

Part 2: Deep Dive into Decentralized Leveraged ETFs

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This article is the second part of a series of Crypto Leveraged ETFs. If you are not familiar with the basics, I highly recommend you to read [Part 1: Introduction to Crypto Leveraged ETFs](#).

For those who don't know, CoinGecko tracked **130+ leveraged ETFs** from various spot exchanges. However, out of all those, there are only two known decentralized leveraged ETFs:

- **ETH2X-FLI**
- **BTC2X-FLI**

The common truth about leveraged ETFs is they are just terribly designed financial products that would result in severe loss in the long run. However, perhaps the decentralized version could challenge the design and reinvent the product to be able to withstand the decaying effect.

Two questions arise:

1. How different are they from centralized leveraged ETFs such as from **FTX** and **Binance**?
2. Can they be held long-term, unlike their centralized peers?

To answer the first question, we will first establish how FLI tokens work as a decentralized leveraged ETF, including its leverage strategy and rebalancing mechanism. Next, we will deep dive into a liquidity-providing strategy to answer the second question.

Index Coop, the Decentralized Asset Manager



Index Coop is the biggest decentralized indices protocol. It was founded by Set Labs Inc., the same company that built **Set Protocol**.

Index Coop enables users to gain broad exposure to different protocols of varying themes across the cryptocurrency industry. It covers common categories such as DeFi and NFT - you can refer to [my previous piece about Decentralized ETFs](#) for more info. Indices token holders can own and directly redeem the underlying assets that make up the index.

As of 25th June 2021, Index Coop has \$150 million in Asset Under Management (AUM) in these 5 indices:

- **DeFiPulse Index** (71%)
- **ETH 2x Flexible Leverage Index** (23%)
- **BTC 2x Flexible Leverage Index** (4%)
- **Metaverse Index Token** (2%)
- **CoinShares Crypto Gold Index** (0.05%)

To understand how a decentralized leveraged ETF works, we will discuss the two leveraged ETF products: ETH2X-FLI and BTC2X-FLI.

What are FLI tokens?



Index Coop

FLI stands for Flexible Leverage Index, and it is a product line created by IndexCoop and DeFiPulse. FLI tokens are automated leveraged tokens to amplify the return of the underlying index or assets.

Similar to FTX's leveraged tokens, the FLI tokens are the tokenized version of a leverage strategy. However, the biggest difference between FLI and FTX's leveraged token is that FLI utilizes debt positions from decentralized lending protocols (e.g., **Compound**) as underlying instead of perpetual swaps.

Launched in March 2021, ETH2X-FLI is a 2x leverage token of Ethereum. It aims to have a return that is twice that of Ethereum. Similarly, BTC2X-FLI is a 2x leverage token of **Bitcoin** released in May 2021.

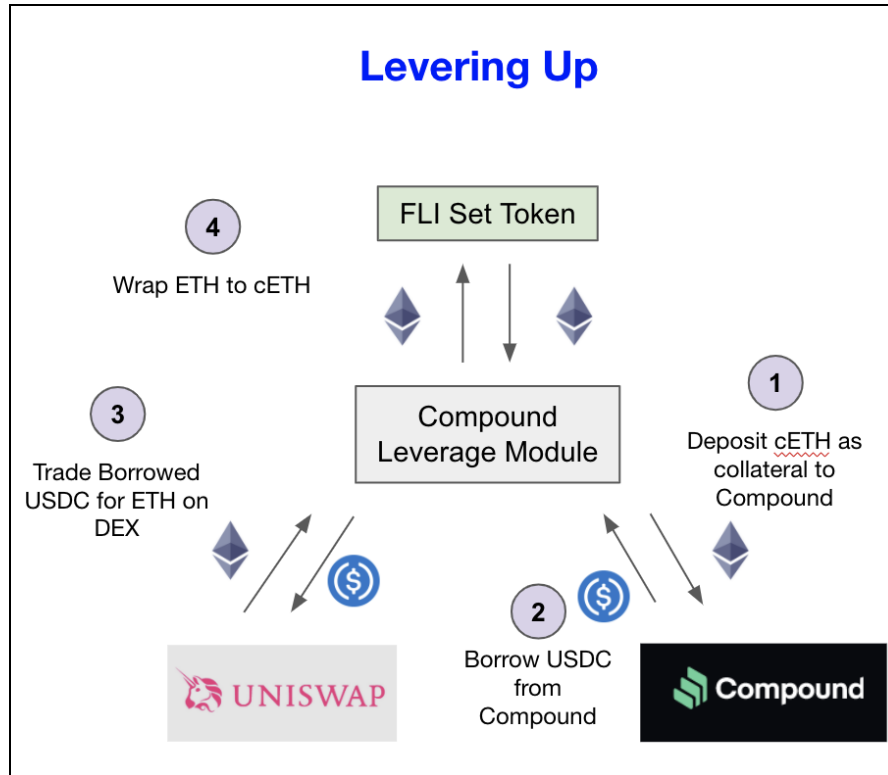
With FLI tokens, you can long ETH or BTC without having to monitor your position (e.g., funding rate, collateral ratio, and liquidation risks), unlike other types of leverage trading (e.g., margin spot and perpetual swaps). As a result, FLI tokens can be seen as easy-to-maintain leveraged tokens.

How does an FLI token work?

Imagine you currently own **Ethereum** and firmly believe its value would go up. One of the potential ways you can make money off the asset is by leveraging it via DeFi dApps like lending protocols.

To illustrate, you can put your Ethereum as collateral in an on-chain lending protocol such as Compound, borrow **USDC**, and buy more ETH using the borrowed USDC in a decentralized exchange like **Uniswap**. Repeat the process, and you would have more than 1x Ethereum exposure.

That's precisely what FLI does for you in a single token.



Source: <https://help.tokensets.com/en/articles/5049435-how-do-leverage-tokens-work>

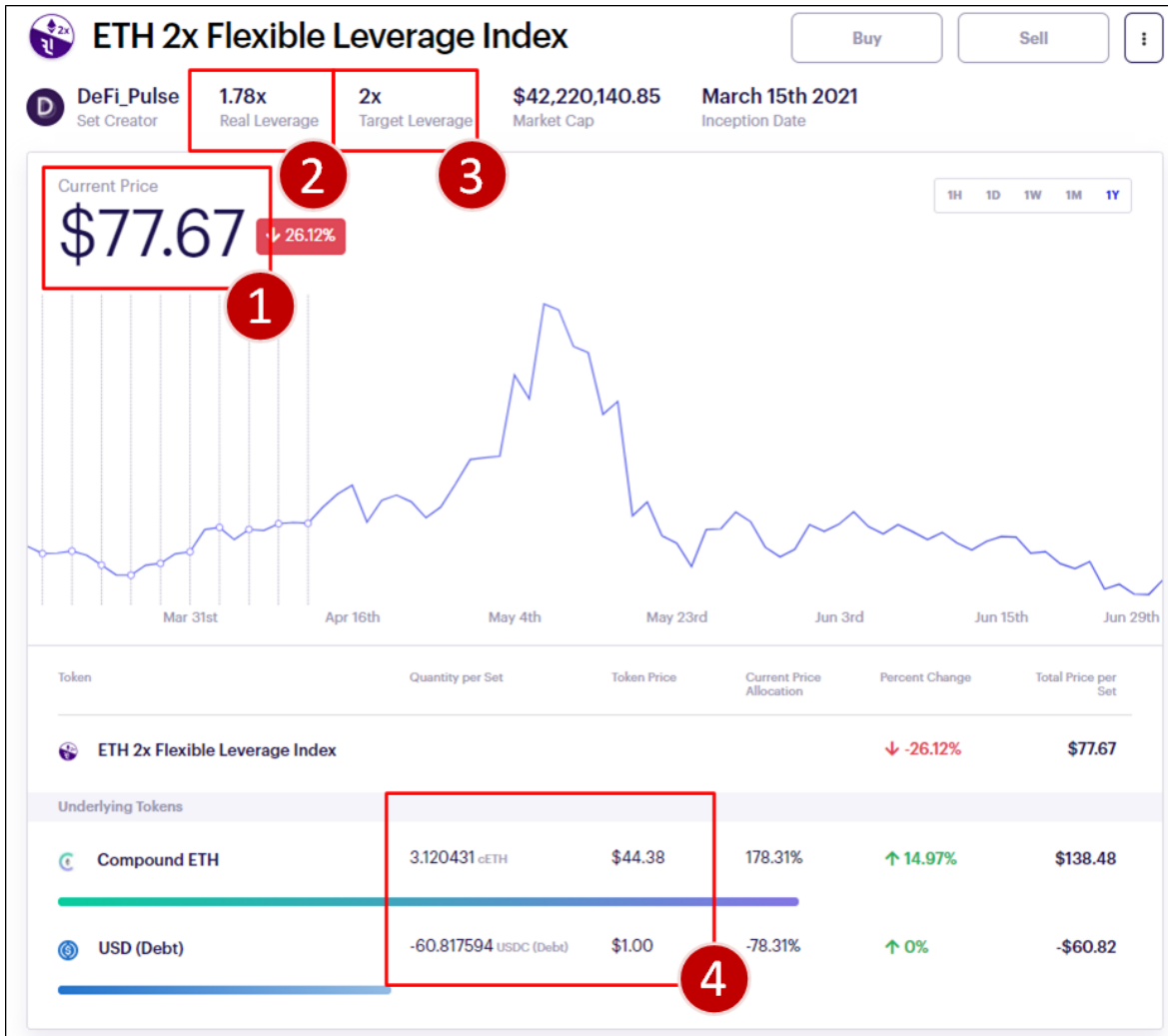
FLI reduces the major pain points of DeFi: saving gas fees, monitoring the loan's health factor, liquidation risks, and it automatically rebalances your position for you.

FLI is similar to the **Instadapp protocol**, where it leverages your position on your behalf, albeit in tokenized form.

ETH2X-FLI and BTC2X-FLI

FLI tokens utilize a lending protocol to achieve the target leverage. Hence, the underlying assets of the respective FLI tokens are their debt positions on Compound.

To understand further how an FLI token works, let's go through the inner workings of the ETH2X-FLI token in detail.



Source: <https://www.tokensets.com/portfolio/ethfli> as of 29th June 2021, 10.27 PM MYT

At snapshot:

- 1) **Current Price:** This is also known as the NAV of the token; one ETH2X-FLI is priced at \$77.67.

NAV = Underlying token exposure + borrowed funds within the basket.

$$NAV = 3.120431 \text{ cETH} + (-60.817594 \text{ USDC}) = 3.120431 (\$44.38) + (-\$60.82) = \$77.67$$

- 2) **Real Leverage:** This is the current leverage of ETH2X-FLI at 1.78

Current Leverage = Current underlying token exposure / token NAV

$$Current Leverage = 3.120431 (\$44.38) / \$77.67 = 1.78$$

- 3) **Target Leverage:** The 2x target leverage.

- 4) **Quantity per Set:** This shows the current holding of one ETH2X-FLI. It has 3.120431 Compound ETH (**cETH**) and -\$60.82 of borrowed USDC funds.

The snapshot above reveals the current leverage is 1.78. It is currently below the target 2x leverage and will need to rebalance.

However, there is a twist: FLI tokens do not instantly rebalance back to 2x.

How does FLI rebalance?

Although both FLI tokens' target leverage is 2x, **they do not maintain constant leverage.**

They allow the current leverage ratio to range between 1.7x to 2.3x for ETH2X-FLI and 1.8x to 2.2x for BTC2X-FLI. This is similar to Binance Leverage Tokens (BLVTs), which have a leverage strategy between 1.25x to 4x.

The idea of such flexibility is to minimize the number of rebalances and would lead to a reduction in gas cost. Additionally, it lessens the volatility impact when ETH's price falls.

In our ETH2X-FLI case, the 1.78x leverage is within the defined bounds (1.7x - 2.3x) and will rebalance after the 24-hour mark. However, it will not adjust the leverage exactly to 2x. There are three crucial rebalancing functions:

1. Re-centering Speed

Recentering speed is the weight that determines the size of rebalancing from the current leverage ratio every 24 hours.

Unlike FTX's leveraged ETF, FLI tokens do not rebalance their current leverage exactly to 2x at every rebalancing.

For instance, ETH2X-FLI has a re-centering speed of 5%, and its current leverage ratio is 1.78x. Then, based on the formula by the FLI's team, it will rebalance to 1.989x after the 24-hour has passed from the previous rebalancing.

$$CLR_{t+1} = \max(\text{MINLR}, \min(\text{MAXLR}, \text{TLR} * (1 - \text{RS}) + \text{CLR}_t * \text{RS}))$$
$$CLR_{t+1} = \max(1.7, \min(2.3, 2 * (1 - 5\%) + 1.78 * 5\%)) = 1.989$$

2. Rebalancing Interval

If the current leverage stays within the defined bounds, FLI tokens will rebalance once every 24 hours.

However, in cases where the market is highly volatile and causing the leverage ratio to exceed the defined bounds, it will immediately de-lever until it returns within the defined bounds.

3. An emergency public function (Ripcord function)

A public function to bring the leverage back to the defined threshold (separate from the leverage bounds) when the current leverage exceeds them.

For example, the current ripcord threshold for ETH2X-FLI and BTC2X-FLI is 2.7x and 2.4x, respectively. Therefore, any of the public members can call the ripcord function when they exceed the leverage threshold. For ETH2X-FLI's case, the collateral from ETH will be pulled out from Compound, ETH will be swapped to USDC, and borrowing is repaid until the current leverage is below 2.7x. In return, the caller will get rewards in ETH.

How do you calculate the performance of an FLI token?

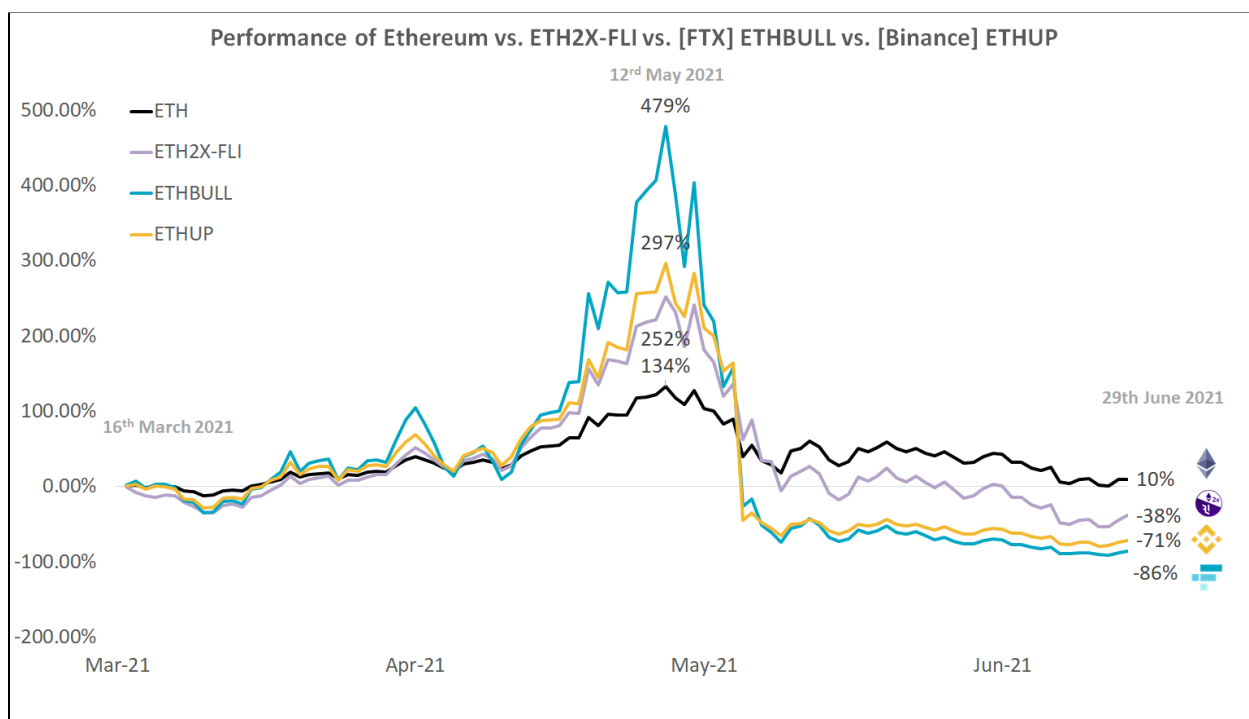
The profit and loss of your FLI token depend on the re-centering speed and the rebalancing frequency. However, it is **difficult** to estimate your profit and loss before you buy the FLI tokens.

This is because, aside from its 24-hour rebalancing interval, the rebalancing could occur multiple times a day when the markets are volatile. For instance, the rebalancing occurred 10 times within 24 hours on 21st March 2020 because the current leverage exceeded the 2.3x threshold.

You can find the rebalance transaction history here for [ETH2X-FLI](#) and [BTC2X-FLI](#).

As mentioned in [Part 1](#), the overall design of leveraged ETF is more suitable for swing traders who take advantage of a strong trending market. To see this, we will compare leveraged ETH across different issuers to see their ability to withstand the volatile market.

Price Performance of ETH vs. Leveraged ETH



Source: CoinGecko, Binance API

*ETH2X-FLI date of inception is 16th March 2021

The graph above compares the price performance of Ethereum against three leveraged ETFs from Index Coop (ETH2X-FLI), **ETHBULL** (FTX), and ETHUP (Binance).

ETHBULL had the best run-up during the March-May rally to 479% on 12th May 2021 - it more than tripled against the ETH spot market. However, it also performed the worst during the market downturn from May to June 2021.

Nevertheless, ETH2X-FLI had the least drawdown (-38%) compared to ETHUP (-71%) and ETHBULL (-86%). ETH2X-FLI managed to cushion the price impact because of its leverage strategy that mitigates the volatility impact.

The three leveraged ETFs severely underperformed ETH due to volatility decay.

How does FLI Differ from Centralized Leveraged Tokens?

Aside from price performance, here is how FLI stacks against its centralized peers.

The table below gives an overview of leveraged tokens from top-3 different leveraged ETF issuers (Index Coop, FTX, and Binance).

Summary table

	Index Coop	FTX	Binance
Type of Leveraged ETFs	Token (ERC-20)	Token (ERC-20)	Contract
Number of Leveraged ETF supported	2	221	40
Leverage range	Variable <ul style="list-style-type: none"> ETH2X-FLI (1.7x ~ 2.3x) BTC2X-FLI (1.8x - 2.2x) 	Fixed <ul style="list-style-type: none"> BULL (3x) BEAR (-3x) HEDGE (-1x) HALF (0.5x) 	Variable <ul style="list-style-type: none"> UP (1.25x ~ 4x) DOWN (-1.25x ~ - 4x)
Creation and Redemption fees	0.1%	0.1%	0.1%
Daily management fees (Annualized)*	1.95%	10.95%	3.65%
Trading fees**	0.3% on Uniswap	0.07%	0.1%
Underlying fees	Borrowing fees	Funding fees	Funding fees
Withdrawable	Yes	Yes	No
Rebalancing	+/- 5% from the current leverage ratio for every 24-hour or as soon as it goes out of defined	2 A.M. UTC or as soon as the leverage tokens are trading above the target	As-needed-basis (irregular rebalancing at an unknown cadence)

	leverage bounds		
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Data as of 29th June 2021

*Annualized fee = Daily Management Fee * 365 days

**Subjected to each exchange:

Uniswap: <https://info.uniswap.org/#/tokens/0xaa6e8127831c9de45ae56bb1b0d4d4da6e5665bd>

FTX: <https://help.ftx.com/hc/en-us/articles/360024479432-Fees>

Binance: <https://www.binance.com/en/fee/schedule>

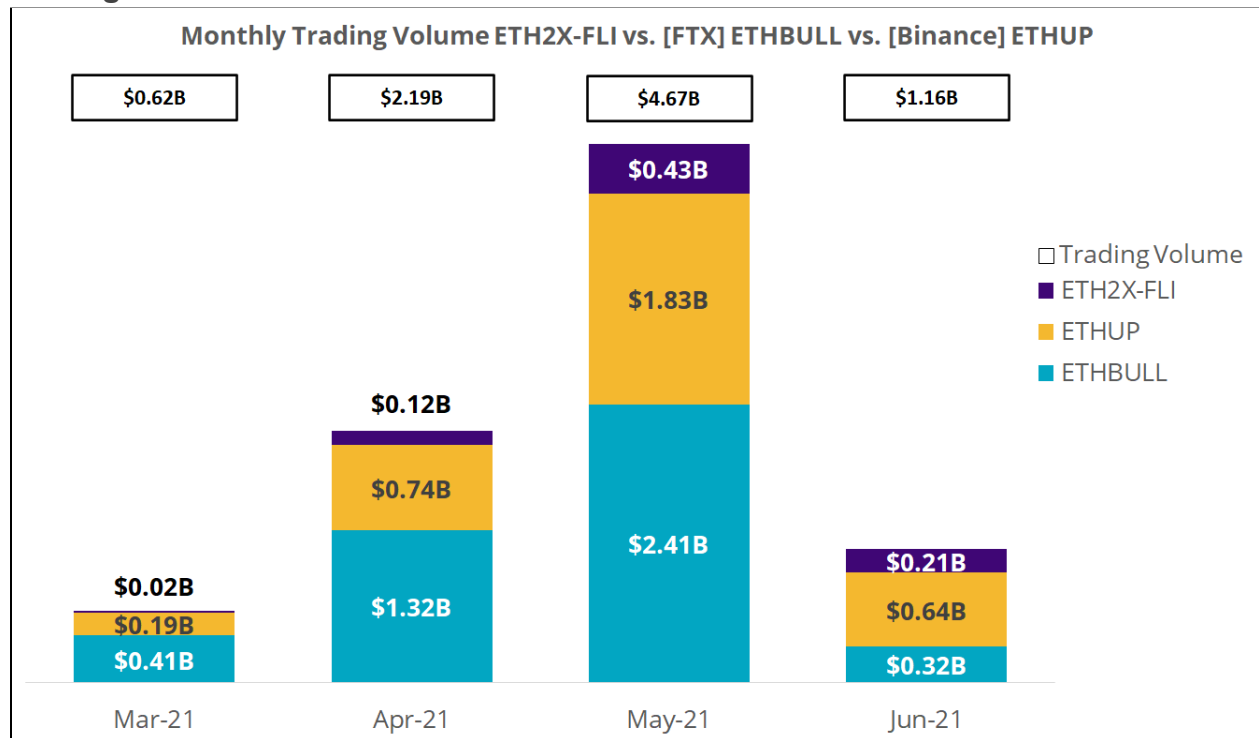
For simplicity, we will focus on the differences between three leveraged ETH (ETH2X-FLI, ETHBULL, and ETHUP) in terms of fees, trading volume, and assets under management (AUM).

Fees

Based on the summary table, the most important fee is the management fee, as it charges a percentage of your capital. If any, your gain will be reinvested throughout every rebalancing and would add up to the management fee cost.

Among all, the ETH2X-FLI token has the lowest annualized management fee (1.95%) compared to its peers (10.95% for ETHBULL and 3.65% for ETHUP).

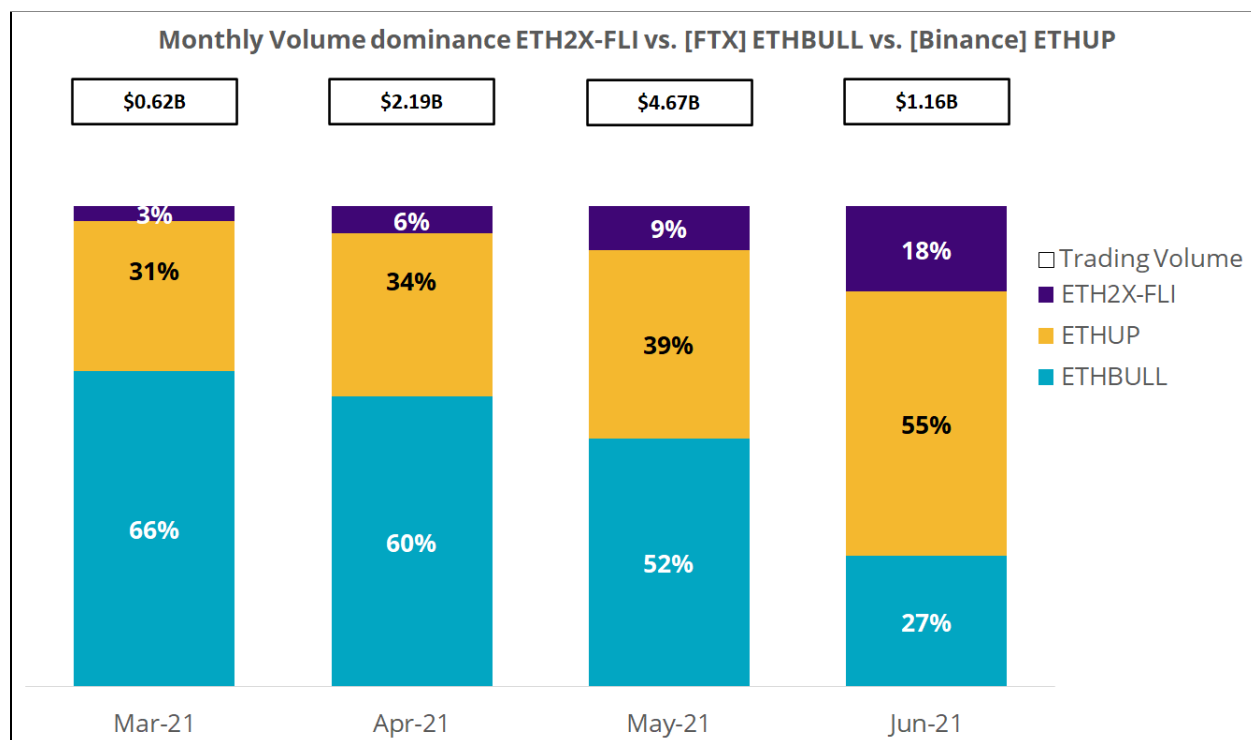
Trading Volume



Source: CoinGecko, Binance API

The chart above illustrates the monthly trading volume of the three leveraged ETH products. The trading volume grew 648% from March to May 2021.

However, the general crypto market took a plunge in mid-May, and as a result, the volume dropped \$3.5 billion (-75%) in June. ETH2X-FLI contributed the least to June's drop (6%), followed by ETHUP (34%) and ETHBULL (60%).



Source: CoinGecko, Binance API

Despite the decline in overall volume, ETH2X-FLI grew its dominance against ETHBULL and ETHUP from 3% to 18% within 4 months since it went live on 16th March. At the same time, Binance flipped FTX as ETHUP overtook ETHBULL's dominance, leading at 55%.

Asset Under Management (AUM)

(Snapshot 29/6/21)	ETH2X-FLI	ETHBULL	ETHUP
Asset under Management (AUM)	\$37,310,247	\$23,331,380.26	\$31,696,210.38

Source: CoinGecko, Binance API (Snapshot at 29th June 2021, 10.23PM MYT)

Market Cap = AUM = Token issued * NAV

Amongst the leveraged ETH, ETH2X-FLI has the highest AUM at \$37.3 million compared to ETHBULL (\$23.3 million) and ETHUP (\$31.7 million). This comes as a surprise because the ETH2X-FLI has the lowest trading volume.

Below are the possible reasons why ETH2X-FLI's AUM is high relative to its trading volume:

- **HODL-ing**
People are holding the FLI tokens for an extended period.
- **Liquidity Providing**
Users could also HODL-ing it by providing liquidity on Uniswap to earn LP revenue.
- **Liquidity Mining Rewards**
The FLI tokens receive liquidity mining rewards from Compound based on their collateral and debt positions. The reward will be reinvested back to the debt position and thereby increase the AUM size further.

The first two points suggest that users may have little understanding of how leveraged ETH products work or are simply betting the ETH price will continuously increase in the future.

Thus, it begs the question: Is it profitable to become a liquidity provider (LP) for ETH2X-FLI?

Liquidity Providing Strategy

Scenario 1: Did not LP (Spot Holding ETH2X-FLI)

	Capital Before (16th March)	Capital After (29th June)	Price change (16th March - 29th June)
ETH2X-FLI	\$1,000	\$494.53	-50.55%
ETH	\$1,000	\$1,121.15	+12.12%

Assuming you have \$1,000 capital to invest, you could either invest \$1,000 in ETH or ETH2X-FLI. If you chose ETH2X-FLI and bought \$1,000 worth of the tokens on its release date, you would have made a **-51% loss** as of 29th June 2021.

You would have been better off holding ETH in a spot position where it saw a 12% increase.

Scenario 2: LP-ed on Uniswap V2*

	Capital Start (16th March 2021)		Capital End (29th June 2021)		%
\$1,000 worth of Capital					
ETH2X-FLI	\$	500.00	\$	247.26	-50.55%
ETH	\$	500.00	\$	560.58	12.12%
Estimated Return if HODL	\$	1,000.00	\$	807.83	-19.22%
Impermanent Loss					
(107 days since inception)		-		(\$78.30)	-7.83%
Estimated LP Return without					
Trading Fees		-	\$	729.53	-27.05%
Trading Fees			\$	93.90	9.39%
Estimated LP Return After					
Trading Fees			\$	823.43	-17.66%

Source: [APY.vision](#)

*Note the calculation is based on Uniswap V2. It is difficult to estimate the LP revenue on Uniswap V3 with its dynamic fee and variable price range features.

Now, let's consider the second scenario where you decide to split your \$1,000 capital to provide liquidity for ETH2X-FLI/ETH pool on Uniswap.

As a liquidity provider, you are subjected to impermanent loss due to the price movement of the tokens you provisioned. At the same time, you are also earning trading fees from the pool. Hence, to calculate your profit or loss, you will need to consider three things:

- The price impact of your LP underlying assets
- The impermanent loss
- The trading fees earned

Impermanent loss is similar to measuring your opportunity cost of holding the token within the pools versus holding them in your wallet. Note: the loss is not realized until you remove your tokens from the liquidity pool. The higher the divergence between the value of holding your tokens in the pool and wallet, the higher the impermanent loss.

Overall, the LPs actually experienced a total **net loss of 17.66%**, ignoring the gas fees. This is 3X better than holding the ETH2X-FLI tokens on spot (-50.55%). This is partly because your trading fees earnings are higher than the impermanent loss (9.39% vs. 7.83%).

Providing liquidity helps to diversify your risk and mitigate your loss during the downturn market. That said, the product has only been live for 106 days (3 months+), so the result may vary in the

future.

The main takeaway is that liquidity provision may become the key differentiator for FLI tokens against other centralized leveraged ETFs. By becoming an LP with the right strategy, it might be possible to generate a sustainable return by holding leveraged ETF long term.

Conclusion

Leveraged ETF is infamous for being a product that no one understands completely. It is not meant for long-term investing and only profitable in a trending market. Nonetheless, that might not be the case with FLI tokens, as shown in our liquidity-providing example, whereby holding leveraged ETF long-term can potentially be profitable.

Market opportunities are vast. There will be more leveraged ETFs pouring into the market in the foreseeable future. Different leverage strategies could extend into different DeFi dApps, such as using decentralized perpetual swaps as underlying from [Perpetual Protocol](#).

But bear in mind, as more DeFi dApps stack and layer on each other, inherent systemic risks grow larger.

Credit: Thanks Cormac & Allen from FLI team and Tom from APY.Vision for clarification and feedback.