	PancakeSwap	Wombat
stkBNB	stkBNB-THE (Narrow) 146.28%	stkBNB-BNB 10.98%	stkBNB Pool 121.6%
BNBx	BNBx-THE (Narrow) 142.49%	BNBx-BNB 8.73%	BNBx Pool 109.3%
ankrBNB	ankrBNB-THE (Narrow) 132.23%	ankrBNB-BNB 15.6%	ankrBNB Pool 148.8%

Source: Thena, PancakeSwap, Wombat, Binance Research, as of June 30, 2023

5 LSDfi/LSTfi

LSDfi and LSTfi are two interchangeable terms used in the industry. They refer to DeFi projects that have integrated with LSTs. Below is a quick overview of the current ecosystem, which includes existing mature protocols that have integrated LSTs into their apps and newly launched projects that focus primarily on LSTs.

Figure 21: LSDfi ecosystem



❖ State of LSDfi

Figure 22: TVL of the relatively newer LSDfi protocols

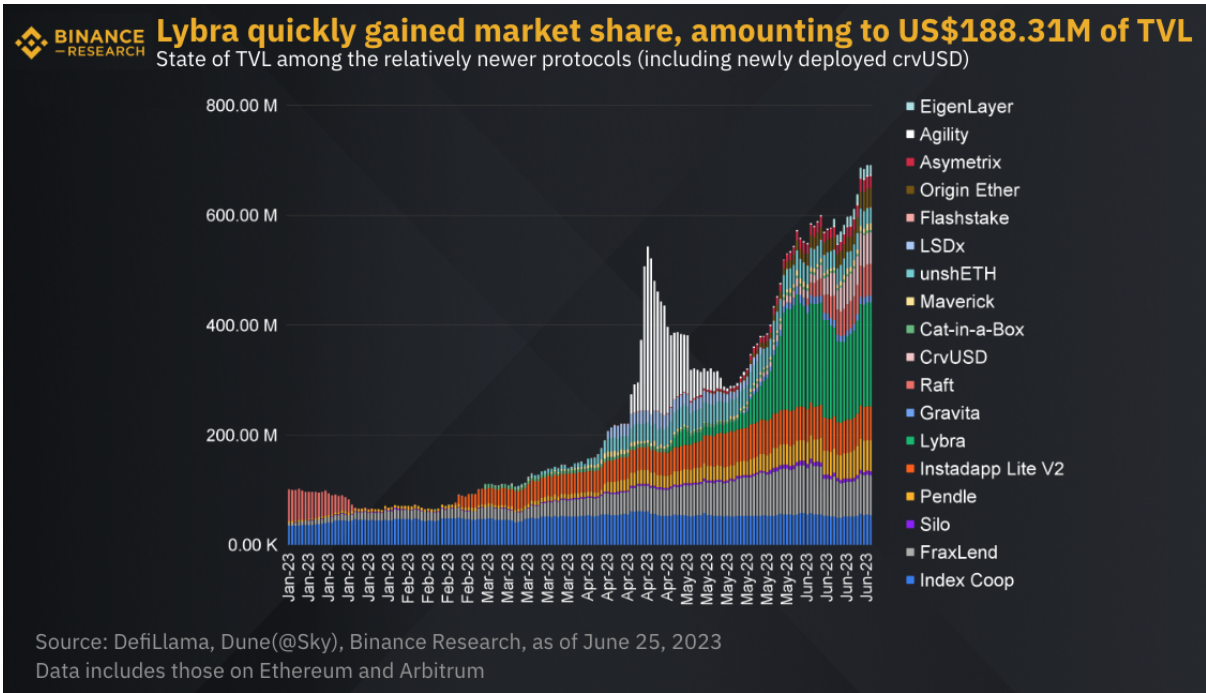
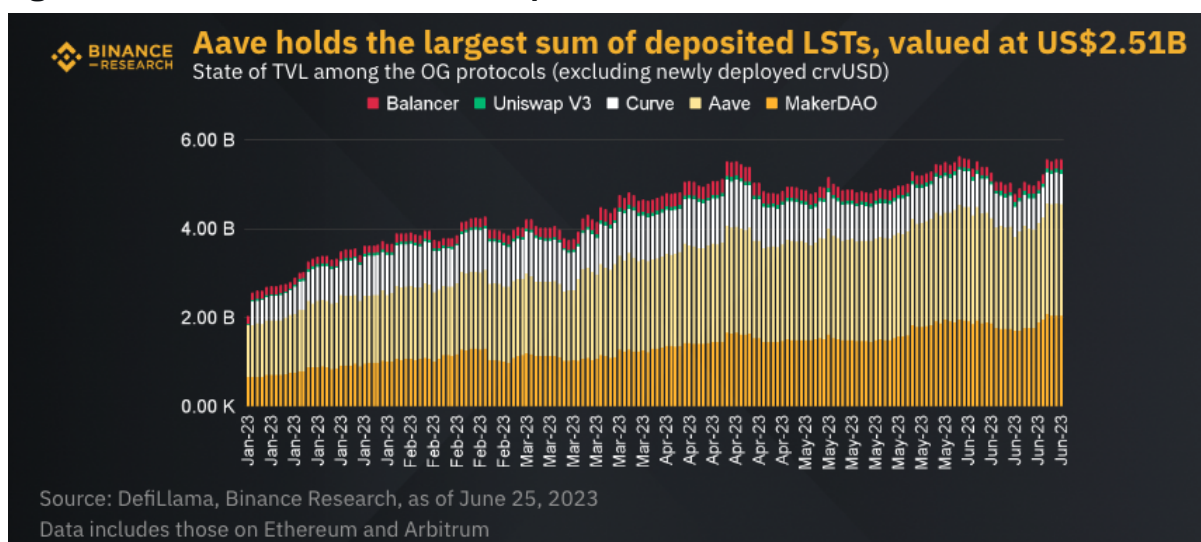


Figure 23: TVL of the mature OG LSDfi protocols



Total LSDfi TVL for OG and relatively new protocols is at **US\$6.25B**, with **OGs' TVL 8.76x higher than newer ones**. Relatively newer protocols' TVL grew exponentially, increasing by 66.10% since May 2023. At present, most protocols primarily integrate with stETH, which may not represent a healthy growth pattern due to the risks associated with over-reliance.

Some protocols, including LSDx and Agility LSD, struggled to maintain their market share following their initial launch weeks. In the case of Agility LSD, a collateralized debt position (“CDP”) stablecoin protocol, its TVL skyrocketed to US\$502.85M in April due to attractive 3,000+% APYs. However, unsustainable token emissions led to a significant TVL drop. **A suspicious TVL spike may suggest bot usage for inflated figures.**

❖ Top LSDfi categories

Among the various categories for LSDfi, **lending leads with US\$2.59B in TVL.**

Figure 24: LST TVL by LSDfi categories

Name	Projects	LST TVL (US\$)
Lending	Aave, Silo, Cat-in-a-Box, Fraxlend	2.59B 🏆
CDP Stablecoins	MakerDAO, Lybra Finance, Raft, Gravita, CrvUSD, Prisma*	2.35B 🥈
DEXes	Curve, Maverick, Uniswap, Balancer	1.03B 🥉
Yield Strategies	Pendle, Flashstake, Origin Ether, Asymetrix, Instadapp Lite V2	175.92M
Index LSTs	unshETH, Index Coop, LSDx	83.42M

Source: DefiLlama, Dune (@Sky), Binance Research, as of June 25, 2023

TVL includes only LSTs deposited on Ethereum & Arbitrum, *Prisma has yet to launch as of the time of writing

1. Lending

Among the four monitored lending protocols for TVL, **Aave** dominates the market with a substantial **96.73%** share. Zooming in on only Aave, LSTs have surpassed WETH as the primary collateral deposits in both V2 and V3.

Figure 25: Distribution of collateral deposits on Aave V2 and V3

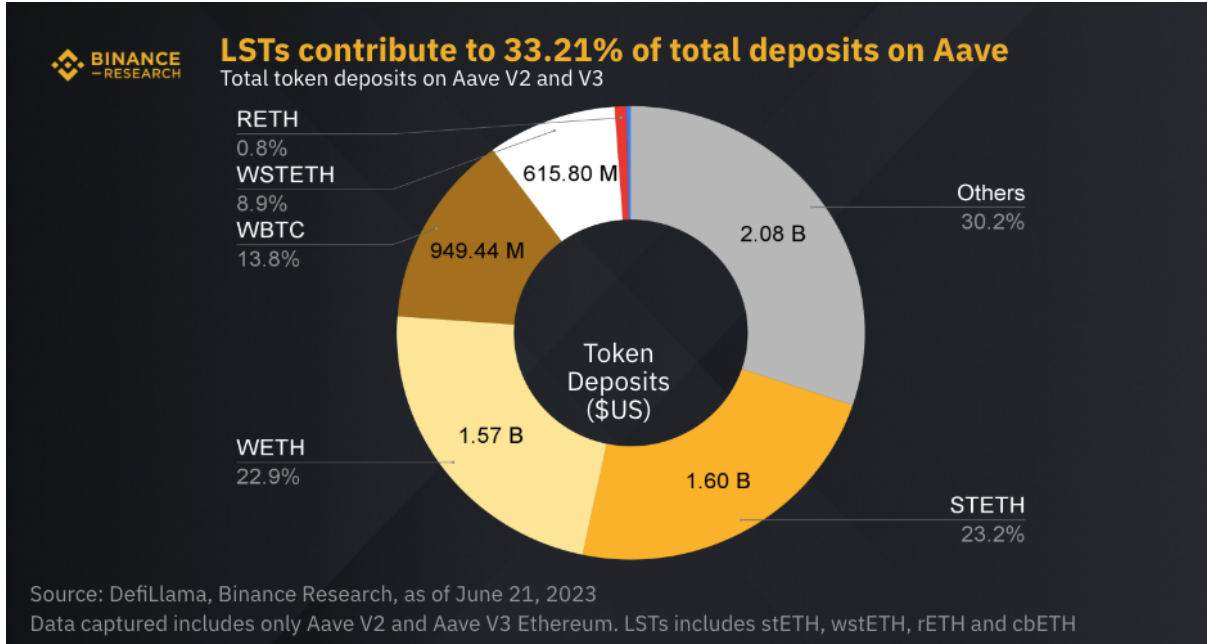
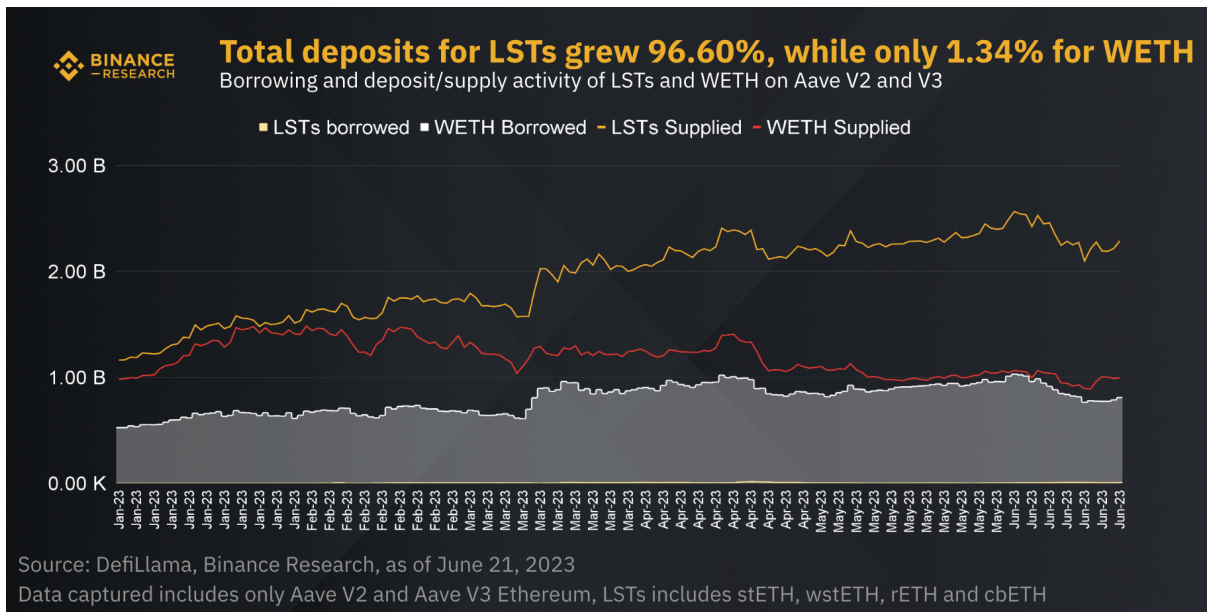


Figure 26: Borrowing and lending activity on Aave V2 and V3




In the lending sector, we observed a trending demand for the use of LSTs as collateral, along with a growing disparity between the total supply of LSTs and ETH on Aave. Introduction of LSTs has contributed to the growth of deposits instead of the cannibalization of ETH supplied.

2. CDP stablecoins

The CDP is created by depositing and locking collateral (in this case, LSTs) in the smart contract and minting a stablecoin as a result. There has been lots of hype around the new protocols due to the high APY from boosted token emissions, but OG protocols such as **MakerDAO** are still the clear market leaders with **484.40M⁽³⁾ in DAI minted from deposited LSTs**. The amount of DAI minted is remarkably 5,730% higher as compared to eUSD (Lybra), despite having the highest collateral ratio and relatively high fees.

Figure 27: Comparison of LST-backed CDP stablecoins

	MakerDAO	Lybra	Raft	CrvUSD	Gravita
Stablecoin	DAI	eUSD	R	crvUSD	GRAI
TVL (\$US)	 2.04B	188.31M	58.27M	57.19M	13.19M
Supported LSTs	stETH, rETH	stETH	stETH	stETH, frxETH	wstETH, rETH
Collateral Ratio	160% - 185%	> 150%	> 120%	Variable ~115%	111% - 118%
Fees	Variable 3.49% -3.74% stability fee	1.5% service fee and 0.5% redemption fee	0.5% - 1.0% protocol fees	Variable ~7.0% - 11.0%	One time 0.5% fee for positions > 6 months

Source: DefiLlama, Projects' Websites, Binance Research, as of June 25, 2023

TVL includes only LSTs deposited on Ethereum and Arbitrum

Lybra introduced a new concept: the redistribution of staking rewards to stablecoin holders. By **simply holding the interest-bearing eUSD**, holders can earn a **derived yield of up to 8%**, paid out from the underlying LST's yield. Moreover, the **minting of eUSD offers users the opportunity to earn** around 28.59% in esLBR⁽⁴⁾. **eUSD faces limited DeFi compatibility** and **often stays above \$1 due to insufficient arbitrage incentives**. The upcoming V2 launch may address these issues. Meanwhile, Lybra's unique CDP stablecoin and yield farming opportunities drove its TVL to surge by 1,059.20% since mid-May.

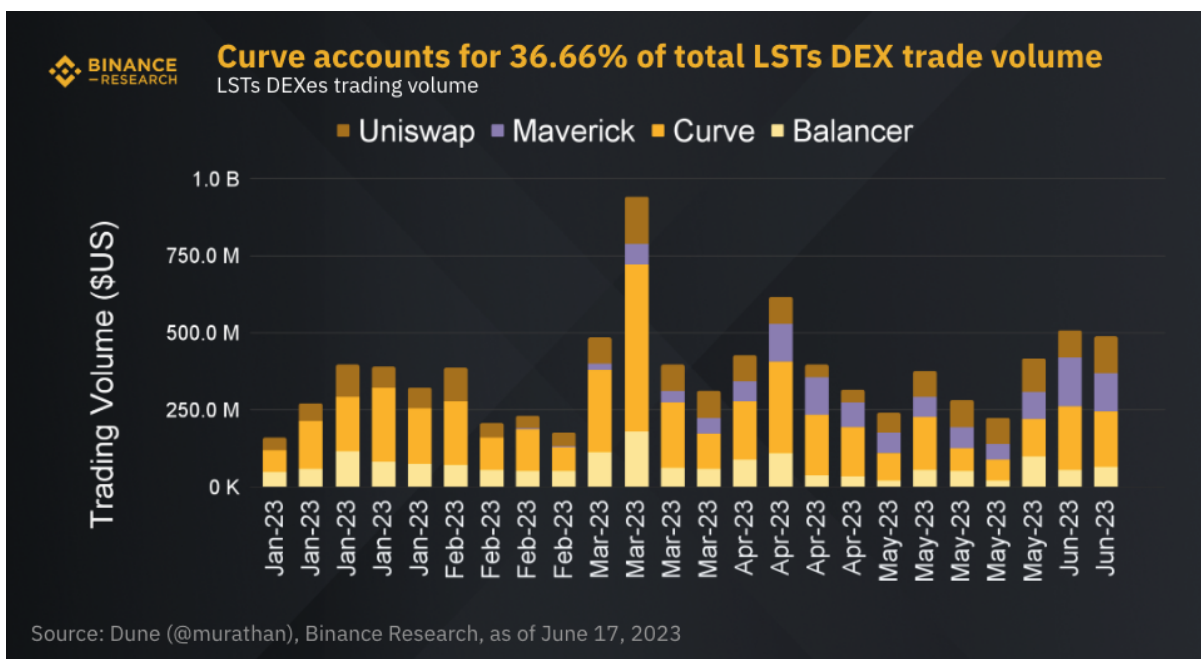
CrvUSD offers some of the highest interest rates for borrowers (exceeding 7.5%), which is also driven by elevated demand. Users may not mind the higher rate due to the underlying **Lending Liquidation AMM Algorithm (LLAMA)**. It allows for **“soft liquidations”**, where collaterals will be converted into an LP position to limit potential losses from price volatility.

Competition is high for LSDfi CDP stablecoins, as newly emerging stablecoins such as Aave's GHO and Prisma Finance's coin strive to capture a portion of the market.

3. DEXes

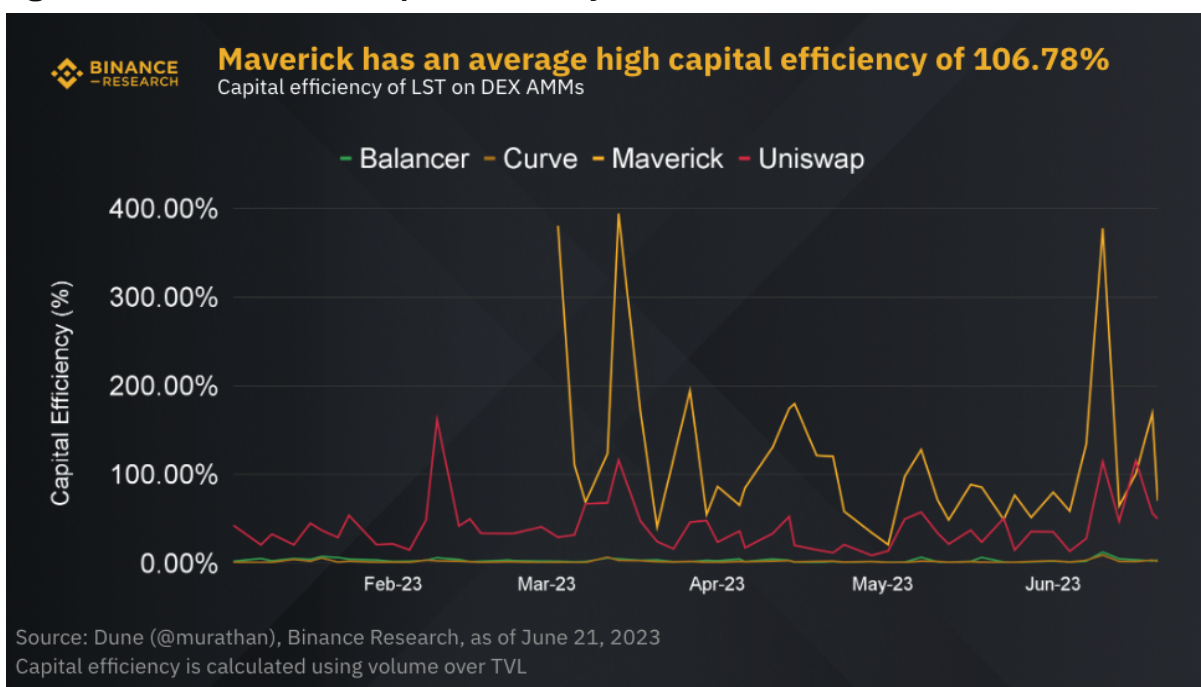
As of June 25, 2023, total LST TVL on DEXes amounts to US\$1.03B, the 3rd largest category in LSDfi.

Figure 28: LST DEX AMM trade volume across major players



DEXes are important for users as a form of **exit liquidity**, especially if one has staked a large amount and cannot afford to wait for withdrawals due to network latency. While Curve holds 36.66% of total LST trade volume, Maverick is quickly closing the gap, with its daily trade volume increasing to US\$125M.

Figure 29: LST DEX AMMs' capital efficiency



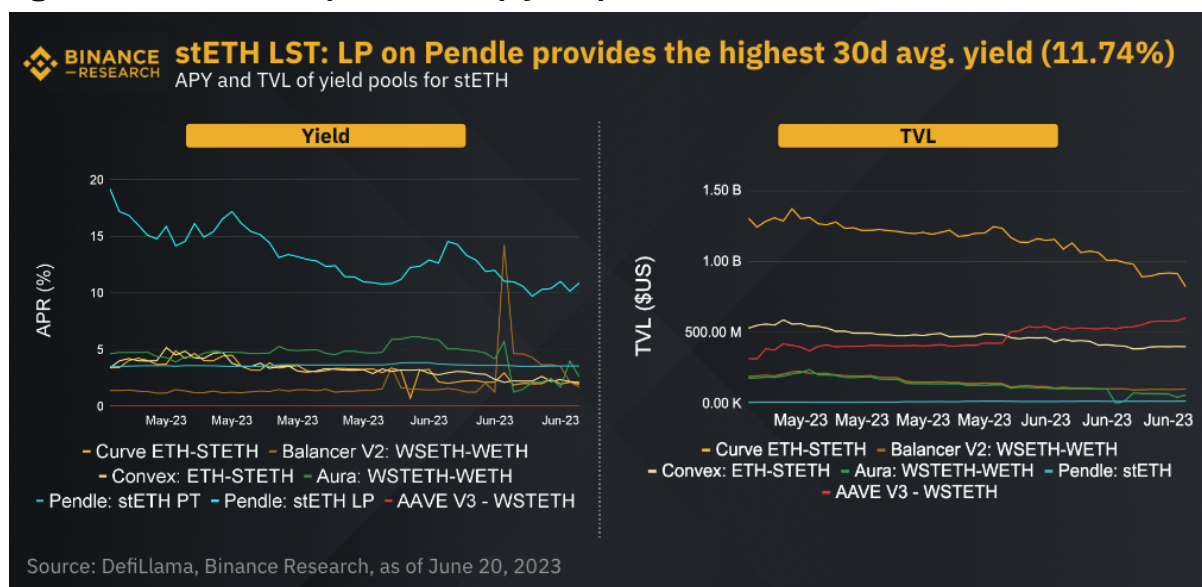
Capital efficiency refers to how effective the AMM is in using the existing capital deposited by LPs. Higher capital efficiency can enable better liquidity and generate more profits for LPs. **Maverick is performing the best with an average capital efficiency of 106.78%**, followed by Uniswap with an average of 38.64%. While efficiency on Uniswap can spike up to 115%, it is primarily driven by occasional large transactions from whales.

❖ Where are the highest yields of LSTs?

One might naturally question which LSDfi protocol would produce the greatest return on their LSTs. To address this, we've compared the TVL and returns of several popular LST pools from the three leading liquid staking providers: Lido, RocketPool, and Frax. **Typically, yields are highest on secondary or derivative protocols like Pendle, Convex, or Aura; TVL is usually greater on primary DEXes such as Curve.** Please note that the listed yields are as of writing and may fluctuate from time to time based on market conditions.

1. Lido – stETH

Figure 30: stETH – Comparison of top yield pools with incentives



Highest 30-day average yield: Pendle stETH LP (30-day average APY of 11.74%)

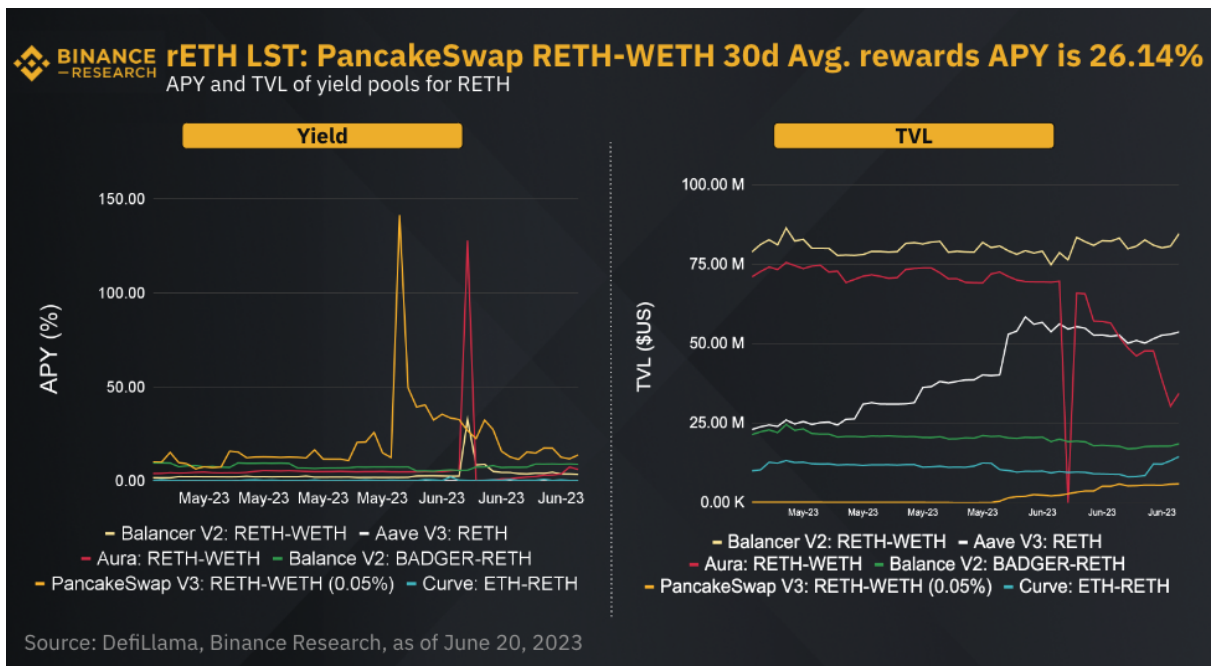
Highest TVL: Curve ETH-STETH (30-day average APY of 2.56%)

Currently, **Pendle's stETH pool offers the highest yield** for liquidity providers, despite a declining APY trend. It has the lowest TVL of US\$16.37M, likely because its complex yield tokenization may deter most retail users. However, since May, there has been a 72.70% increase in TVL.

The Curve ETH-STETH pool holds the largest market share with US\$821.26M TVL, even with a low rewards APY of 1.94%. It has seen a 37.12% drop in locked value in recent weeks. Users seem to be shifting to higher-yield protocols like Lybra Finance or placing stETH as collateral in money markets like Aave. For Aave V3, TVL for stETH grew by 90.69% to US\$603.78M in the last 7 weeks.

2. RocketPool - rETH

Figure 31: rETH – Comparison of top yield pools with incentives



Highest 30-day average yield: PancakeSwap V3: RETH-WETH (30-day average APY of 26.13%)

Highest TVL: Balancer V2: RETH-WETH (30-day average APY of 7.19%)

PancakeSwap offers the highest total rewards APY, averaging 23.25% for the month. The adoption of the PancakeSwap RETH-WETH pool has increased, resulting in a 203.14% growth in its TVL since the start of June.

Balancer V2 RETH-WETH remains the most popular pool, with the highest TVL of US\$84.63M and an average yield of 5.51% in June. RocketPool leverages Balancer’s metastable pools to provide lower slippage and fees for its users.

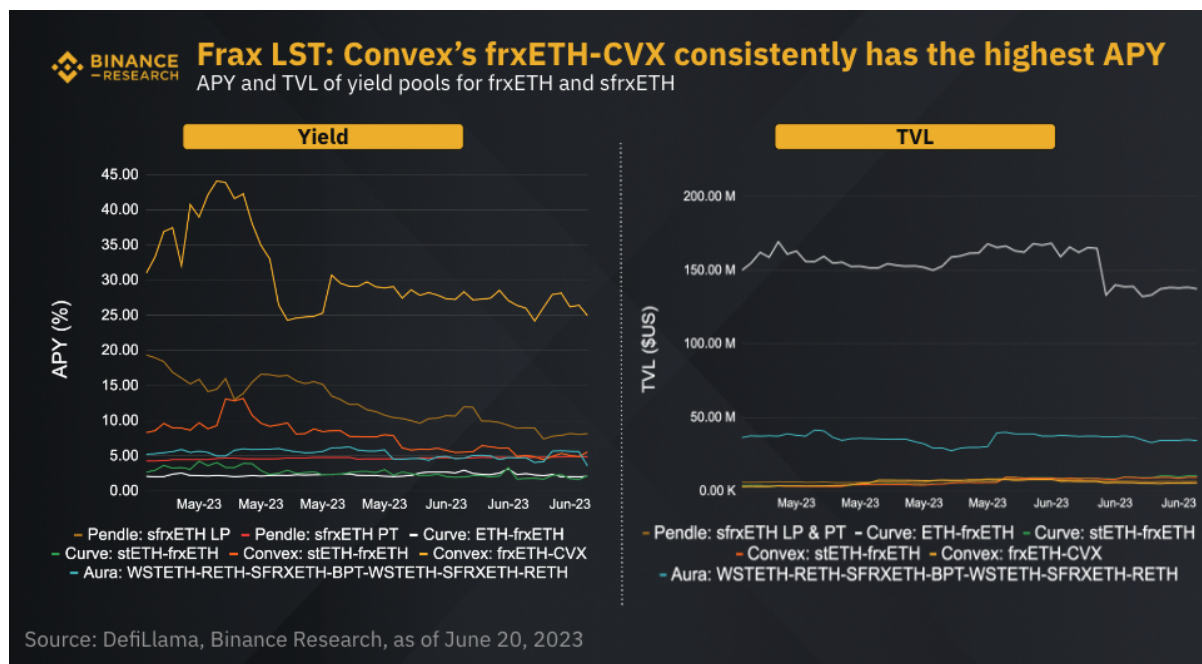
Since May, the Aave V3 rETH pool’s TVL has experienced a growth of 132.83%, even with a low average rewards APY of 0.01%. This coincides with our earlier observations regarding the increasing demand for utilizing LSTs as collateral in money markets.

Aura’s RETH-WETH TVL took a hit due to the AIP-29 pool migration. Since the announcement of the upgrade on June 9, 2023, Aura’s RETH-WETH pool TVL has declined by 47.56%.

Additionally, Pendle, a popular LST protocol, has recently [announced](#) the removal of RETH-WETH from its vePENDLE voting options. The team also suggested selling or shifting liquidity to alternatives. However, as Pendle’s pool contributes around 3.94% of the TVL of Aura’s pool, such an announcement may not have a huge impact.

3. Frax – frxETH & sfrxETH

Figure 32: frxETH & sfrxETH – Comparison of top yield pools with incentives



Highest 30-day Average yield: Convex's frxETH-CVX (30-day average APY of 27.75%)

Highest TVL: Curve's ETH-frxETH (30-day average APY of 2.27%)

Although **Convex's frxETH-CVX consistently offers the highest rewards APY**, it has not secured a significant portion of the market share. This is likely because of the extra steps required, such as the provision of liquidity on Curve first.

Pendle's sfrxETH LP offers the second-highest yield, with sfrxETH currently providing the highest ETH staking yield at approximately 5.20%. When combined with protocols like Pendle, users can further enhance their yields. Pendle's sfrxETH currently has a TVL of merely US\$6.44M, representing around 1.63% of the overall sfrxETH TVL. This presents a significant opportunity for increased adoption of the sfrxETH LP pool.

Curve's ETH-frxETH has the highest TVL currently, despite having one of the lowest rewards APYs. Presently, the pool is boosted by Frax to encourage users to become LPs, with the initial goal of offering a nearly equivalent APY to that of sfrxETH's staking APY.

6 Protocols Spotlight

LSDfi is a relatively young industry, with many new protocols emerging in recent months. To provide a more detailed overview of what some of these protocols seek to provide users, we've highlighted two projects that have recently seen bumps in their social metrics. We will briefly discuss the following protocols below.

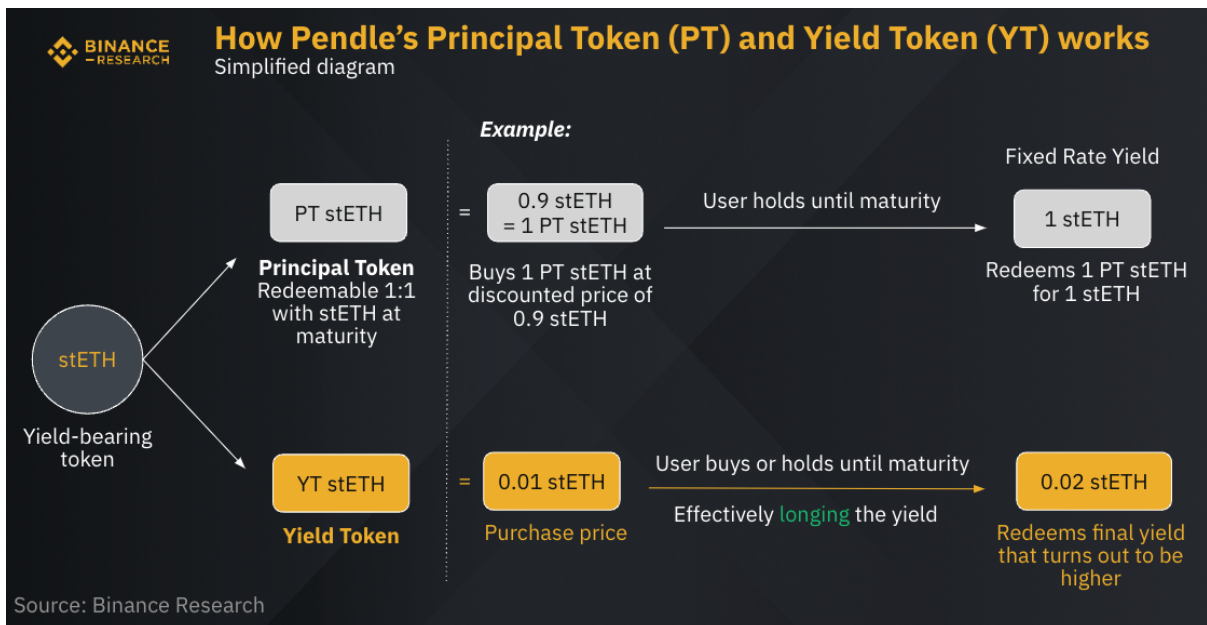
Note that the mention of specific projects does not constitute endorsement or recommendation by Binance, and users should conduct thorough due diligence.

❖ Pendle

Pendle is a **yield-trading protocol** that enables users to purchase assets at a discount or gain leveraged yield exposure without liquidation risk. Launched in 2020, it raised US\$3.7M in 2021 from VCs and institutional investors such as Mechanism Capital and Spartan Group. As of June 28, 2023, it currently has 43.9K Twitter followers.

The protocol gained popularity in the crypto community as an early provider of yield farming and high APY for LSTs. This is achieved through yield tokenization, which involves splitting a yield-bearing token into a **Principal Token (PT)** and a **Yield Token (YT)**. Figure 33 below features a simplified diagram to illustrate how it works.

Figure 33: Simplified illustration of Pendle's mechanism

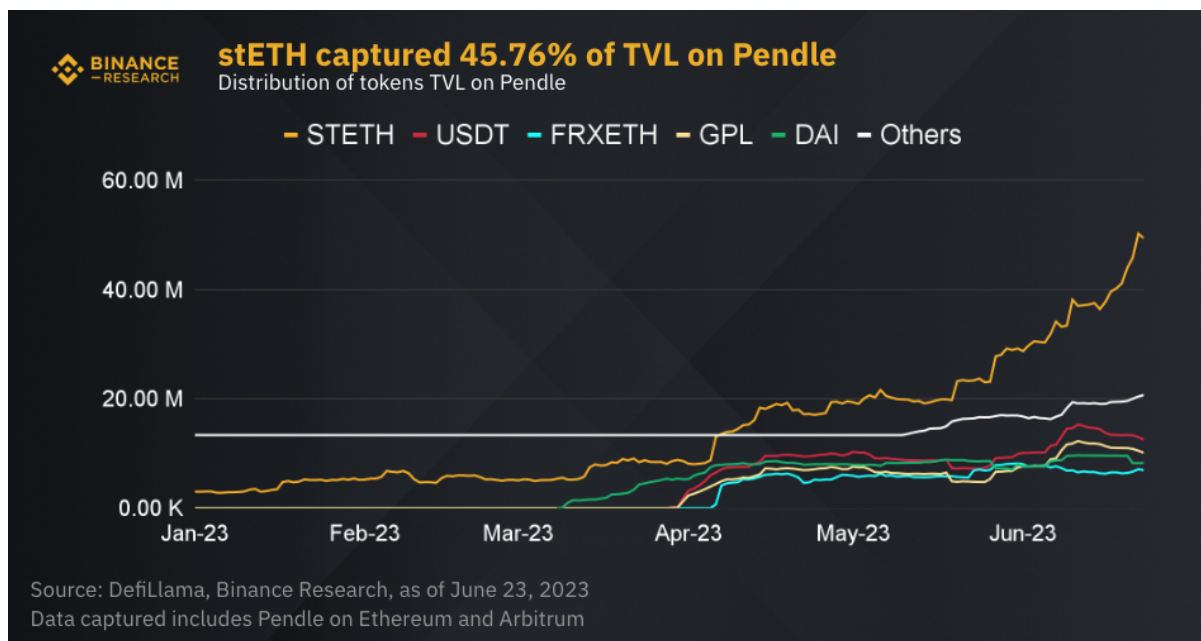


Principal Token (PT): By holding one PT stETH, the user will not be able to receive the yield generated by stETH. As it does not include the yield component, the price of one PT stETH will always be lower than one stETH. As a tradable token, the price of PT stETH depends on a variety of factors, including time before the maturity date and yield speculation. This

allows users to buy stETH at a discount, effectively locking in a fixed yield if held until maturity.

Yield Token (YT): YTs are available for trade on Pendle’s AMM too, where holding one YT stETH gives the user the right to receive the yield on one stETH till maturity. Purchasing or holding YT stETH until maturity implies that users are longing for the stETH yield, betting that the yield received is higher than the purchase price.

Figure 34: Distribution of token TVL on Pendle



There are over 20 markets across both Ethereum and Arbitrum for users to choose from, including for non-LST tokens such as \$GLP and \$APE.

Pendle’s total TVL reached US\$107.95M, where **stETH makes up 45.76% of deposited assets**. TVL is expected to grow as more protocols are built on top of Pendle to maximize returns for \$PENDLE holders and LPs. **Equilibria** and **PenPie** are two yield aggregators that provide **boosted yields** of Pendle. Both account for 48.18% of Pendle’s TVL.

Figure 35: Yield boosters for Pendle

	Equilibria	PenPie
TVL	\$US 19.43M	\$US 32.58M
Pendle Locked	6.63M	13.12M
Revenue Share	7.5%	5%

Source: DefiLlama, Projects’ Websites, Binance Research, as of June 24, 2023

There are 92.70M units of \$PENDLE left unstaked, and only 21.76% of these unstaked \$PENDLE are locked on both Equilibria and PenPie. This presents them with opportunities to capitalize on the untapped market and expand even more. As their success grows, it will likely contribute to an increase in Pendle’s TVL as well.

❖ EigenLayer

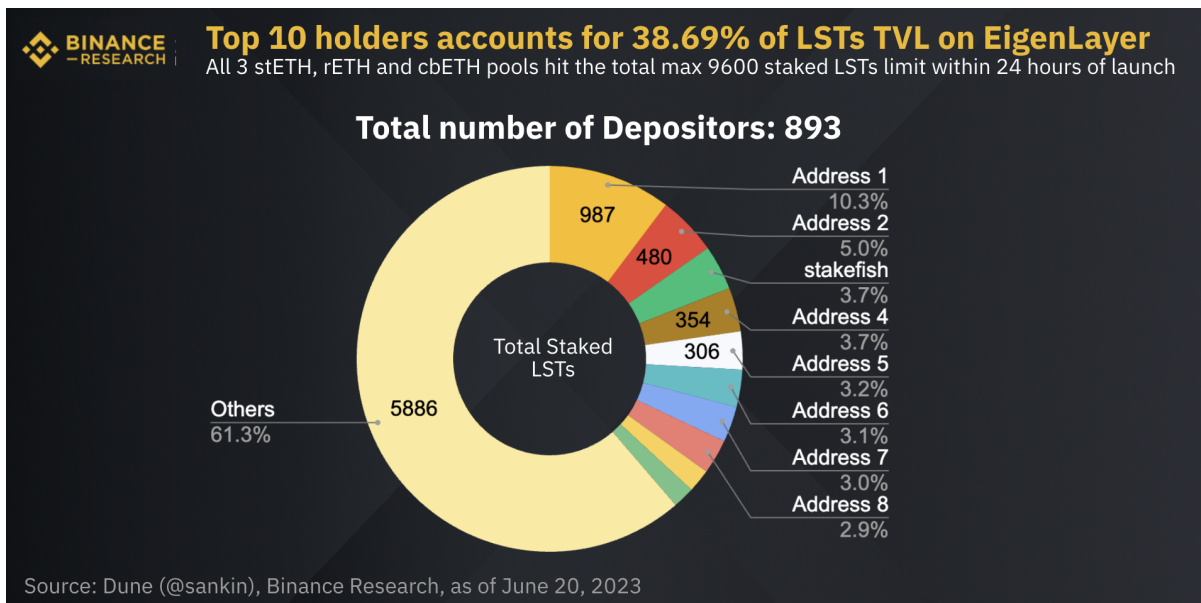
EigenLayer introduces the concept of restaking, allowing users to **restake their LSTs or ETH to secure other apps via an extension of crypto-economic security**. They raised a total of US\$64.5M, including \$50M from recent March's Series A, and now have a \$250M valuation. As of June 28, 2023, it currently has 74.6K Twitter followers. Figure 36 below is a simple illustration of potential ways to restake with EigenLayer.

Figure 36: Simplified illustration of ways to restake on EigenLayer



EigenLayer officially launched its mainnet on June 14, 2023, where one can choose to stake LSTs and/or ETH on the native Beacon Chain via EigenPods in the initial phase.

Figure 37: LST depositors breakdown on EigenLayer



For LSTs, the protocol currently supports rETH, stETH, and cbETH, with an **initial limit of 3,200 LSTs per pool**. All three pools were quickly maxed out with a total of **873** unique depositors, and the top ten holders accounted for **38.69%** of total staked LSTs. It is interesting to note that stakefish, a SaaS, is the 3rd largest staker on Eigenlayer thus far.

As of June 20, 2023, there have only been 51.12 LSTs withdrawn from the staking pools. To dive deeper into EigenLayer, refer to the report [here](#).

7 Closing Thoughts

Both liquid staking and LSDfi are currently in relatively early phases of development and adoption. Newly emerging staking service providers like Swell Network have been garnering attention, and numerous new LSDfi contenders continue to enter the market, vying for their share of the industry.

With LSDfi opening up more incentives and opportunities for users, the number of staked tokens is expected to grow. Observing the growth and evolution of this nascent industry will be intriguing.

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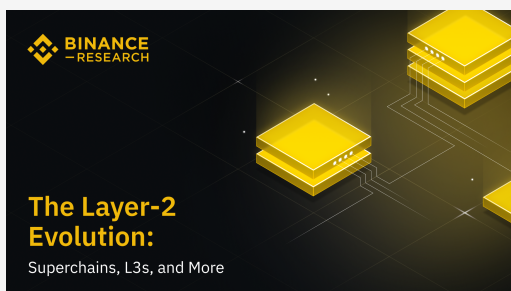
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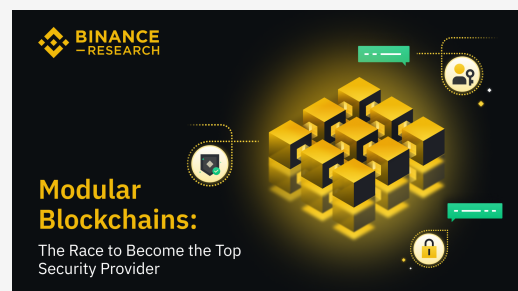
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