Overview of Options Vaults

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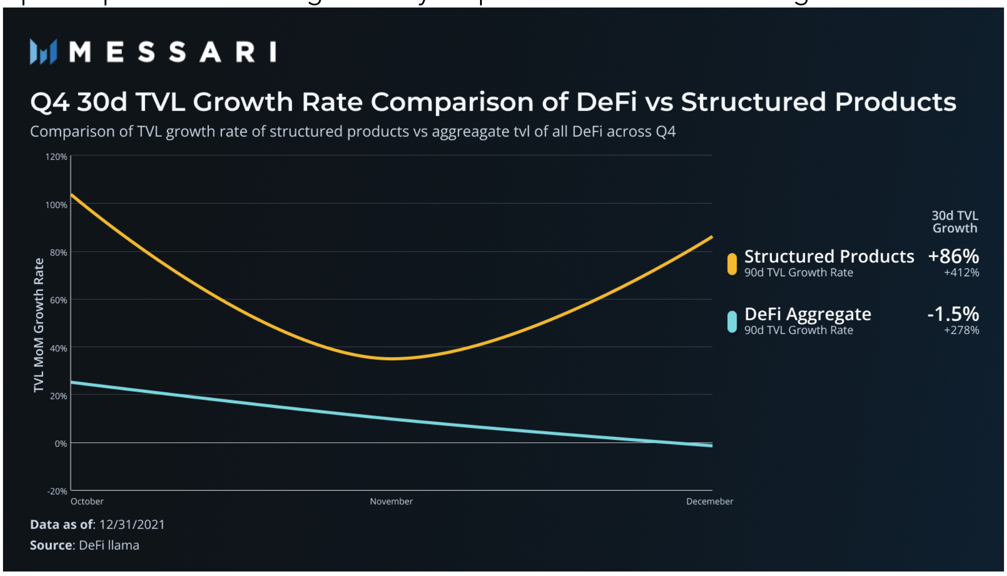
2022 is off to a hot start. The entire crypto market cap is down -11% in the first week of the year. DeFi's top 100 tokens are down even more at -12%. However, there is one sub-sector within DeFi that is performing exceptionally well in 2022 - options. Instead of being down, options protocols have massively outperformed with market caps collectively increasing 66% to start the year.

Heck of a way to bring in the new year.

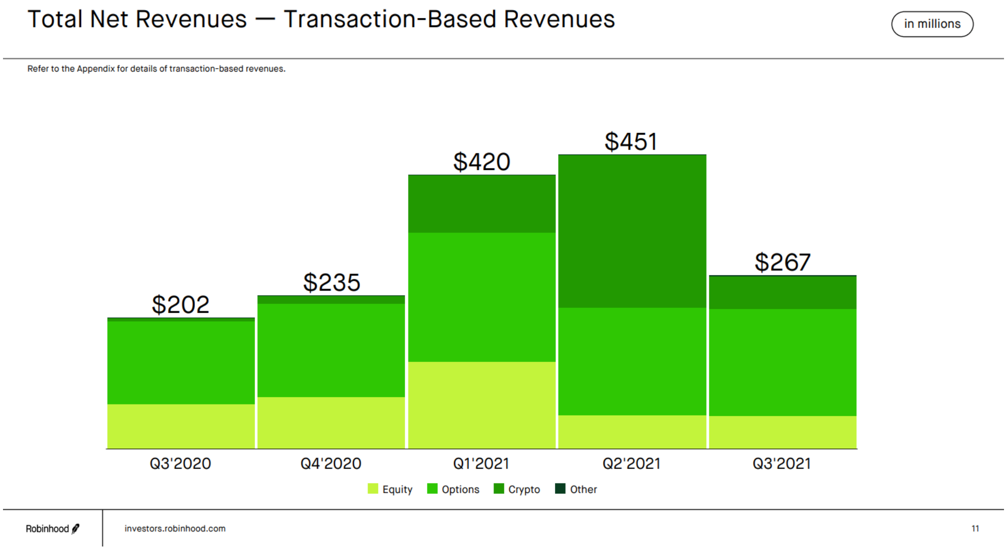
Part of the reason why options protocols were able to significantly outpace the crypto market so far this year has to do with the starting point. Options protocols have been priced relatively low compared to other DeFi protocols. For example, Ribbon Finance ended the quarter with a sub $100M market cap and a price to sales ratio of 2x. Uniswap, Yearn and others have circulating market cap to sales ratios around 4x. Much of the reason for the difference in price has to do with the relatively slow adoption of options on-chain compared to other DeFi sectors.

What began as slow adoption however has given in to strong growth. TVL growth rates for options protocols have significantly outpaced broader DeFi through Q4.



In December, options protocols grew TVL by 86% while the entire DeFi TVL actually contracted by -1.5%. Over the full quarter, options protocols expanded TVL by 412% compared to the 278% growth in DeFi TVL.

Strong relative growth for options protocols but still a far cry from being at the levels of adoption compared to traditional finance. To say options are a massive market in traditional finance would be an understatement. Options have a significant role in modern finance and are used by market makers, hedge funds, all the way down to retail traders. Zooming into the retail options trading market, 45% of Robinhood's Q3 revenue was driven by options trading on their platform.

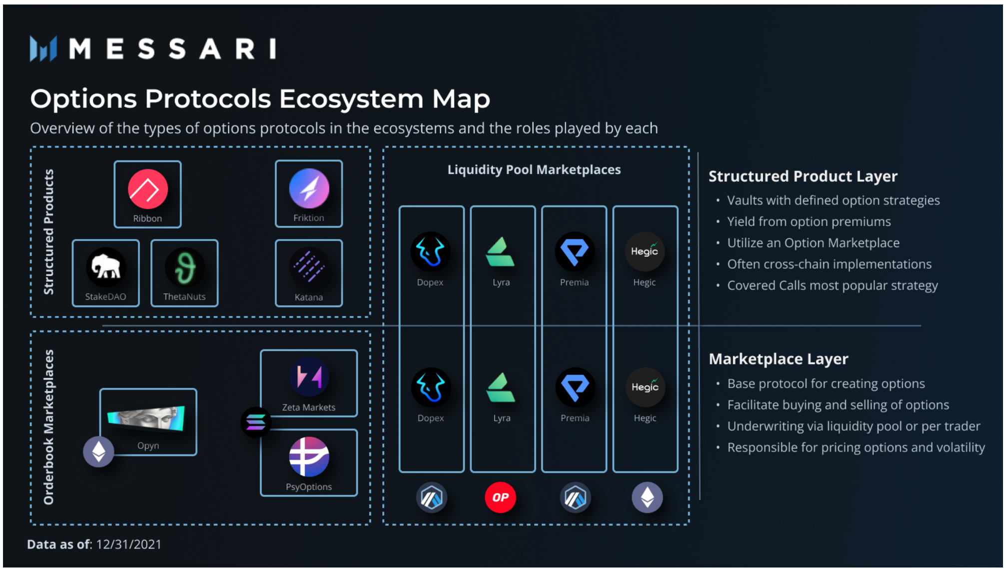


Options have been proven to be both popular and profitable for Robinhood who's user base most closely resembles the average crypto user. Robinhood's roughly 19M monthly active users generate an annualized $656M in revenue for the platform.

With such a large profit potential and product alignment with retail traders, which protocols and ecosystems are leading the way in capturing this market?

Let's first start by breaking down the different types of protocols in the options sector.

Options Ecosystem Overview



Onchain options protocols largely consist of two types of protocols. Marketplaces and structured products. Marketplaces are protocols that create the actual option contract and facilitate the buying and selling of options. Liquidity which underwrites each option can be traditionally sourced where individual users write options with deposited funds or sourced from a passive liquidity pool. Protocols like Opyn, PsyOptions, and Zeta markets all operate under the traditional order book style while most other option marketplace protocols like Dopex, Lyra, Premia, and Hegic utilize the liquidity pool method.

Structured product protocols sit on top of option marketplaces and offer vaults for users to deposit funds into. Each vault executes a defined options-based yield strategy underneath abstracting complex pricing and risk management away from users. Similar to how Yearn executes yield farming strategies for money markets and exchanges underneath their vaults.

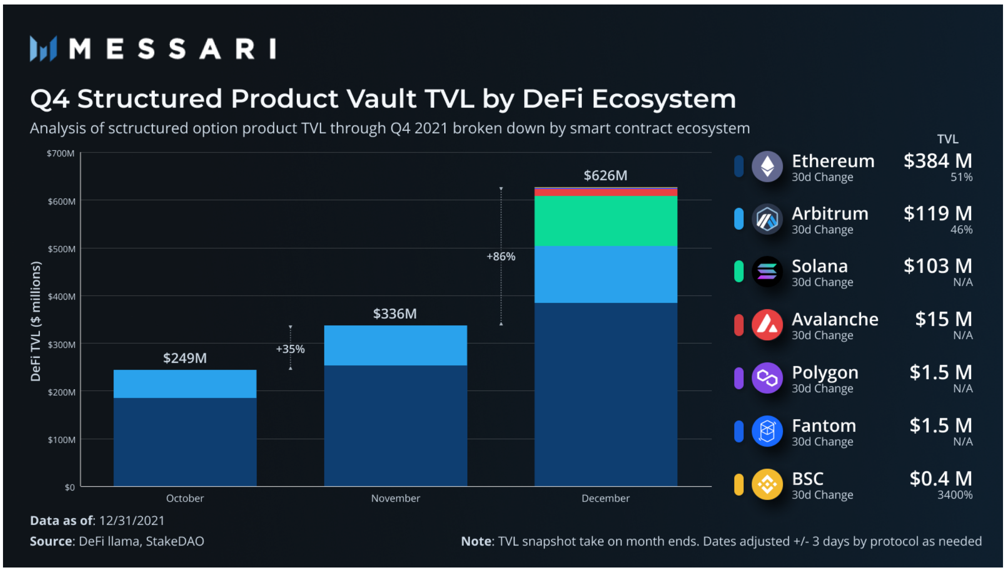
Selling covered-calls or cash-margined puts have been the most prominent structured product vaults employed in the sector. Covered-calls generate yield for a token by selling call options with a higher strike price than the current token price (out-of-the-money call options). Option buyers pay a premium for the option contract and the premium is directed back to the vault to accrue yield for depositors. Cash-margined puts are similar but in the other direction. Stables are deposited into the vault and used to underwrite put options against a token with a lower strike price than the current value.

So far, structured product vaults have driven the large majority of the adoption of on-chain options. Raw buying and selling of options at various strike prices have just not appealed to crypto users. Structured products abstract away all of the complexities of underwriting options, pricing options, juggling strike prices, and replacing it all with a simple deposit and earn vault.

It's not just retail users utilizing these structured option vaults either. Protocols are partnering with structured options protocols to do treasury management and to create vaults for its token holders. Utilizing options vaults for yields instead of typical staking vaults removes the need for token emissions to drive yields effectively reducing the overall inflation and sell pressure for the protocol's tokens.

With structured product vaults driving the bulk of on-chain option adoption, let's zoom into these protocols to understand which smart contract ecosystems are users using and which specific protocols are attracting the most usage.

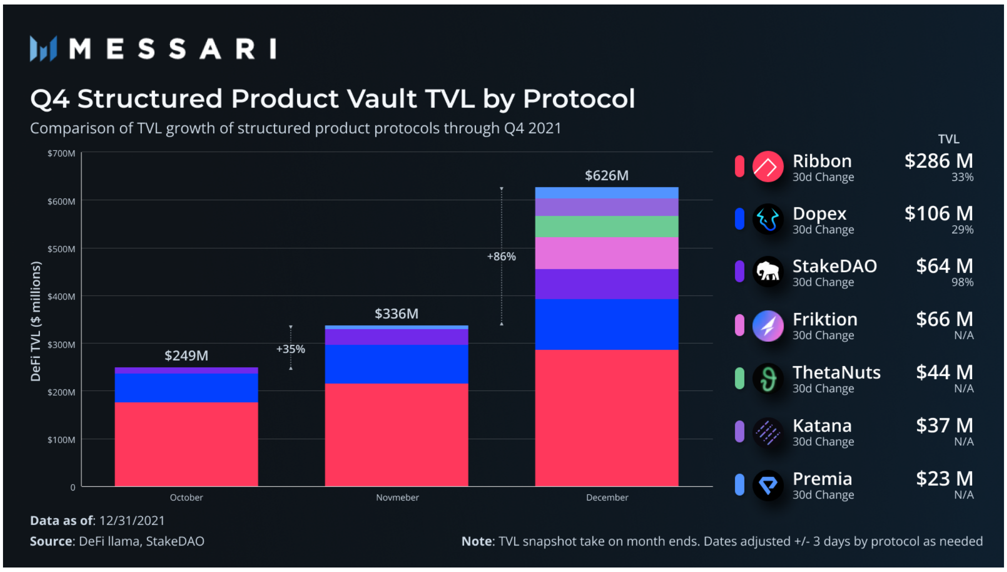
Ecosystem TVL



Ethereum, of course, has the largest TVL in structured products. It is home to the first widely used structured product protocol, Ribbon Finance. Ribbon popularized structured products in crypto and subsequently dominated the sector until Q4 when other protocols began to launch.

Led by the rapidly rising Dopex, Arbitrum is the second largest ecosystem for structured products. Arbitrum has drastically less overall TVL ($1.7B) compared to the L1s ($5B - $143B) so having the second-highest options TVL suggests the protocols have strong relative user alignment within the ecosystem. Dopex is the largest options protocol on the platform by far and is responsible for most of the growth. Price appreciation in its token has fueled much of the outperformance of the options sector's outperformance this year as well (market cap is up 85% from January 1 to January 9th).

Solana has had two new protocols launch in December which have both attracted significant capital in the few weeks since launching. Friktion and Katana offer similar structured products vaults and offer a wide array of supported assets. Both protocols offer 14 different vaults compared to the 7 offered by Ribbon, 4 offered by Dopex, and 3 available at StakeDAO.



Ribbon continues to dominate structured options with over half of the TVL. After starting the quarter with nearly all of the TVL in the sector, its market dominance is declining. That's not a knock on Ribbon's growth profile which is impressive in its own right but more to highlight the meteoric rise of other protocols in the sector over the quarter. Let's dive into each and compare the nuances of each.

Ribbon

Ribbon Finance is a traditional structured products protocol that runs on top of Opyn's marketplace. On a weekly basis, each of Ribbon's 7 vaults utilizes deposited capital to underwrite options on Opyn which are then sold or auctioned off, and the premium collected is returned to the vault as yield. Over Q4, Ribbon generated over $11M in premiums for its vaults.

In September, the protocol released its V2 version of vaults and has recently fully migrated all funds to the V2 versions. Like V1, V2 vaults conduct weekly options selling strategies. What changes with the V2 is a move to decentralizing the strike selection of the vault, a change to the fee structure, and enabling meta-vaults (fee sharing for protocols who build strategies on top of Ribbon vaults). Change of the fee structure away from withdrawal fees towards a model of management and performance fee (2% and 20%) more closely aligns the objective of the protocol with users and enables more composable strategies on top of Ribbon.

Ribbon has continued to be an innovative team in the space and was the first to introduce a combined yield product with Yearn's yvUSDC. Instead of selling put options against vanilla USDC, users' USDC collateral is converted into yield-bearing yvUSDC which boosts the over return profile of the vault by sourcing yield from borrow demand in the ecosystem as well as options premium yield. Outside of innovating on the types of products offered, Ribbon is pushing an expansion strategy to other chains launching on Avalanche in December and has suggested plans of a Solana implementation.

Dopex

Dopex has perhaps the most ambitious and creative roadmap of all the projects here which has skyrocketed its valuation to the highest circulating market cap of all options protocols despite not currently having the largest usage. How the protocol works is rather unique as well. Instead of using deposits to underwrite options on another protocol, Dopex sources liquidity and underwrites options all on the same protocol.

Its main product is SSOV (Single Staking Options Vaults) which acts as a sort of structured option. On a monthly basis, users can deposit funds into vaults and select the strike prices they want to provide liquidity towards. After the deposit period, funds are used to underwrite options at the various strike prices which can be purchased during the epoch period by other users. It's a more granular approach to covered calls giving users more control than the set-it-and-forget-it vaults employed by Ribbon (at the expense of complexity). Currently, only covered calls are supported for four assets: DPX, rDPX, ETH, and gOHM.

Fees on Dopex are not charged to vault depositors but rather to options buyers marking a stark difference in other protocols. 20 bps are charged when purchasing an option and an additional 10 bps is charged for exercising an in-the-money option at the end of the epoch.

Dopex's creativity has to do with both its dual token model (DPX and rDPX) and how it utilizes its reward emissions. SSOV vaults earn DPX rewards as well as premium, effectively combining typical pool 2 staking vaults and options vaults. On the roadmap, Dopex is planning to implement the highly popular veDPX model whereby rewards are directed to vaults based on the voting weight of locked DPX tokens. As protocols continue to partner with Dopex to create SSOV vaults (OHM being the first), this model would become increasingly important as protocols acquire DPX to incentivize liquidity to its pools. Options vaults for rewards could theoretically become more popular as protocols look to shift away from yield driven by token emissions which cause dilution and selling pressure towards a more evergreen model of selling options against assets.

rDPX is Dopex Rebate Token and is emitted as compensation to options underwriters who lose capital over the epoch at a rate of 30% of the losses which offsets the risk of providing capital. However, the planned utility for rDPX is far greater than that of a pure rebate token. Dopex plans to add synthetic assets to the platform and to utilize rDPX as supporting collateral to mint a stablecoin dpxUSD to be used throughout the protocol. rDPX is undergoing an official re-architecting in which the token design details will be released later this month.

Outside of protocol design, Dopex has a few interesting ideas on the roadmap on how to utilize options in DeFi. One of particular note is applying options to Curve gauge emissions. Instead of options being used to speculate on the price of a token at an expiry, options would be used to get exposure to changes in the Curve gauge weights of CRV rewards emissions. The so-called Curve Wars are all centered around the idea of controlling significant CRV to direct rewards to AMM pools of the voter's choosing (which incentivizes liquidity in those pools). By offering options on the rewards rate of CRV by pool, users or protocols can source yield indirectly on CRV emissions instead of competing to acquire veCRV votes.

StakeDAO

StakedDAO began as a yield aggregator similar to Yearn but has recently added structured product vaults to its product set. While the traditional yield aggregation vaults continue to make up a significant portion of the protocol's TVL, it has seen strong growth in its structured option vaults across Q4 becoming one of the largest protocols in the sector.

Three vaults are currently offered by StakeDAO that all operate similarly in nature to Ribbon vaults. Underneath both protocols utilize Opyn as the options marketplace to underwrite its options. StakeDAO differs mostly by combining yields from its yield aggregation vaults and its options vaults. Assets deposited in StakeDAO option vaults are then automatically deposited into corresponding passive yield vaults on the platform to generate additional yield.

StakeDAO is also unique in that it utilizes Frax as the stablecoin to underwrite its put-selling vault. Outside of yield generated from options premium and StakeDAO passive Frax vault, users can stake their LP tokens on Frax for additional yield.

StakeDAO also differs from Ribbon in its fee model. Ribbon shifted to a management and performance fee model while StakeDAO currently charges no platform fee on assets or profits but rather charges a 50 bps withdrawal fee to vaults.

Friktion

Launched in mid-December, Friktion is Solana's largest structured product protocol with over $90M in TVL. TVL is up nearly 50% to start the year, increasing from its year-end figure of $66M. That's roughly a growth profile of $30M in new TVL every 15 days. It operates a traditional structured product architecture similar to Ribbon. Options are underwritten on various platforms and sold in weekly or bi-weekly epochs.

Fueling its growth rate is its impressive ability to add new markets. Friktion has 14 live option vaults and supports more diverse assets than EVM-based protocols which are usually focused on ETH and BTC products. Friktion has vaults for assets like Luna, FTT, SOL derivatives, and various Solana DeFi ecosystem tokens. Its ability to scale available options is driven by its ability to sell options to off-chain market makers via Channel RFQ (it's not limited to supported collateral types of on-chain option marketplaces like psyOptions).

ThetaNuts

ThetaNuts has perhaps the most aggressive cross-chain strategy of any structured options protocol. ThetaNuts has deployments on Ethereum, BSC, Avalanche, Polygon, Fantom, Boba, Aurora, and more coming. While it doesn't dominate in any market, its benefit is in launching to chains first where no other options protocols are currently launching. Its cross-chain strategy has helped it secure over $44M in end-of-year TVL with the bulk of that coming from its Ethereum deployments.

ThetaNuts currently does not charge a fee for its vaults either. It seems to employ a similar off-chain options auction which enables it to offer its options esoteric assets as it's not limited to on-chain support collateral in options marketplace protocols.

Katana

After winning the Solana Ignition hackathon earlier in 2021, Katana launched in mid-December and has grown to be the second-largest structured options protocol on Solana ending the year with over $37M in TVL. It offers an extremely similar set of products as Friktion with both supporting a total of 14 different vault strategies across similar assets such as Luna, FTT, Solana derivatives, and Solana DeFi tokens.

Katana has also been aggressive in pursuing treasury management partnerships with various DAOs. Injective and Katana recently announced a treasury management partnership in which Katana would offer option vaults for INJ and support yield generation for the treasury via options premiums. Outside of Injective, Katana has announced various other partnerships with Solana-based protocols boosting its ability to deploy capital.

Premia

Premia is rather small in terms of TVL but has implemented an interesting DeFi—native approach to options. Similar to Dopex, liquidity underwriting options is sourced from liquidity pools on the protocol. Users can deposit to liquidity pools and earn yield as options are bought against these funds. Premia as a result doesn't rely on on-chain option market places nor sources buyers off-chain and relies on option demand on its protocol.

It currently offers 3 markets to its users and is deployed on both Ethereum, Arbitrum, and BSC. However, the Ethereum and Arbitrum deployments account for the bulk of the TVL with nearly half coming from each ecosystem. While the TVL figures are relatively small, the platform has been efficient in driving fee revenue from its capital. Also, as a result of the lack of attention the protocol gets, options tend to trade 10% - 20% below comparable products on protocols like Dopex.

Wrap Up

As DeFi matures and high yields generated by leveraged borrowing demand subside, options premiums have a strong case for stepping up to deliver outsized premiums with minimal risk. Particularly as protocols begin to look for yield sources for token stakers outside token emissions which dilute and drive continual sell pressure on the project's token.

Options protocols have seen rather mild valuations compared to broader DeFi with many of the top options protocols under $100M market caps. Adoption of options-based protocols is beginning to rapidly change as Q4 saw options protocols attract much higher TVL growth rates compared to the broader DeFi ecosystem.

What will be keen to keep an eye on is the level of option buying on-chain. Robinhood's success in equity options is driven by retail traders buying and selling options on its platform while the bulk of DeFi adoption has been on simple depositing in options strategy pools. This means DeFi protocols are forced to find buyers (often market makers) off-chain in order to source premium yields. Protocols like Dopex, Lyra, Premia all are built on the foundation of users directly buying and selling options on the protocols so user behavior shifts are paramount if these platforms are to scale into significant valuations.