CRYPTO
PRAGMATIST
PRO

Name	Lido
Price	$1.9
Market Cap	$1,148,507,651
Fully Diluted Market Cap	$1,799,212,558
Executive Summary	Lido is a liquid staking solution that is built for Ethereum, Solana, Polygon, Polkadot, and Kusama networks. Users are able to stake their PoS tokens with Lido to receive a “st” token that represents their staked position. $stETH is minted on a 1:1 basis with $ETH and earns daily rewards in the form of $stETH rebases.
Problem Solved	Ethereum staking is a costly process, both in time commitment and capital. While many participants in the Ethereum ecosystem may be eager to fully contribute and run their own node, it is often not feasible. Lido eliminates both the effort and cost components, allowing anyone to deposit as little $ETH as they would like to earn the benefits of $ETH staking. Lido’s staked $ETH token is usable all across the DeFi ecosystem, which means users can easily beef up their vanilla staking APR.
Tokens	**$LDO** is the governance token for all of the Lido ecosystem. The DAO oversees staking protocols and the key considerations that come with staking/being a validator, and protocol upgrades. **$stETH** is the token that receives daily rewards in the form of token rebases. This just means that you can go to https://stake.lido.fi/rewards to view daily $stETH earnings that have accrued in your total $stETH balance. Note that Lido as a DAO will take a haircut of 10% off of these rewards earned. So if your gross cumulative rewards over the year amounts to 1 $ETH, you would net .9.

	$wstETH is another native Lido token that accrues rewards differently than daily rebases. To benefit protocol composability and integration across DeFi, $wstETH does not have a changing daily balance like $stETH. A user deposits 1 $stETH for .95 $wstETH, and one year later unwraps/burns the .95 $wstETH for 1.055 $stETH. This represents a 5% APR earned.
Founders	Vasily Shapovalov, Cobie, Konstantin Lomashuk Vasily and Konstantin also work on the Institutional grade staking solution, p2p.org.
Backing/Funding	High profile VC's and funds including Paradigm, Alameda, DCG, and 3AC led an early 2021 $73M round of financing. And earlier this spring, a16z invested another $70M into the protocols development.
Risks	Smart contract risks are especially present in this protocol. While this does not mean that there is no chance of anything bad happening, *if* the protocol were to be compromised in some aspect, there would be much larger issues than the $stETH compromise. $stETH has a history of having a volatile peg to $ETH. This will eventually be eradicated when staked $ETH is withdrawable, but until then the value of $stETH may be more unpredictable than $ETH.
Competitors	pStake, RocketPool, Ankr, Stakewise. The differences in staked ether amount is quite astonishing. RocketPool is the runner up with 236k $ETH staked, just **five percent** of Lido's 4.32 million $ETH. The other protocols mentioned come up with a meager ~50k $ETH staked through their services. While these numbers simply show that competition is null to Lido, we will go into detail below about how competition in the liquid staking services could ramp up. Already, notable accounts have discussed the fact that validator concentration on Ethereum is too high. Barriers to entry are low

	for this business, and it could prove to be a race to the bottom in terms of the fees taken by protocols.
Documentation	https://docs.lido.fi/
Code Repository	https://github.com/lidofinance
Site	https://lido.fi/
Social Media	Discord Twitter Telegram Reddit

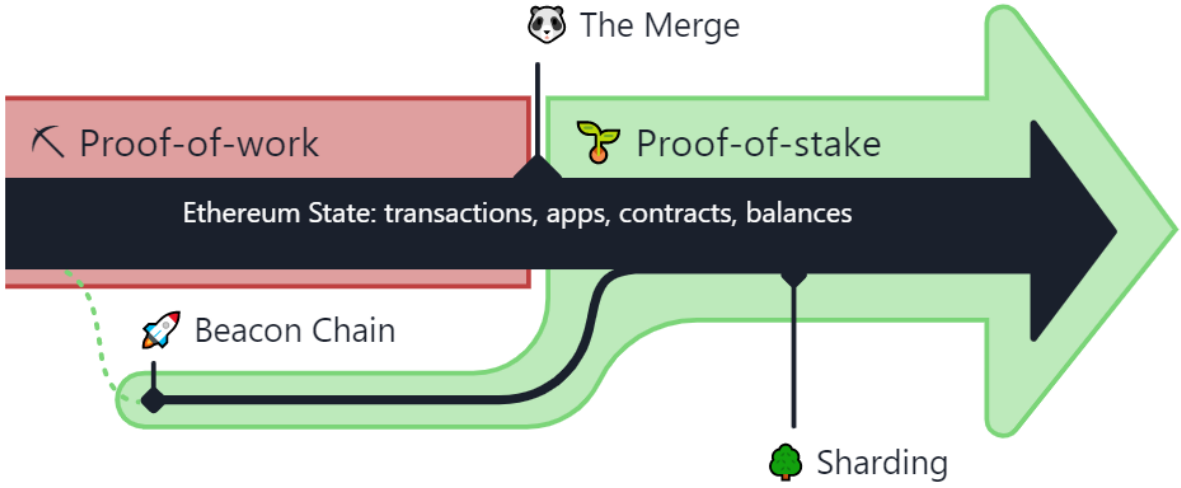
Intro

Well, the day finally came. Ethereum Proof of Work mainnet merged with the Beacon Chain in the middle of the night on September 15th, **successfully completing the long-awaited merge.**

This was a historic event, and although everyone is probably tired of hearing it, the implications on the Ethereum network (and the rest of the blockchain and crypto industry) are vast.

- Network energy consumption falls by 99.9%
- $ETH issuance reduced drastically **by nearly 90%**
- Network security increased (lower barrier to entry in becoming validator, 51% attack is economically unprofitable for attacker)

The merge was the joining of the PoS consensus Beacon Chain with the EVM state of the Ethereum PoW chain, which have been running alongside one another for the past 20+ months:



Ethereum.org

Despite what it may seem like, everything is *not* good and dandy with this switch. Proof of stake is a largely untried and untested validation system. And while many minds believe that this will be a positive move in the space and ultimately lead to a better blockchain ecosystem, *PoS simply has not been around long enough to know*. There will likely be things that go wrong under PoS that cannot be predicted.

But the good parts are what we can, and will, focus on today. Energy consumption is down drastically, and running a validator node can be significantly cheaper (thus more decentralized) than setting up a bunch of high powered computers to solve complex algorithms.

Staking Ethereum

In order to participate in the upside of the move from PoW to PoS, it is well-known that $ETH holders need to stake their $ETH somewhere. There are 4 different ways to stake $ETH, all offering a range of benefits/tradeoffs. We will start with solo staking.

Solo Staking	1. Requires 32 $ETH 2. Run your *own validator node* 3. Requires hardware and 24/7 network uptime 4. Earn 100% of rewards 5. Also exposed to potential penalties (slashing)

As you can see, solo staking is reserved for those who are truly dedicated to Ethereum. While it does require the most amount of effort, capital, and technical know-how, it has the **most positive effect** on the network as a whole and earns the most rewards for users. Solo stakers are actively decentralizing Ethereum.

Staking as a Service	1. Varies in $ETH requirements, but most often requires 32 2. Does **not** require node operations 3. Pay a small fee to the node operator 4. Exposed to counterparty risk, which can vary widely

Staking as a service is a great way to get involved with a *trusted* counterparty, friend, or organization. You can think of it as being the capital supplier for the people who are technical experts.

Note point 4, however, and that you are exposed to the actions of the validator. Parameters will vary, but things to consider are what happens when/if slashing occurs, what the fee split is, previous history validating, etc.

Centralized Exchange Staking	1. Extremely simple 2. Highest token liquidity 3. Requires signifcant trust assumptions with centralized service 4. Fees will be high and not explicitly stated 5. Zero contribution to Ethereum decentralization

Pretty self explanatory in the name, this method does not contribute to decentralization Ethereum security. Although the benefit in simplicity and instant liquidity is large, the next option provides a similar level of those benefits with a higher payoff and better contribution to Ethereum.

Liquid Pooled Staking	1. Lowest capital requirements, as low as .01 $ETH 2. Extremely liquid for popular services 3. Minimal efforts needed 4. High fees taken off the top of rewards 5. Introduces smart contract risk

This is the most popular form of staking, especially for those with less than 32 $ETH. This is what Lido, RocketPool, and other liquid staking derivatives do. When depositing your ETH into the contract, the DAO or other entity will combine your stake with other users to create a pool of 32 or more $ETH, which gets allocated to a validator.

These provide a *massive* user benefit currently as they are quite liquid on DeFi markets. Due to the general uncertainty of when the Shanghai Fork upgrade will take place (this will allow staked $ETH withdrawals, among other things), there is a present day **tangible value** that these services provide in their instant liquidity:

Currency reserves

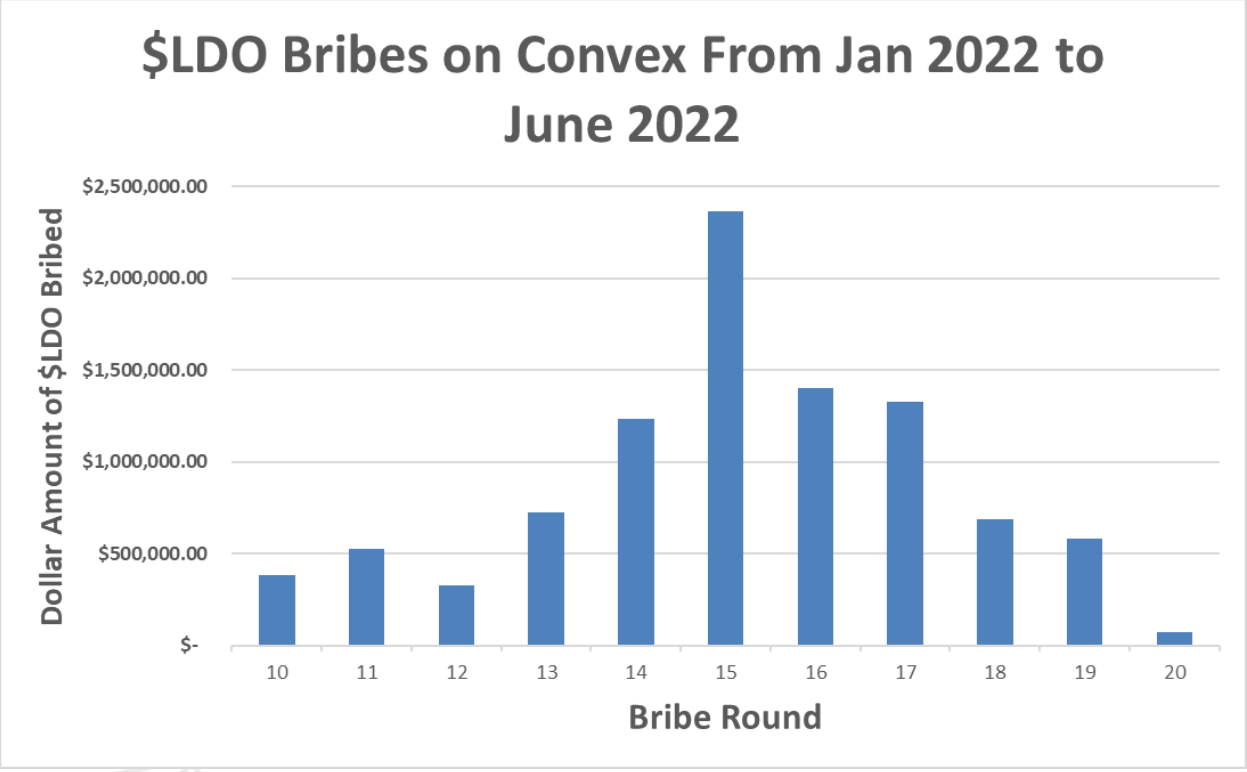
ETH: 445,071.52 (42.30%)
stETH: 606,990.33 (57.70%)
ETH+stETH: 1,052,061.84
USD total: $1.4b

	Composition	Pool value ↓
	wstETH WETH	$165,568,057

wstETH - ETH pool on Balancer, stETH - ETH pool Curve

Lido's $stETH clearly has the deepest liquidity with a massive **$1.4B** on Curve. As one of the biggest contributors to $CVX bribes during the 2021 bull, the $stETH pool was able to attract a lot of liquidity with $CRV emissions.

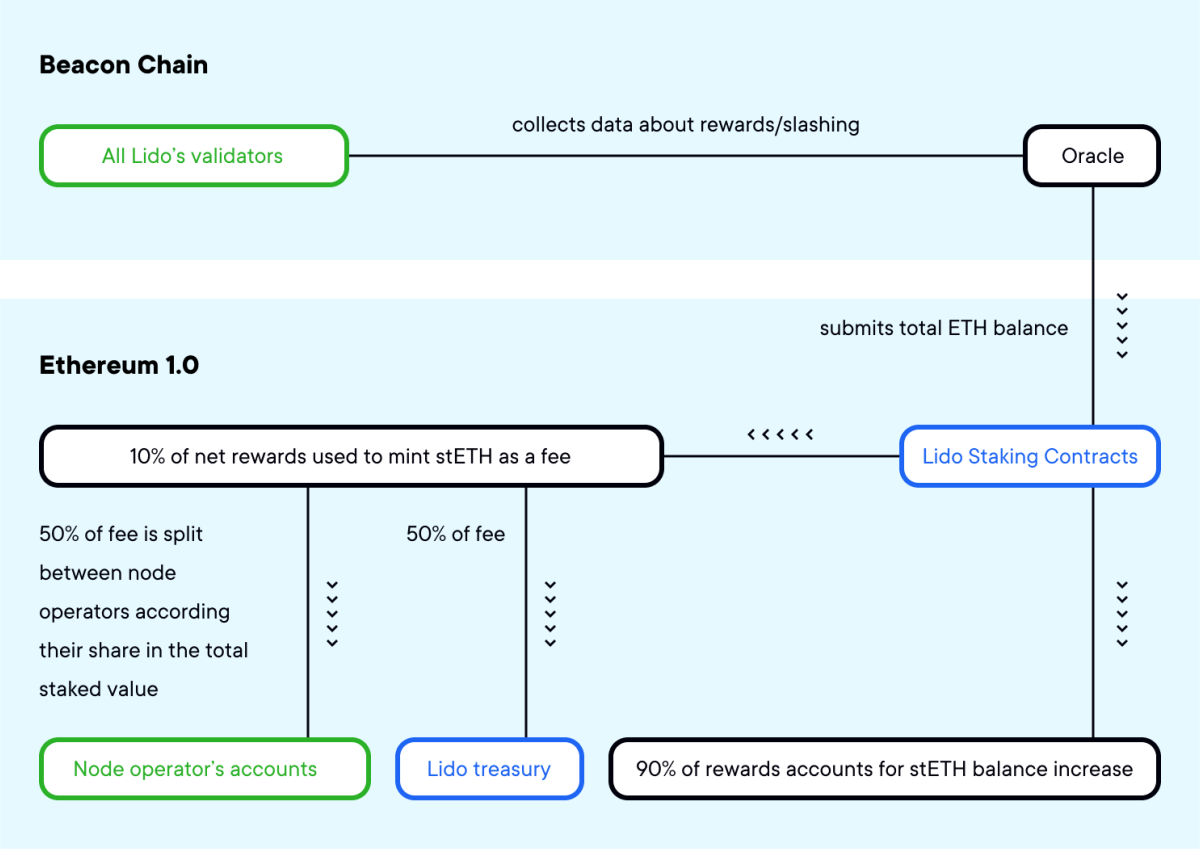
Since June of this year, $LDO bribes have decreased drastically, but deep liquidity remained simply because $stETH and $ETH trade 1:1 (most of the time), and providing liquidity on a DeFi blue-chip like Curve is a relatively safe way to earn a little extra yield.



Data from LlamaAirforce

The Protocol
Lido was launched very shortly after the Beacon Chain to introduce its staking derivative. Since inception, it has been a pretty clear and outstanding winner in terms of accumulating the most amount of $ETH deposits.

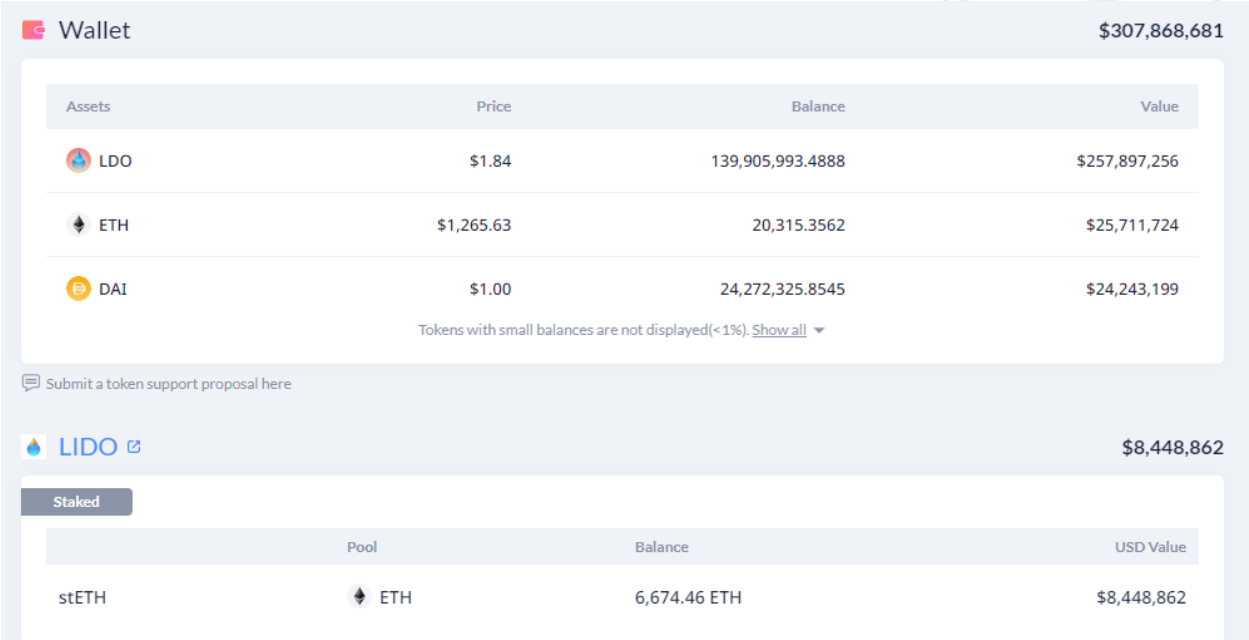
The way the protocol earns and retains values is through its fee charged to its suppliers of capital. 10% of all $ETH staking **rewards** that *would be paid out to users*, instead go to an even split between the protocol and node operators. The protocol directs the funds borth towards the treasury and as a slash insurance fund in the case of an operator that fails to maintain their uptime:



Lido Blog

Obviously, with the volume of usage that Lido has seen over the past 2-ish years, its built up a pretty fat stack in its treasury, holding:

- $50M between $ETH and $DAI
- $8.5M in $stETH
- $257M in $LDO tokens (part of the original 360M DAO initial token supply)

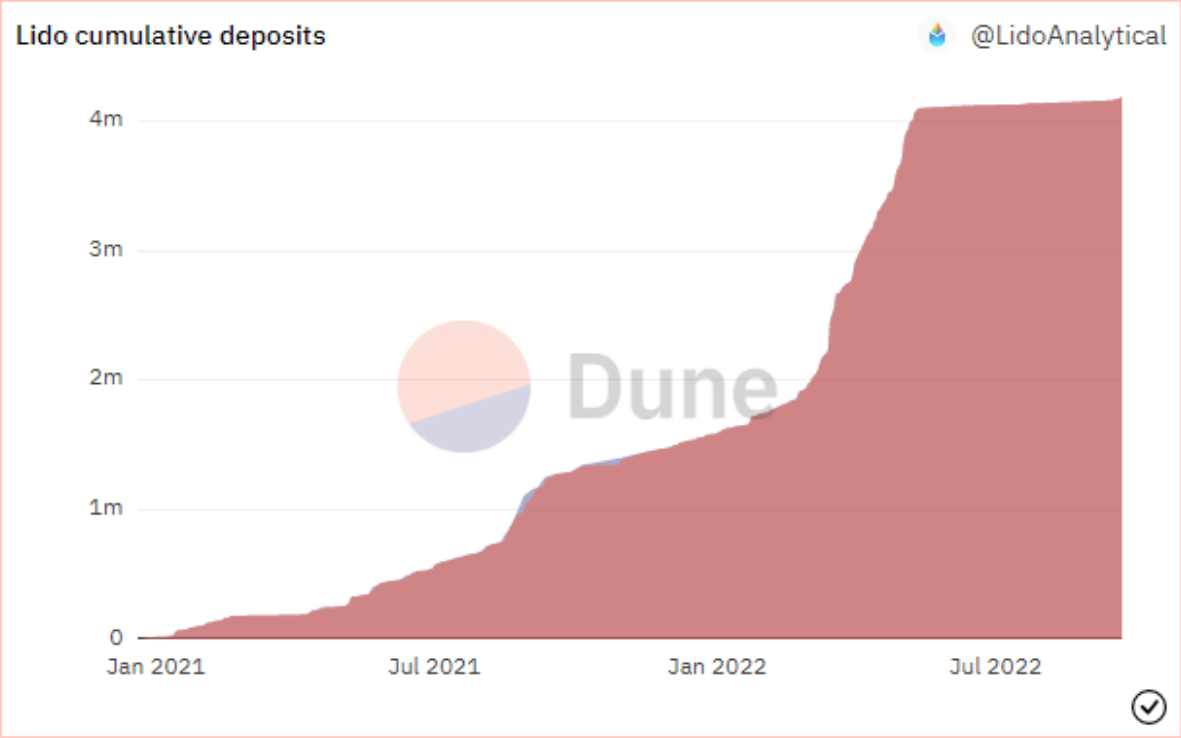


DeBank

The Thesis

In the pre-merge days, people were likely pretty skeptical about depositing their valuable $ETH into the Beacon Chain **for good**. Because withdrawals are wholly unavailable until an arbitrary later date, this could mean locking up capital for a prolonged period of time. After all, there have been discussions of the merge for quite some time now, so there was no way to tell when it was actually going to happen.

Once there was more definitive discussion earlier in 2022, deposits shot upwards:



What is interesting about this graphic is that demand has seemed to taper off in terms of $ETH deposits since the summer. This is likely largely due to the general sell off in crypto and equities: simply less demand for higher risk assets.

The thesis for Lido rests on the fact that a lot of people in the Ethereum ecosystem don't want to deal with running their own validator, don't have the required 32 $ETH to stake, or just seek the liquidity and added benefit that Lido offers.

These are well grounded points of demand, hence the large success the protocol has had over the past year.

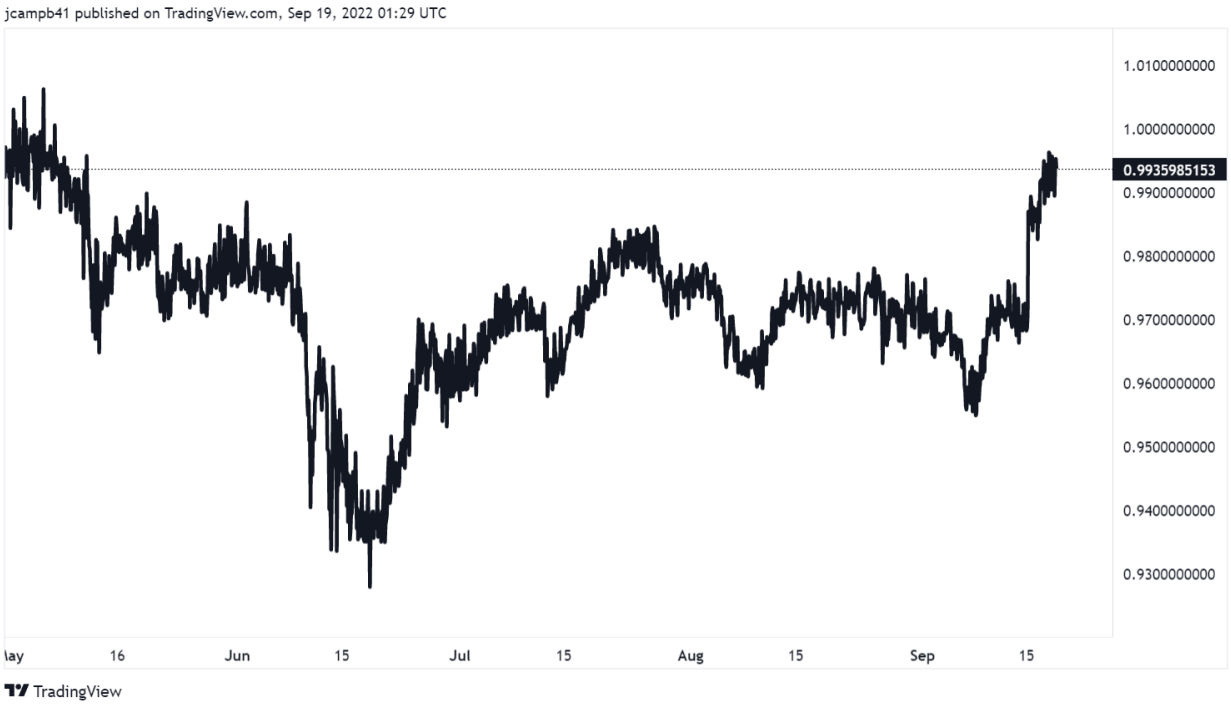
The Tokens
Below, we will highlight some of the best ways to buy, sell, and utilize $LDO and Lido Ethereum tokens.

As we discussed, $stETH is the most prevalent token in the ecosystem. The daily rewards are determined using an oracle system that communicates with the Ethereum blockchain to update the new ether balance, which determines the rebase. If a Lido node operator were to be slashed, then there could be a proportionate $stETH decrease (and based on the amount of Lido $stETH holders, this would probably be negligible).

Because the Lido controlled share of staked ether balance increases over time, the proportionate rewards users earn is *diminishing over time*.

Also, for the sake of simplicity, it does not matter where you acquire your share of $stETH. Uniswap, Curve, or Lido itself all earn the same because the Lido contract recognizes your address as a holder of $stETH and will pay out rewards accordingly. Despite this, there were absolutely some deals to be had back in June, and even earlier this month on secondary markets.

Here is a chart of the $stETH/$ETH ratio on Uniswap starting in May of this year:



Source: [TradingView]

Nearly a 7% discount compared to minting through Lido that is now close to trading at parity with $ETH. Now, at the time this honestly felt correctly priced given the state of the market, but it shows that users should only mint through Lido if no discount is present.

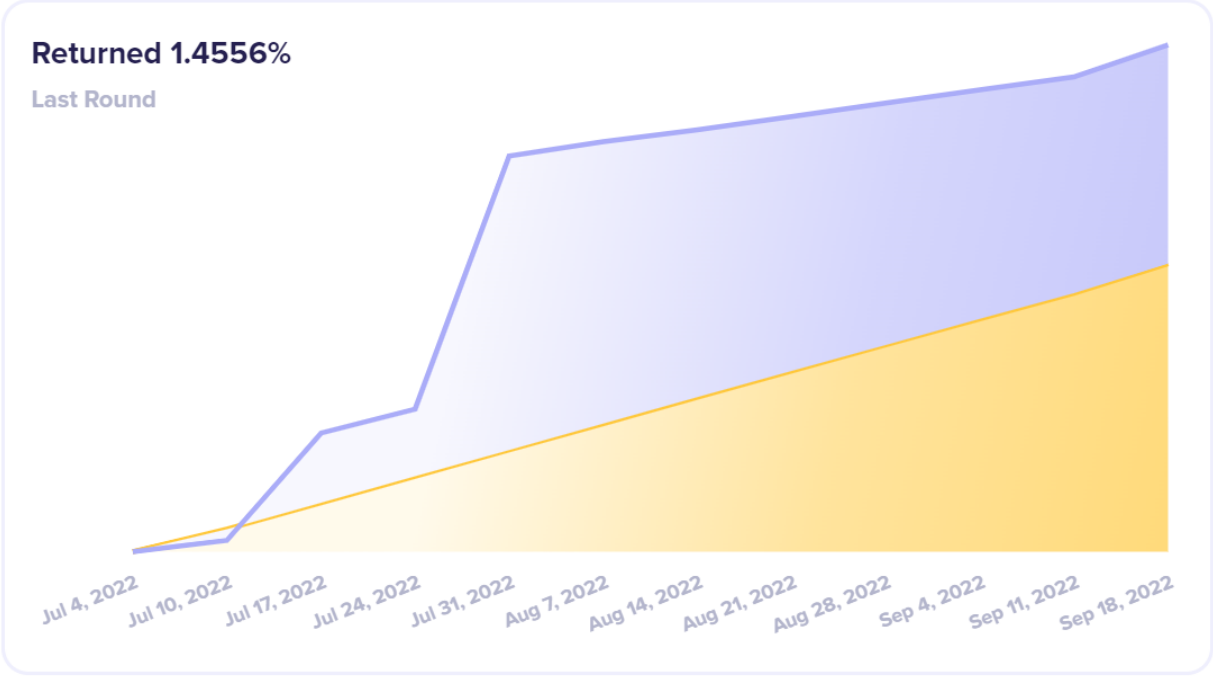
The uses of $stETH and $wstETH are vast. Aside from providing liquidity on any major AMM such as Balancer, Curve, or Uniswap, there are some higher risk, higher reward plays to cater to the more risk seeking users out there.

Pods

Although automated options strategies have gotten some flak for being deceptive in their returns, this one seems more promising. It charges a 0.1% management fee on assets held, and 20% performance fee on the returns.

The pods vault is simple: deposit $ETH into **stETHvv** (stETH volatility vault), and they will deposit all of the principal into Lido, and take a portion of the weekly yields to buy Ethereum strangle options. We have covered this before, but it is basically a long volatility bet that uses the payoffs of calls and puts to benefit from any large directional movements in the underlying.

Returns have been pretty good on top of vanilla Lido: here are the returns since July 2022.



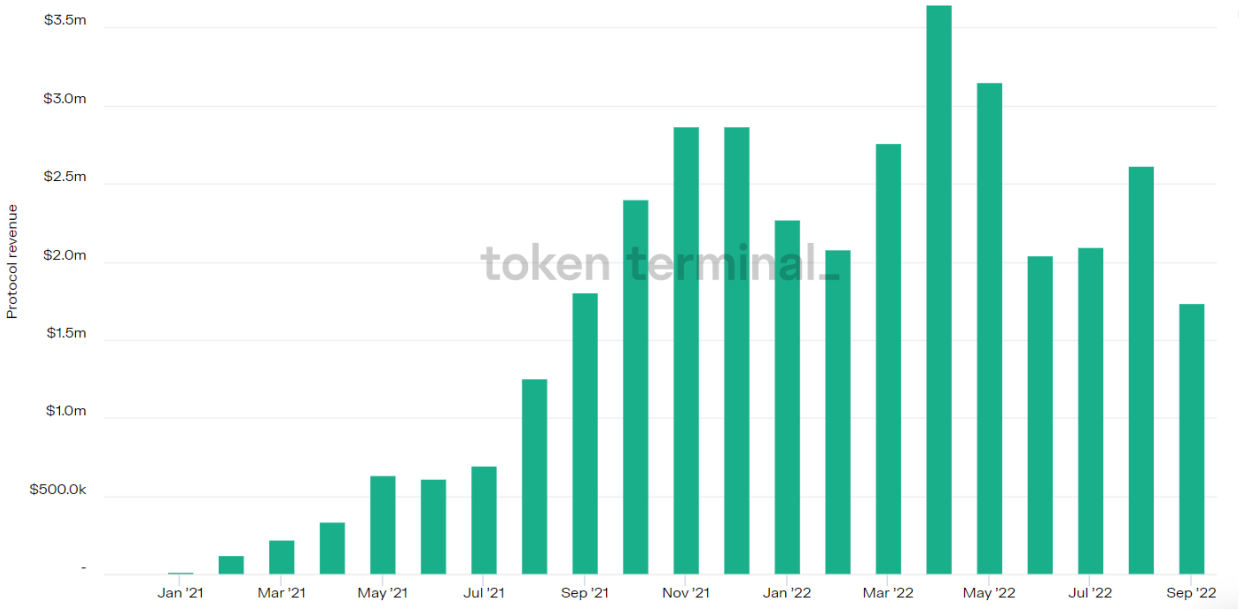
Yellow line depicts vanilla stETH returns, purple is Pods Vault returns

This obviously introduces heightened smart contract risk and, if the options strategy fails, loss of a portion of $stETH weekly yield.

Euler
Another way to capitalize on some of the opportunities out there is supplying $wstETH on Euler (which we covered recently) for a nice 6% APY. Just like that, using $EUL bonus payouts and direct borrower APY, you can quickly double the staked $ETH yield with a simple deposit.

Financials and Projections
Let's look at some of the revenue earned by the protocol.

Since inception, revenue took a little bit to get going. Once the deposits cleared the $1m mark, however, there has been a fast increase:



Using a highly disregarded TradFi metric, it comes out to a rough **38x P/S** at the circulating market cap with an annualized revenue of $30M. Definitely hard to compare this to anything given that Lido has such a unique value proposition and limited comparables. Even then the comparable valuation between lending protocols can vary drastically.

Still, the 37x P/S is at least a good proxy to look at to see where it compares, and given that a lot of other larger DeFi protocols are trading at a much higher P/S can at least be somewhat encouraging.

Revenue Forecast

For a forecast, let's first look at how much of circulating $ETH is being staked to secure the network. Ultrasound.money shows us that roughly 11.5% of the 120M circulating $ETH is being used to secure the network, a number that will likely increase over time.

	2022	2023	2024	2025	2026
Total ETH Staked	13,375,000.00	15,381,250.00	17,688,437.50	20,341,703.13	23,392,958.59
Lido Share of Stake	30%	30%	30%	30%	30%
ETH Staked w/Lido	4,012,500.00	4,614,375.00	5,306,531.25	6,102,510.94	7,017,887.58
ETH Staking Yield	6%	6%	6%	6%	6%
Lido Rewards	240,750.00	276,862.50	318,391.88	366,150.66	421,073.25
Lido Fees (Half of 10%)	5%	5%	5%	5%	5%
ETH Revenue	12,037.50	13,843.13	15,919.59	18,307.53	21,053.66
ETH Price	$ 1,500.00	$ 2,250.00	$ 3,375.00	$ 5,062.50	$ 7,593.75
Protocol Total Revenue	**$ 18,056,250.00**	**31,147,031.25**	**53,728,628.91**	**92,681,884.86**	**159,876,251.39**
Revenue Per Token (Fully Diluted Supply)	$ 0.02	$ 0.03	$ 0.05	$ 0.09	$ 0.16

Lido revenues are directly affected by the changes in $ETH staking because of the fees that are charged. Thus, our assumptions for a valuation/revenue projection are based on the total $ETH

supply, $ETH staked as a percentage of supply, Lido's percent of staking share, and Lido's fee rate charged (minus the validator payout).

This model assumes an annual growth rate of 50% from $ETH current price, and a 15% growth in $ETH staked.

Note that this is a very rough estimate, and $ETH yields are very dependent on both $ETH staked and price. Thus there is not enough data to understand how these variables have an impact on one another.

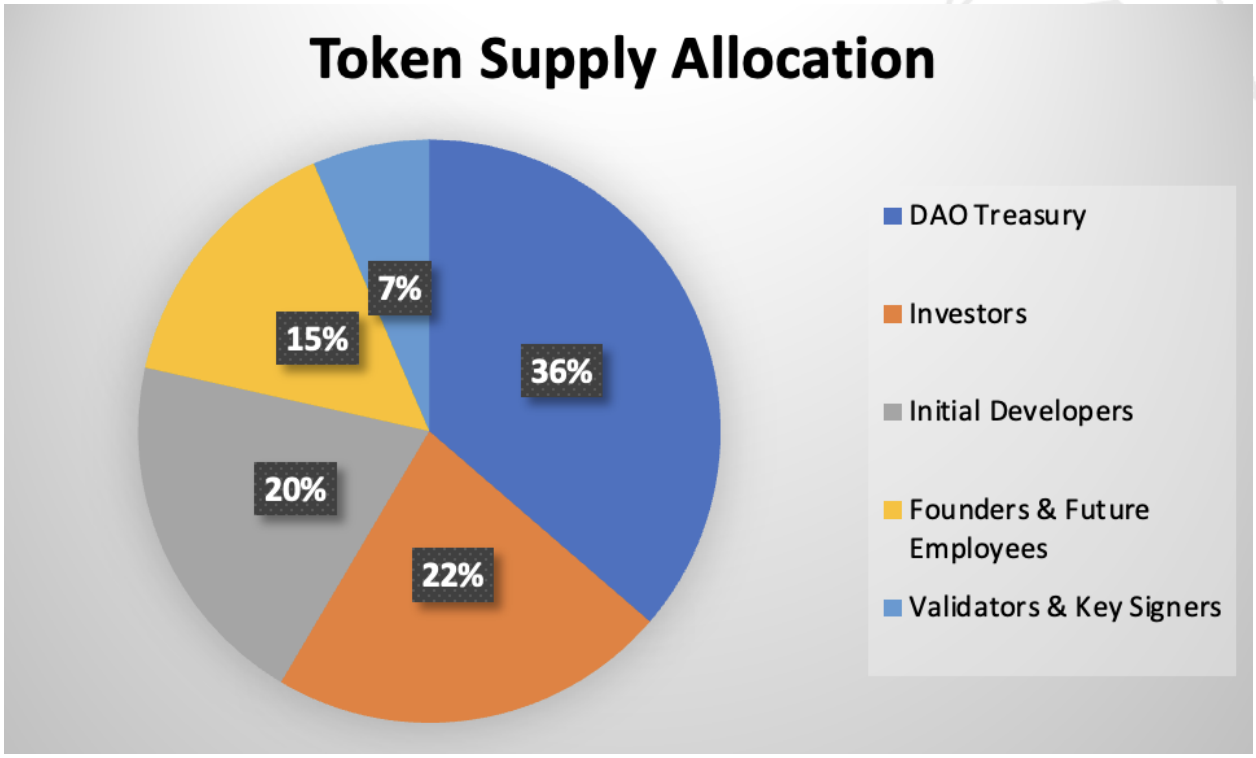
Nonetheless, we can arrive at a quite low revenue per token. But, this begs the question: **what is the value of a vote in the Lido DAO?** How much of the token value is derived from this vs. the token revenue itself?

To answer this, we need to think about why controlling $LDO and the voting matters are important? Because those holders dictate what happens with the staked $ETH: the validator integrations (using MEV optimizers such as Flashbots MEV-boost) and node operator selection, and oracle provider selection. Thus, being a presence in $LDO DAO votes can ultimately determine **the practices of 30% of Ethereum validator shares in the network.**

Tokenomic Deep Dive

Lido's token, $LDO, is similar to others we cover in that it has a sole job of governing the protocol. Because staking rewards are given proportionately to validators and the suppliers of capital/$ETH, there is no other value accrual to $LDO holders.

Token distribution is still just as important as other protocols that place a bigger emphasis on sending direct monetary incentives to token holders. For $LDO, the token distribution is quite unique (and not in a good way):



Bankless

There is a total supply of 1 billion $LDO tokens. Seen pretty easily by the above graphic, early contributors and protocol insiders have the absolute lion's share of token allocation amounting to **63.5%.**

The protocol launched in December of 2020, and investor/protocol insider allocation was locked for one year and is currently in its one year vesting period (ending Dec. 2022). So, while the vesting period is approaching its end, there is still likely to be some unavoidable sell pressure.

On top of the insider vesting, there is the effect of grants and emission from the DAO treasury, which we will touch on in the following governance section.

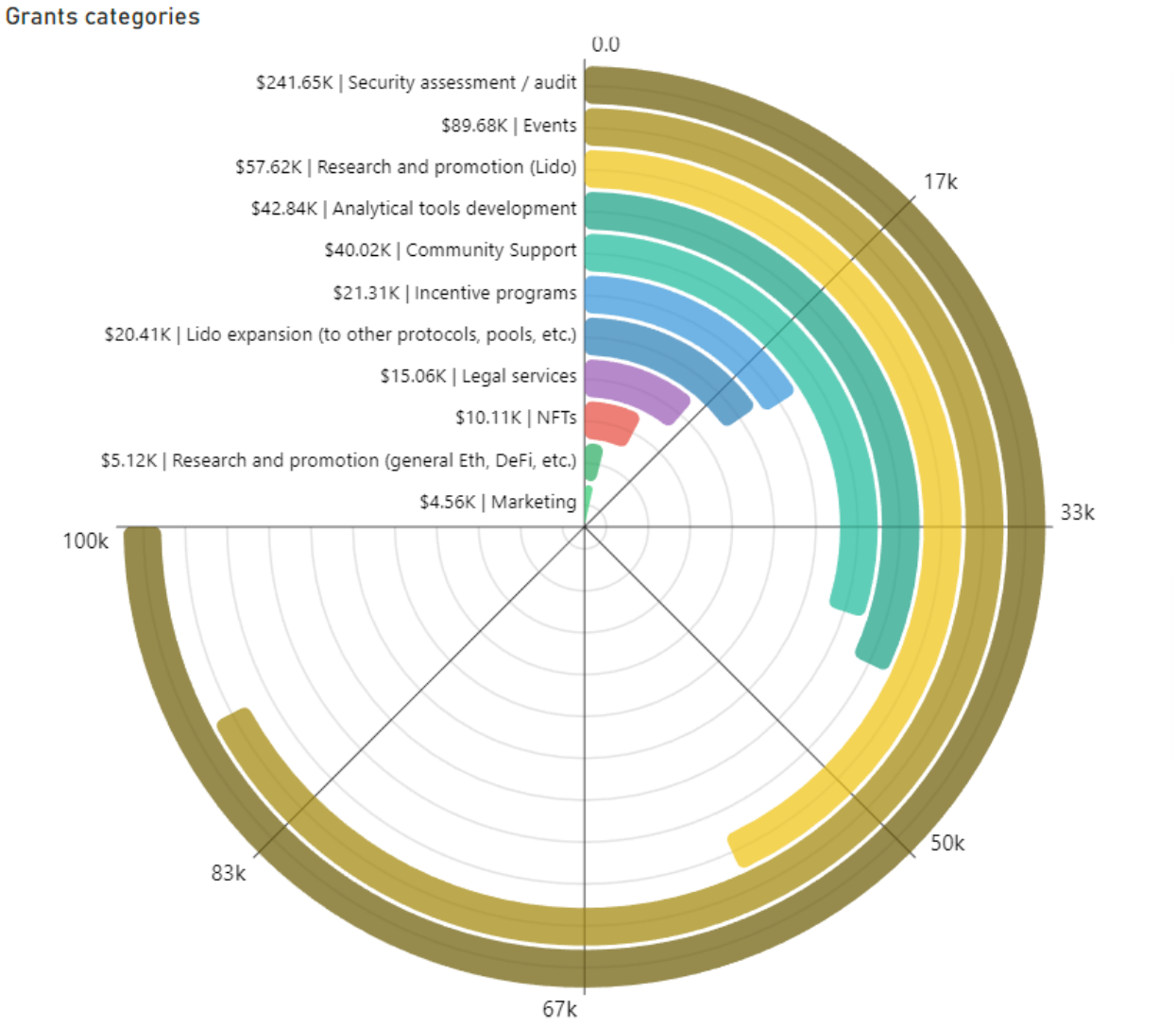
Governance

As it is the *only* tangible value that $LDO offers other than something of an $ETH beta (which we will discuss), the actual governance process is very important to consider.

One of the ongoing uses of $LDO is grants and initiatives from the DAO treasury allocation. According to the protocol docs, the Lido Ecosystem Grants Organization, or LEGO, was put in place for strategic allocation that further benefits the broader lido community and adoption of liquid staking.

These grants can pretty clearly vary from marketing partnerships to protocol integration. For further reading, check out the LEGO docs here.

Below is a visual of the Q2 2022 grants, showing that a majority of the budget went to security.

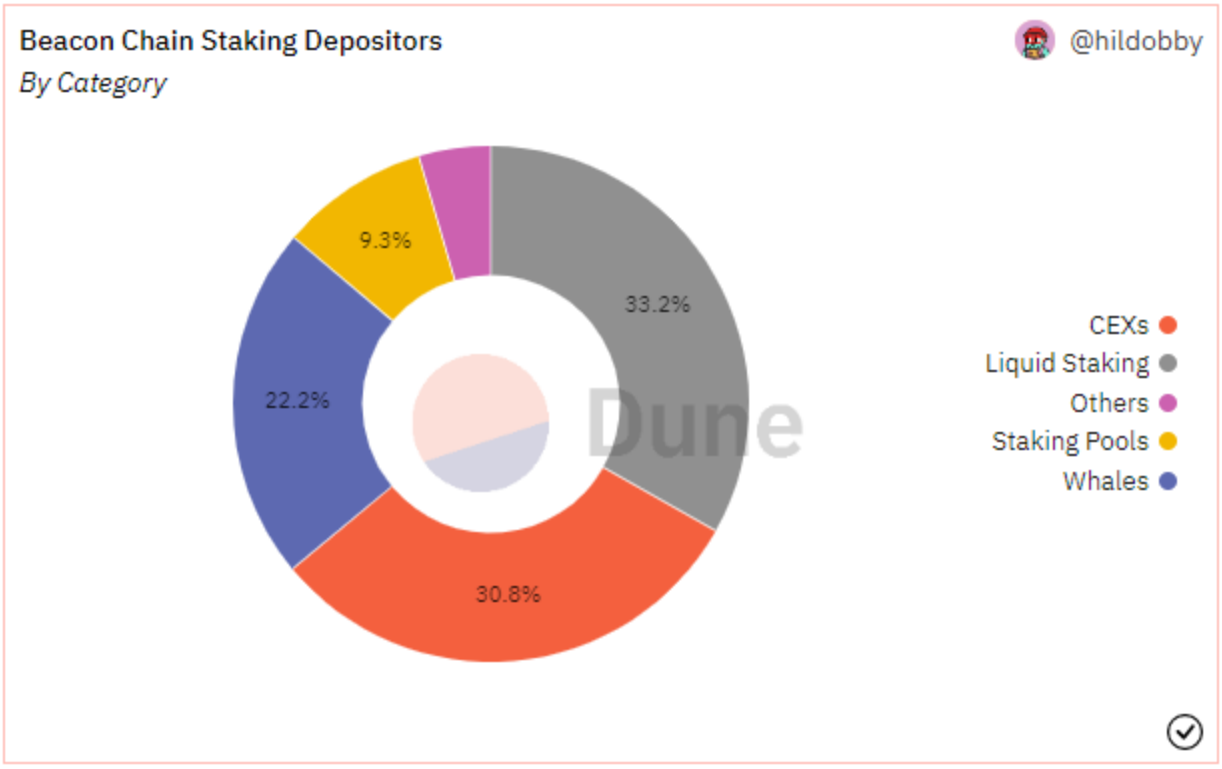


LEGO

So, even though there is no way to forecast these grants (their cost vs. potential return, etc.), we can get an idea of *how* the group likes to allocate the funds. And, given the fact that there is still $260M worth of $LDO within the DAO treasury, it is worth watching.

Competitive Analysis

The simple summation of why Lido is valuable? **Network effects.** Second to none, Lido, and its Ethereum ecosystem staking derivatives, are currently the most popular staking solution offered and represent the *largest market share of validators.*



Hildobby DuneAnalytics - Great ETH2 Dashboard

Liquid staking edges out CEX staked $ETH tokens, totalling to 64% of Ethereum validator market share. We will cover this a bit more in detail below, but it is no wonder why so many in the [Ethereum community take umbrage against] this level of validator concentration.

In terms of Lido's concentration *within* the liquid staking dominance–it really isn't even a competition:

Liquid Staking Depositors
By Entity
@hildobby

Entity	ETH Deposited	Marketshare
Lido	4,186,752	90.55%
Rocket Pool	219,136	4.74%
Stkr (Ankr)	112,256	2.43%
Stakewise	63,584	1.38%
CREAM	25,184	0.54%
SharedStake	16,000	0.35%
staked.finance	960	0.02%

Dune Analytics

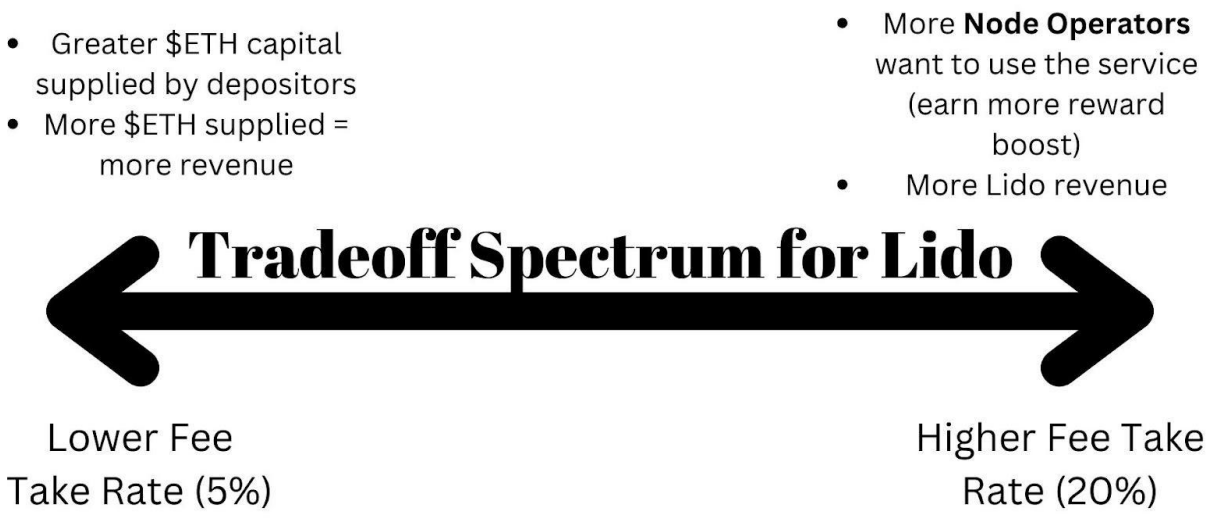
As for why this is the case? It is somewhat of an unanswered question, but as we addressed at the beginning of this section, the power of network effects cannot be undermined.

Weaknesses
Competition is vast in this space, and although Lido is the early winner, there is no way to prevent new entrants with such a low barrier to entry.

Looking at RocketPool specifically, the protocol was launched with a variable commission rate for node operators of 5-20%. After community discussion, the rate was adjusted and set to a fixed 15%. RPL kind of shot themselves in the foot with this, as it isn't competitive to Lido's 10%, but we expect that to approach 10% as the team mentioned that was the goal.

Ankr, on the other hand, does offer a competitive 10% rate. Why do they only have a 2.43% of liquid staking validator share is thus a mystery, but bound to change.

The interesting proposition here is that these higher fees may not necessarily go to the protocol, but rather split up in some way with the node operators (ie. those who are running the physical node). Meaning, RocketPool offering 15% commission does take away potential $ETH suppliers, but it incentivizes validators to use their pooled $ETH. Thus, the conclusion is such that there is a tradeoff between incentivizing node operators to use the protocols pooled $ETH, attracting large sums of pooled $ETH, and retaining some value to the treasury.



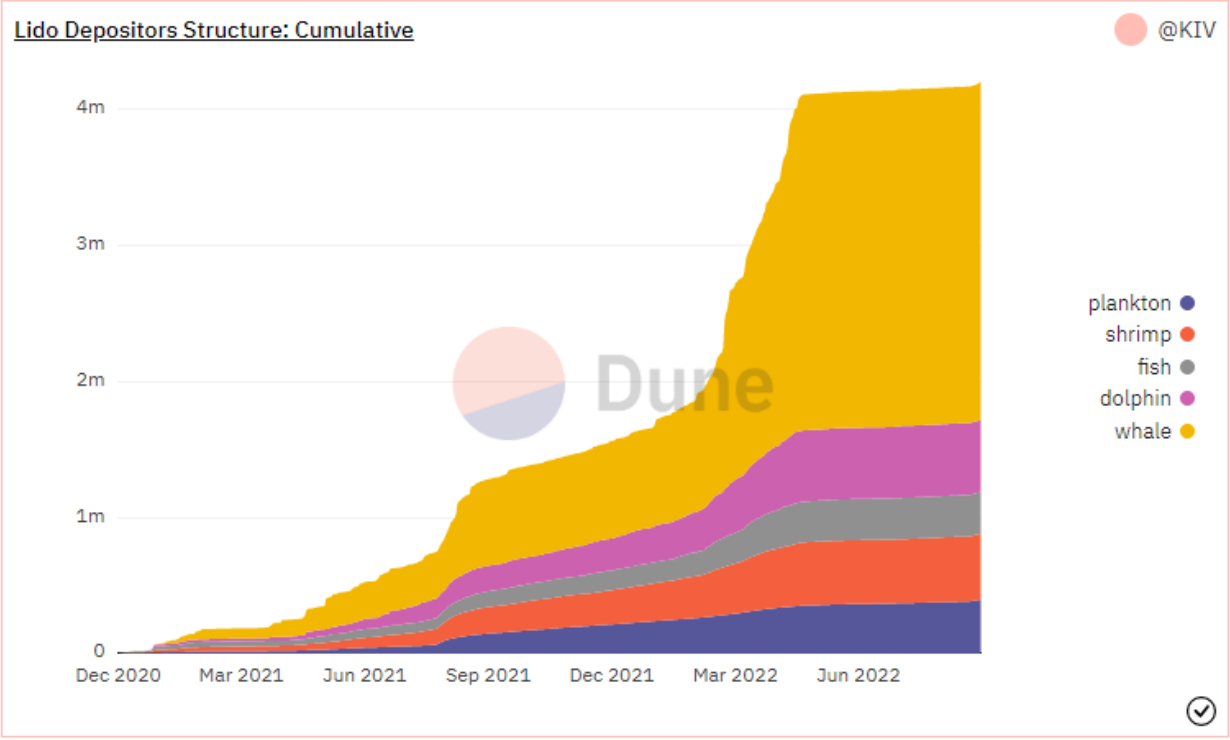
Canva

Despite this trade off, because there is minimal opportunity for differentiation in the liquid staking market, we believe that the only way for companies to be competitive with one another in the long term is by bringing their validator commissions to approach zero over time.

Validator differentiation is also drastic between the two leaders of Lido and RocketPool. While Lido only has 30 validators using the pooled $ETH deposits, RocketPool has 1,511. Quite a big difference in terms of decentralization.

Depositor concentration *within* Lido is another big consideration for the protocol. Revenues are derived from staking rewards, thus we want to understand where the main supply of $ETH is from, how likely it is to hold up, etc.

Looking at Dune Analytics, we can find that depositors classified as “whales”, with deposits >10,000 $ETH, compromise **nearly 60% of total $ETH deposited in Lido.** There are only 70 unique addresses within this classification:



Dune Analytics

Ethereum validator decentralization aside, this is inherently bad for the **revenue concentration** of Lido. These whales deciding to move assets elsewhere or start running their own node could significantly slash protocol revenue.

And it doesn’t necessarily end there: “dolphins” (3000 < $ETH deposits < 10,000) are only 98 unique wallets, and bring the deposit concentration close to 75%. This means that **0.201% of wallets account for nearly 75% of all deposited $ETH in Lido**. Yikes.

And no, unfortunately this is not a new trend. Bankless wrote about Lido back in August 2021, and this was a problem then too (in fact, it has gotten much worse now).

Conclusion

The merge has many implications, one of the most important being how people attempt to earn yield by securing, or help securing, the network. Through all the various staking solutions offered and discussed above, liquid staking (both in centralized and decentralized forms) has become the most prominent way for someone to earn on their $ETH tokens.

As Lido has established itself as the early and decisive winner in the staking wars, we can only wonder if it will continue. Our analysis leads this to a foggy conclusion, and one that will likely have different answers in the near future.

$stETH and $wstETH are the undeniable winners in terms of DeFI usability and composability. Earning extra yield on top of the $ETH stake is extremely easy and offers a plethora of lower risk opportunities. This is a **massive value add** to the protocol and really contributes to the future growth.

In short, we can think of $LDO as a high beta $ETH play (heightened volatility in the same direction as $ETH). $LDO holders are betting on a somewhat centralized future of staking, and the power that a vote will hold and future revenues from $LDO.

Further Reading

Does PoS make Ethereum a security?

The switch to PoS has raised questions about whether Ethereum becomes a security under the SEC's definition. Adam Cochran (who has been on fire on Twitter recently), decided to apply his expertise on the case–https://isethereumasecurity.com/

TLDR: Adam's interpretation is good, but note that this just applies to **vanilla $ETH**, not tokens mentioned in this report.