

DeFi Metrics That Matter for a Price Recovery: Fundamental Analysis

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Although Decentralized Finance (DeFi) has only blossomed over the last year, fundamental investors have increasingly moved away from just memes to on-chain data. However, while data paints a picture of the status of the industry, it's not clear which metrics are important for price movement and which aren't. In this report, we look at data to figure out if fundamentals matter and, if so, which DeFi tokens might be leaders in a price recovery.

Our hypothesis is that fundamentals do matter and there needs to be some value accrual to the protocol and investors. Perhaps tokens with more use-cases than pure governance will outperform those that have solid operating metrics. The counter argument is that price recovery is independent of fundamentals, and more dependent on external factors such as correlation to Bitcoin and social media activity. Perhaps governance as the only use case is sufficient and tokenholders care about other factors such as the ability for the team to drive growth with a large war chest. We address decentralized exchanges (DEXs), lending protocols, and asset managers across different metrics to test our hypothesis. We use weekly data to smooth out daily outliers across various metrics, including:

- Number of active users
- Trading volumes on decentralized exchanges
- Total value locked
- Interest per year on lending protocols
- Amount deposited in lending protocols and the amount of outstanding loans

Decentralized Finance: A Review of Price Performance

Below is a table of the price performance in the past 60 days. Most tokens reached their local highs (LHs) a few days before or after May 5th (the average of the group). The exceptions are [SUSHI](#), [RUNE](#), [AAVE](#) and [SNX](#) which reached highs after the sell-down began around May 14th. The date for the 60-day low is more synchronized, occurring on May 23rd for the subset of major DeFi tokens below -- where the average drawdown was -72%. In the 60-day period, PancakeSwap and 1INCH underperformed while Synthetix and Bancor outperformed.



DeFi Tokens Reached Lows on May 23

Price performance on large cap DeFi tokens over a 60 day period

	60 Day High		60 Day Low		Percentage Change	23-May to Last Price
	Price	Date	Price	Date		
ALPHA	\$2.5	7-May	\$0.5	23-May	(80%)	55%
PANCAKE SWAP	44.2	30-Apr	9.5	23-May	(78%)	98%
1INCH	7.9	8-May	1.8	23-May	(77%)	120%
CURVE FINANCE	4.7	16-Apr	1.1	23-May	(77%)	129%
YEARN FINANCE	93,435.5	12-May	24,064.2	23-May	(74%)	79%
OX	2.4	13-Apr	0.6	23-May	(74%)	68%
SUSHI	22.5	18-May	6.3	23-May	(72%)	82%
THORCHAIN	21.3	19-May	6.0	23-May	(72%)	80%
UMA	33.3	19-Apr	9.4	23-May	(72%)	58%
KYBER	4.2	7-May	1.2	23-May	(72%)	101%
BALANCER	74.8	4-May	21.4	23-May	(71%)	36%
MAKER DAO	6,339.0	3-May	1,836.0	23-May	(71%)	97%
UNISWAP	45.0	3-May	13.1	23-May	(71%)	98%
COMPOUND	911.2	12-May	268.4	23-May	(71%)	45%
AAVE	666.9	18-May	210.1	23-May	(69%)	74%
SYNTHETIX	25.8	18-May	9.5	23-May	(63%)	26%
BANCOR	8.3	9-May	3.1	23-May	(63%)	47%
CREAM	200.8	9-May	83.4	21-Apr	(58%)	88%
Average		5-May		23-May	(71%)	77%

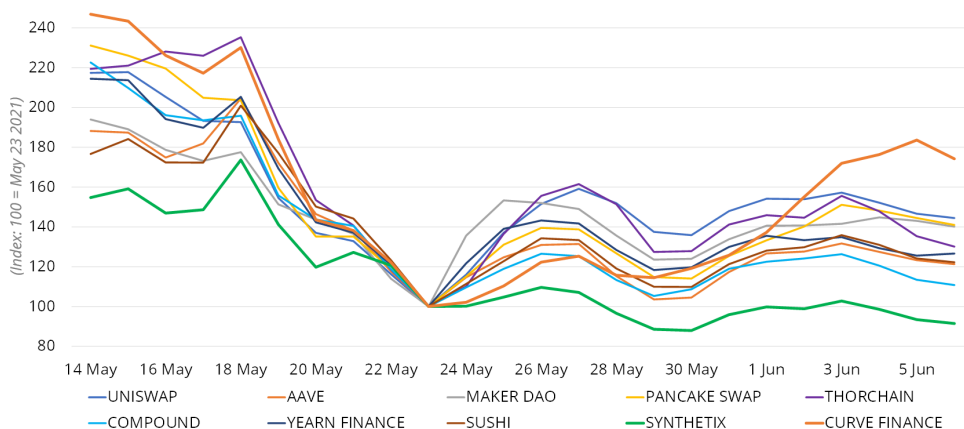
Data as of: June 6, 2021

As seen on the right hand side of the table, since the low of May 23, regardless of market cap size -- the tokens that experience the most losses before May 23rd also saw the fastest recovery (e.g. [CRV](#)) while those that had mild corrections continued to face selling pressure (e.g. [SNX](#)).



Tokens That Sold Down Hardest Recovered Quicker

Price of tokens indexed to local low on May 23 2021



Data as of: June 6, 2021

Number of Active Users

First, we look at the number of active users as a gauge for general protocol activity. The table below shows the change in weekly active users based on their April and May figures, where the week of April 5th has been indexed to equal 100. Over the two months, Aave has increased its active users by more than +100% due to their liquidity mining incentive program, which was [voted on](#) April 25th and will end on July 15th, 2021. They also integrated with Layer2 scaling solution Polygon, which boosted adoption. On the other hand, Kyber saw a -9% contraction in users. The table below is ranked by the retention of active users over the period:

M E S S A R I
DeFi Protocols Ranked by Active User Growth April-May 2021
 Weekly active users, indexed to the week of April 5 2021

	AAVE	UNI	SUSHI	BNT	CRV	BAL	KNC
5 Apr	100	100	100	100	100	100	100
12 Apr	107	112	92	100	113	121	91
19 Apr	119	127	90	94	125	108	72
26 Apr	254	132	132	132	160	180	97
3 May	172	172	131	117	134	141	93
10 May	116	191	98	85	99	116	50
17 May	190	137	121	151	161	142	85
24 May	149	130	116	147	142	128	90
31 May	200	125	121	118	119	111	91

(Index: 100 = April 5 2021)

Data as of: June 11, 2021
 Source: Dune Analytics @jeffshaw, Messari

Below is a chart showing the average price change over the same period, ranked in accordance to the ranking of growth in Active Users. There seems to be a strong correlation between active users and price performance. Aave, Uniswap, and SushiSwap outperformed in terms of active users and price change -- due to new operating developments. Aave and Sushi deployed on Polygon while Uniswap deployed their V3. Curve, Balancer and Kyber were at the bottom-end of the range, which was reflected in the underperformance of their token price. While the ranking does not perfectly correlate (CRV's price is down -47% in the period while [KNC](#) is down less at -43% despite losing more active users), the general trend is intact:



Price Performance: Ranked by Active User Growth

Average weekly price and price change by protocol over the same period in April and May 2021

	Week Apr-04	Week 31-May	% Change
AAVE	\$379.6	\$352.2	(7%)
UNISWAP	29.2	26.1	(11%)
SUSHI	15.3	11.5	(25%)
BANCOR	7.5	4.5	(39%)
CURVE FINANCE	3.2	1.7	(47%)
BALANCER	56.0	30.0	(46%)
KYBER	3.0	1.7	(43%)

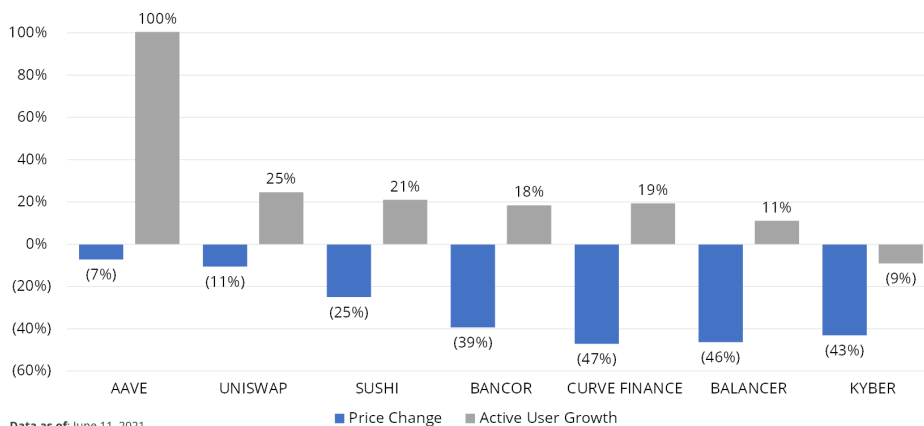
Data as of: June 11, 2021
Source: Messari

Conclusion: Fundamentals and operating statistics do matter to token price. The Active Users metric is a valuable and relevant price signal as it shows meaningful correlation.



Price Performance Correlated to Active User Growth

Price change and Active User growth by protocol over the same period in April and May 2021



Data as of: June 11, 2021
Source: Messari

Trading Volumes: Decentralized Exchanges

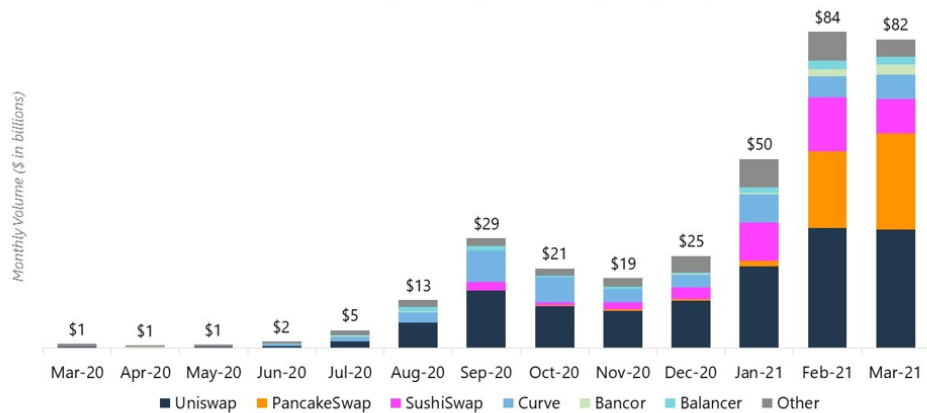
Historical performance has generally been correlated with factors such as adoption, daily volumes and potential fees generated. This is because volumes have typically been an indicator for value accrual to the protocol or tokenholders.

In 1Q'21, Uniswap and PancakeSwap gained the most market share. Their price action directly reflected their adoption with Uniswap posting a quarterly return of 444% while PancakeSwap outperformed the rest of the sector with a massive return of 3,031% in 1Q'21.

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Monthly DEX Volume

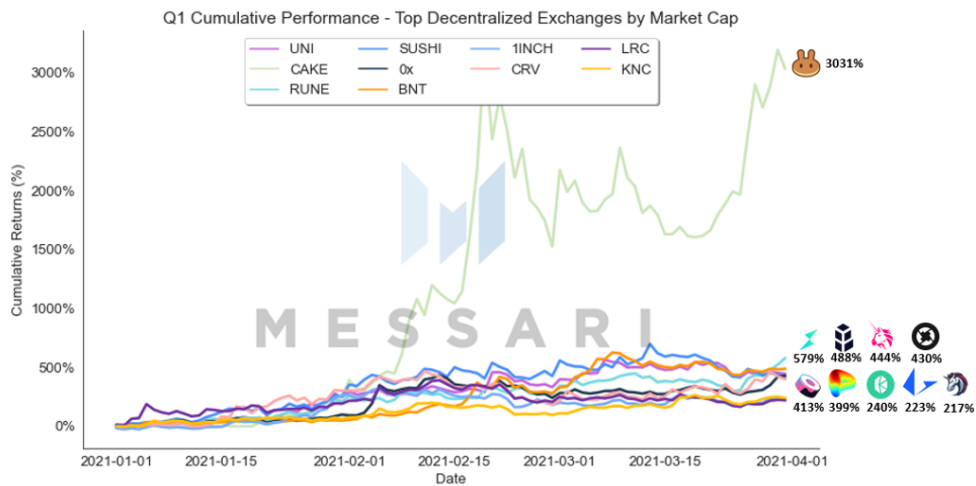
DEX volumes continue to rise as the bull market heats up with Uniswap and PancakeSwap leading the way



Data as of: Apr. 1 2021
Source: Messari, Dune Analytics, Coingecko

SushiSwap, while growing rapidly, has given up market share and its price underperformed UNI by -31%.

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Source: Messari. Data as of March 31, 2021

The table below shows May's weekly DEX volumes, reflecting the period of the recent sell-down. It's ranked by the change in volumes, where Synthetix and Curve have relatively outperformed in maintaining volume -- though all DEXs saw volumes contract. While volumes were down by the latter half of May, Balancer's trading volumes deteriorated the most, losing approximately 80% since the beginning of May. Therefore BAL's volumes are less sticky than that of SNX and CRV.

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DEXs Ranked by Volume Growth in May 2021

Decentralized Exchange volume change, indexed to week of May 10 2021

	Syntheticx	Curve	Kyber	Sushiswap	Uniswap	Bancor	Balancer
10 May	100	100	100	100	100	100	100
17 May	218	193	109	178	113	162	117
24 May	50	104	63	68	69	82	50
31 May	67	40	37	37	38	29	20

Data as of: June 11, 2021

Source: Dune Analytics @hagaetc, Messari

The table below shows the price change over the corresponding period, ranked in accordance to the above DEX Volumes stickiness table. Balancer and Bancor saw the largest price decrease while protocols that were more sticky outperformed in the sell-down. The exception is Syntheticx, which had an average performance despite doing well in terms of stickiness. One possible reason is that volumes grew the most (+118%) in the week of May 17th, which caused the performance for the second half of May to be heavily negative.

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Bear Market Price Change: Ranked by DEXs Volume Growth

Average price in the week of May 10 compared to that of June 6, ranked by DEX volumes growth in May 2021

	Ave. Week Ending May 10	Last Price June 6 2021	% Change
SYNTHETIX	\$17.9	\$11.9	(33%)
CURVE FINANCE	3.3	2.5	(26%)
KYBER	3.4	2.4	(29%)
SUSHI	15.1	11.6	(23%)
UNISWAP	40.6	25.9	(36%)
BANCOR	7.6	4.5	(41%)
BALANCER	66.8	29.1	(56%)

Data as of: June 6, 2021

Conclusion: Price performance of DEXs are correlated to transaction volumes, which is in-line with our hypothesis that fundamentals and operating metrics matter.

Fees Accruing to Tokenholders

Another factor to consider is the ability for the protocol to pay dividend-like yields to its tokenholders. For instance, SUSHI tokenholders can stake their token to receive a portion of the protocol's trading fees. Below is a table of price over the same period starting early May for DEX protocols:

M E S S A R I

Tokens Paying Fees Outperform in Bear Market Conditions

Average price change May 10 week to June 6 compared to Year-to-Date price change

	Ave. Week Ending May 10	Last Price June 6 2021	% Change	Fees to Tokenholders	Price Change YTD
SYNTHETIX	\$17.9	\$11.9	(33%)	Yes	(1%)
CURVE FINANCE	3.3	2.5	(26%)	Yes	267%
KYBER	3.4	2.4	(29%)	Yes	168%
SUSHI	15.1	11.6	(23%)	Yes	228%
UNISWAP	40.6	25.9	(36%)	No: Fee Switch Off	365%
BANCOR	7.6	4.5	(41%)	No: Indirectly	215%
BALANCER	66.8	29.1	(56%)	No: Fee Switch Off	84%

Data as of: June 6, 2021

From the price behavior above, during the bearish market from May to June 2021, it would seem that those protocols that allow users to stake the native token for yield have outperformed:

- SNX, CRV, KNC, SUSHI allow tokenholders to stake the native token for a portion of fees. These tokens have relatively outperformed during the sell-down
- UNI: the fee switch is not yet turned on
- BNT: Bancor's single-sided liquidity pools allow tokenholders to stake BNT without needing to stake tokens on the other side of a pool. However, liquidity provider rewards differ from direct staking for a portion of overall platform fees
- BAL: There are no fees for Balancer V1 but V2 collects flashloan fees. Its trading and withdrawal fees switch was **turned off** at inception. All protocol fees are kept in the vault and it will be up to a governance vote to decide how these funds are used

However, overall year-to-date performance (right hand side of the table) shows no correlation to fees accruing to tokenholders. It shows that markets only care about value accrual in bear markets and place greater importance in other factors during bull markets.

Conclusion: Tokens that enable fee-sharing to tokenholders outperform in bear markets. This could be because tokenholders are less likely to unstake their tokens and sell or because they prefer tokens that pay dividend-like yields or have more use cases than just governance. A possible counter argument based on the data is that in bull markets, it makes sense for protocols to retain funds to drive growth instead of distributing it to tokenholders. Perhaps in bull runs, protocols should build massive warchests for growth and resilience.

Total Value Locked

Total Value Locked (TVL) is an important metric to track a protocol's ability to extract value. The below table shows weekly TVL figures from April, ranked by growth of capital. All the protocols have grown since early April with Yearn Finance experiencing the highest growth, followed by Aave. On a relative basis, SushiSwap has underperformed. Its TVL has contracted -18% and, second place from the bottom, Compound has grown least at just +16%.



Yearn Finance Saw The Most TVL Growth Since April 2021

Protocols ranked by Total Value Locked change since April 2021, indexed to week of April 4 2021

	Yearn	Aave	Curve	Uniswap	Maker	Compound	SushiSwap
4-Apr	100	100	100	100	100	100	100
11-Apr	130	103	104	129	107	147	101
18-Apr	152	112	122	137	121	167	98
25-Apr	147	105	122	133	122	134	92
2-May	162	153	133	145	137	139	107
9-May	193	197	158	162	172	156	124
16-May	231	206	179	172	196	168	110
23-May	206	169	144	129	139	128	82
30-May	190	150	133	133	119	115	72
6-Jun	211	175	154	149	118	116	82

Data as of: June 6, 2021
Source: Skew, Messari

Against our hypothesis, price has not been correlated to TVL.

- While YFI has grown TVL the most, prices aren't reflecting that. YFI's price has dropped -15% since April 4th, while the subset average is +6%. This is possibly because users have fled to Yearn Finance as a safe haven during this wait-and-see period but have not been purchasing the token
- Both Curve and SushiSwap's prices have outperformed over the same period. However, Sushiswap's TVL has contracted by -18% while Curve's has increased by +54%



Ranked by TVL: No Correlation with Price Performance

Price change compared to June 6, Protocols ranked in order of Total Value Locked growth since April 2021

	23-May Low vs Last Price	Local High vs Last Price	Week of Apr 4 vs Last Price
YEARN FINANCE	79%	(54%)	(15%)
AAVE	74%	(45%)	4%
CURVE FINANCE	129%	(47%)	32%
UNISWAP	98%	(42%)	13%
MAKER DAO	97%	(43%)	(39%)
COMPOUND	45%	(57%)	13%
SUSHI	82%	(49%)	33%
Average	86%	(48%)	6%

Data as of: June 6, 2021
Source: Messari

Conclusion: The data shows that TVL isn't a reliable indicator of price action because capital is temporary and mercenary, due to factors such as liquidity mining incentives, exploits, or deleveraging. As a result, it's more important for protocols to be able to retain liquidity as a basis of product-market fit from user stickiness. Furthermore, with the launch of Uniswap

V3 and Curve V2, not all TVL can be considered equal as capital efficiency and the rewards generated to the liquidity provider varies. Lastly, as TVL tracks the maximum possible extractable value -- investors might not be interested in this metric during bullish markets as the ceiling is typically not reached. For example, DEXs will see lower trading volumes and lending protocols will see less debt outstanding. Therefore, this data point is irrelevant as a price catalyst.

Interest Per Year

Interest per year is calculated by multiplying the current borrow rate by the total outstanding debt and shows the interest accruing to that protocol. The below table shows the interest per year generated on the outstanding debt spanning from April to May 2021, indexed to the week of April 5th as 100. The columns are ranked by order of growth over the two months. Maker DAO maintained the highest growth of +19% and Aave came in second place growing +6% over the period. In the first half of May, Aave grew significantly, printing a +92% growth compared to the week of April 5th.



Protocols Ranked by IPY Growth: Maker Outperforms

Protocols ranked by Interest Per Year since week April 2021, indexed to week of April 5 2021

	Maker	Aave	CREAM	Compound
5 Apr	100	100	100	100
12 Apr	107	91	83	99
19 Apr	121	131	107	97
26 Apr	126	54	68	74
3 May	133	109	65	68
10 May	141	192	53	87
17 May	145	188	54	95
24 May	136	122	59	45
31 May	119	106	43	35

(Index: 100 = April 5 2021)

Data as of: June 6, 2021
Source: Skew, Messari

Price recovery has generally followed the protocol's ability to generate interest on the underlying debt. Maker had a strong bounce since the low of May 23rd while Compound saw the most negative price impact due to IPY contraction. Compound is also the lowest compared to its LH price. The exception to the data is Cream Finance, where the latest price is closest to its LH price. One possible reason for this is that, unlike the other protocols which saw 60-day lows on May 23, CREAM's low was over a month earlier on April 21. As a result, the price had already underperformed before the sell-down.



Price Performance Loosely Correlated to IPY Growth

Price change by protocol, ranked in order of Interest Per Year growth since April 2021

	Average Week Ending		%	23-May Low	Local High vs	
	5-Apr	31-May	Change	vs Last Price	Last Price	Average
MAKER DAO	\$2,252	\$3,547	58%	97%	(43%)	37%
AAVE	386	352	(9%)	74%	(45%)	7%
CREAM	147	124	(16%)	88%	(22%)	17%
COMPOUND	462	408	(12%)	45%	(57%)	(8%)

Data as of: June 6, 2021
Source: Messari

Conclusion: The data shows that IPY is a good indicator of price recovery but not a good indicator of price change, though sample size is small at just four protocols. This means that, in a dip, investors could confidently allocate capital to protocols that have maintained IPY.

Deposits in Lending and Outstanding Loans

IPY is the sum product of rates and outstanding debt by tokens supported in the protocol. In this section, we look more specifically at outstanding debt and also total deposited funds during the bearish market of May 2021. The weakness of this metric is that the sample size is small.

- Deposits in Lending: Aave is the outperformer while Maker DAO has underperformed on this basis.
- Outstanding Loans: Contrary to Deposits in Lending, Maker DAO saw the most loans taken out while Compound was the underperformer.



Protocols Ranked by Deposits and Loans Outstanding

Deposits in lending and Outstanding loans by protocol indexed over the bearish market

Deposits in Lending by Protocol				Outstanding Loans by Protocol			
	Aave	Compound	MakerDAO		MakerDAO	Aave	Compound
9-May	100	100	100	9-May	100	100	100
16-May	105	105	110	16-May	109	107	102
23-May	89	81	77	23-May	103	105	78
30-May	83	69	65	30-May	103	98	62

Data as of: June 6, 2021
Source: Dune Analytics @hagaetc, Messari

The price performance would suggest that outstanding loans is an important indicator for price recovery but deposits in lending is an irrelevant metric. During the sell-down in May, Maker outperformed while Compound underperformed. Despite Aave seeing the least decrease in deposits in lending, the price performance was just average. This indicates that, similar to TVL, the market discounts the importance of deposits in lending.



Price Performance Correlated to Outstanding Loans But Not Deposits

Price change by protocol, ranked in order of Interest Per Year growth since April 2021

	Average Week Ending		% Change	23-May to Last Price	LH vs Last Price	Average
	9-May	31-May				
MAKER DAO	\$2,220	\$3,547	60%	97%	(43%)	38%
AAVE	380	352	(7%)	74%	(45%)	7%
COMPOUND	441	408	(8%)	45%	(57%)	(7%)

Data as of: June 6, 2021
Source: Messari

Conclusion: Given IPY is a good indicator of price recovery, so are deposits in lending. Outstanding loans track the ceiling of the protocol's ability to extract value. Similar to TVL, during a bearish market, investors discount the importance of this ceiling value and look instead at outstanding debt levels that accrue value to the protocol.

Qualitative Analysis

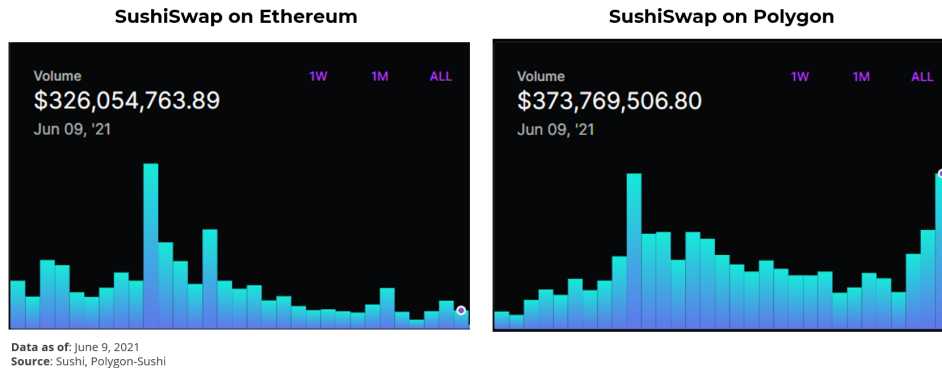
Quantitative analysis can only get fundamental investors so far. Qualitatively, there have been several catalysts that might explain price performance

- **Incentive Programs:** Polygon and Aave have liquidity mining programs until next month, which attracted both depositors and lenders, and also helped AAVE's token price. Similarly, Balancer [announced](#) Balancer V2 and a new incentive program on May 11 -- though not as effective in upholding its token price.
- **Market Share:** Compound also has an ongoing liquidity mining program but has lost market share to Aave as a result of their incentive program. While Compound has grown TVL in the two months April to May, its token price has underperformed AAVE which has gained market share.
- **Stablecoin Safe Haven:** Curve is focused on stablecoins and has been a relative outperformer in the rebound from May 23's lows. During the time of the sell-down, investors might have flocked to safety and placed funds in stablecoins, unscathed by the market dump
- **New Launches:** Uniswap launched V3 on May 6 to enable concentrated liquidity with multiple fee tiers, allowing LPs granular control over what price ranges their capital is allocated to. It also deployed V3 to Arbitrum on June 5. The success of new launches play a major role in driving fundamentals and can act as a strong price catalyst
- **Layer 2 Scaling Solutions:** Other than Aave, Sushi has relatively outperformed. It's a favorite of whales (trading sizes are larger than that of Uniswap) and it is also integrated with Polygon. Volumes of SushiSwap on Polygon have surpassed that of Ethereum, mostly due to low fees that enable bots to trade more frequently.



SushiSwap-Polygon Surpassed SushiSwap-Ethereum Volumes

Daily volumes of Sushiswap on Polygon and on Ethereum



As a result, which quantitative methods are important, in this nascent industry, qualitative analysis is as important in understanding price movements.

Final Thoughts

The dramatic selldown in a bull market period caught many investors by surprise. Perhaps investors had the memory from the Bitcoin bear markets of post-2017, 2013, 2011's blow-off tops. However, the data shows that, especially during a bear market, fundamentals matter. As we can see from the protocols that distribute fees to tokenholders, fundamentals matter less during a bull market. Therefore, as DeFi matures, we can expect it to be less correlated to Bitcoin and trade more independently according to its operating metrics in times of bearish markets. It's possible that we are in that feared two-year bear market, but for DeFi investors who believe that this is merely a dip, then the key metrics that they should be paying attention to are: active users, trading volume and loans outstanding.

Learn more from Mainnet 2021

Watch main stage programming from Messari's annual summit Mainnet 2021 to learn more about this exciting topic. Hear Meltem Demirors on "Liquidity and a Multi-Chain World". See [more programming](#) on the event portal.

Video: https://www.youtube.com/embed/aBE_aBBZpal