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# DeFi 1.0 versus DeFi 2.0

On-Chain Insights

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# Research and Insights

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# Executive Summary

This report first gives an introduction to the rise of DeFi 2.0 and the problems they attempt to solve.

- On 25 March 2021, OlympusDAO (one of the leading DeFi 2.0 protocols) only had a TVL of USD 69K, but by 14 November the TVL had reached $780M, which is an increase of over 1,100,000%.
- **DeFi 2.0 protocols attempt to solve the problem of sustainable liquidity using a strategy known as Protocol-Owned Liquidity (POL).**

**Following that, the main focus of the report is on how the traditional players (DeFi 1.0) are affected by the new trend of DeFi 2.0, based on several on-chain metrics.** For greater clarity, we split our analysis of DeFi 1.0 into three categories.

Borrowing and Lending Protocols:

- Aave experienced a sharp drop in TVL, from $19.2B on 27 October to $13.6B on 1 November, a decrease of 29% over just 5 days.
- Aave's drop in TVL is likely not due to DeFi 2.0 taking away market share but rather related to Cream Finance's hack on 27 October. Following the hack, Yearn founder Andre Cronje tweeted that Aave could be vulnerable to the same risks that affected Cream Finance.

Decentralised Exchanges (DEXes):

- The TVL of DEXes continued to see good increases in October 2021, which is also the period of the rapid rise of DeFi 2.0. For example, Uniswap's TVL saw an increase of 32%, from $6.94B on 1 October to $9.16B on 31 October.

Yield Optimisers:

- We observe that the TVL of yield optimisers continued to rise in October 2021, with Convex Finance's TVL rising an impressive 66% from $8.37B (1 October) to $13.88B (31 October). As of 27 December 2021, Convex Finance's TVL has reached $18.83B.

**Overall, there is no evidence to suggest that DeFi 2.0 is taking away market share from DeFi 1.0 protocols.** We also performed a correlation analysis and did not find any negative correlation coefficients between the TVLs of DeFi 1.0 and DeFi 2.0.

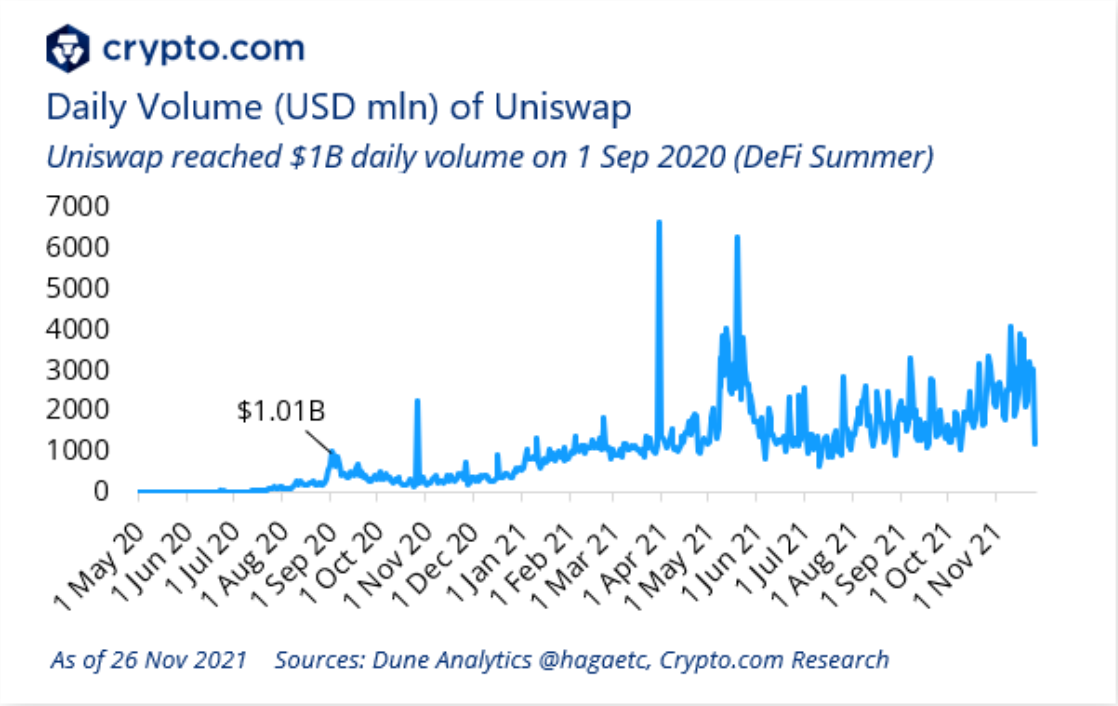
# 1. Introduction

DeFi (Decentralised Finance) is a novel blockchain-based form of finance that does not depend on centralised financial intermediaries (such as banks or exchanges), but instead uses smart contracts on blockchains.

**DeFi has proved to be tremendously popular, with total value locked rising above $270 billion on 26 November 2021.** One of DeFi's key attractions is certainly its high yields, which are far above what banks and most other traditional financial instruments can offer. For example, blue-chip DeFi protocols (e.g. Curve, Sushi) typically offer around 2%-15% APY on various crypto assets, while other riskier protocols may have eye-popping yields such as 35,000% APY.

**There is no universal definition of 'DeFi 1.0', but generally, the term refers to traditional DeFi protocols launched in 2020 or earlier.**

**The explosive growth of DeFi 1.0 mainly happened around August 2020, during a period known as 'DeFi Summer'.** For instance, Uniswap experienced a 1000X increase in daily trading volume, from less than $1 million in daily volume in the first half of 2020 to $1 billion during DeFi Summer. Since then, Uniswap has continued to grow, to the extent that DeFi Summer now just looks like a blip on the chart.



# 1.1 Problems with DeFi 1.0

**Despite the meteoric success of these DeFi 1.0 projects, it soon became clear that they had several weaknesses.** One of the main problems is regarding how to attract liquidity sustainably.

Many DeFi protocols give out their native token (or another 'farm token') as a liquidity mining incentive to attract liquidity providers. Due to the attractive rewards, this tends to work initially to attract capital and helps to 'bootstrap' the DeFi project.

**The problem with the above is that once the liquidity mining incentives stop or reduce, liquidity providers can easily move to the next protocol offering better incentives.** Also, giving out a particular token as a reward creates a selling pressure on it which would suppress its price. In extreme cases, the native token's price can even fall to zero. We show some examples of such classic 'pump and dump' farm tokens below.

**Farm tokens that have almost fallen to zero**

| Token | All-time High | All-time Low |
|---|---|---|
| GEIST | $34.87 (6 Oct 2021) | $0.176680 (14 Dec 2021) |
| TITAN | $64.19 (16 Jun 2021) | $0.000000015109 (17 Jun 2021) |
| KRILL | $237.19 (30 Apr 2021) | $0.02107501 (12 Sep 2021) |

*As of 17 Dec 2021* *Source: CoinGecko, Crypto.com Research*

A recent study by topaze.blue and Bancor has found that 70% of liquidity provider (LP) positions on Uniswap v3 exist for less than a month. In fact, some LP positions exist for extremely short periods of time: about 5% of all positions are flash positions (they only exist for a single block), and another about 5% exist for at most an hour. This shows that sustainable liquidity is indeed a valid concern for DeFi protocols.

# 1.2 Solutions Proposed by DeFi 2.0

In early 2021, a new group of 'DeFi 2.0' protocols attempted to solve the problem of sustainable liquidity using a new approach. **The main leader in this field is OlympusDAO, which launched on 1 February 2021.** Many of the other DeFi 2.0 protocols are forks of OlympusDAO, including KlimaDAO, Wonderland, and more. We counted at least 68 OlympusDAO forks (as of 23 December 2021), which shows that OlympusDAO is indeed one of the main trendsetters of DeFi 2.0.

**In brief, the solution proposed by OlympusDAO is to own its own liquidity. This is also known as Protocol-Owned Liquidity (POL).** This eliminates the problem of liquidity providers moving away, since the liquidity is now owned by the DAO. As of 5 November 2021, OlympusDAO owns 99.5% of its own liquidity across all markets and exchanges.

OlympusDAO manages to achieve this via a process known as 'bonding'. **Bonding refers to Olympus selling its own token (OHM) at a discount in exchange for LP tokens such as OHM-DAI, OHM-WETH.** After this, OlympusDAO becomes the owner of the LP tokens and hence also the owner of the underlying liquidity.

**In addition to bonding, OlympusDAO also allows users to stake OHM to earn OHM passively via auto-compounding.** By staking their OHM with OlympusDAO, users receive sOHM (staked OHM) in return at a 1:1 ratio. After that, the user's sOHM balance will increase automatically on every epoch based on the current APY.

### Key features of OlympusDAO

**Treasury Revenue:** Bond sales and LP fees increase treasury revenue and lock in liquidity and help control OHM supply.

Olympus increases the supply of OHM when it is above its intrinsic value and decreases the supply when it is below.

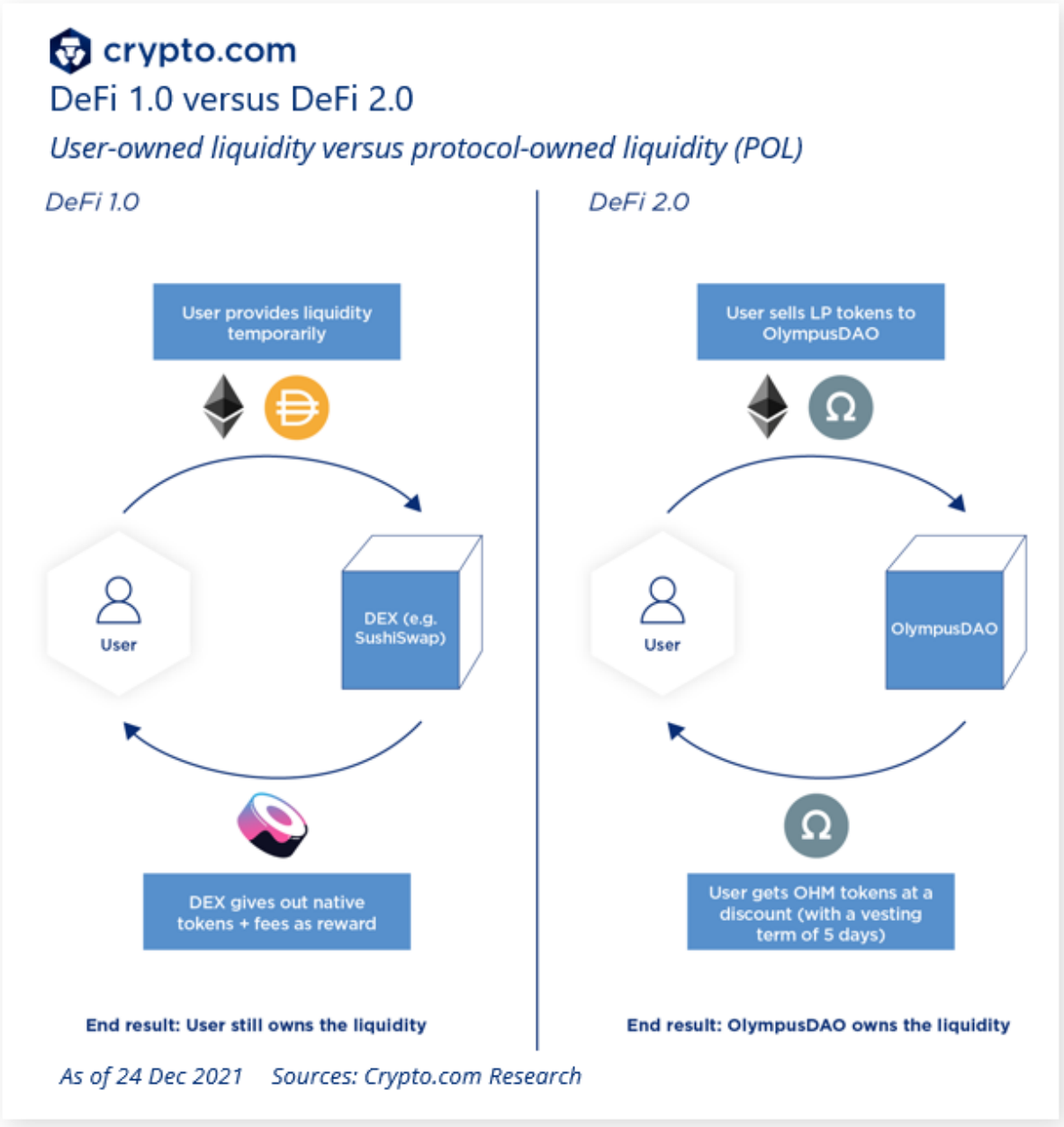
**Treasury Growth:** Treasury inflow is used to increase treasury balance and back outstanding OHM tokens and regulate staking APY.

The staking APY is regulated such that treasury inflow will always outperform staking rewards.

**Staking Rewards:** Compound yields automatically through a treasury backed currency with intrinsic value.

90.3% of the total OHM supply is staked, and the staking APY is 6,926%.

*As of 1 Dec, 2021* *Source: OlympusDAO, Messari, Crypto.com Research*



# 1.3 Impact on DeFi 1.0

**In the previous sections, we briefly covered the main ideas of DeFi 2.0.** Due to space constraints, an in-depth coverage of the different DeFi 2.0 protocols will be presented in separate articles inside the Crypto.com Research Hub.

**In this report, our main focus is on how the traditional players (DeFi 1.0) are affected by the new trend of DeFi 2.0.** To be precise, we will investigate how their TVL, trading volume, and other on-chain metrics have evolved over the past few months. We sincerely hope the reader will gain more insights on the interplay between DeFi 1.0 and DeFi 2.0 through the on-chain analysis presented in this report.

# 2. DeFi 1.0 versus DeFi 2.0

**In this section, we will first look at the rise of DeFi 2.0. Then, we will study the effects on traditional players (DeFi 1.0 protocols).**

For greater clarity and focus, we will split our analysis of DeFi 1.0 protocols into the following three categories: borrowing and lending protocols, decentralised exchanges (DEXes), and yield optimisers. We will then study various on-chain metrics relevant to each respective category.

**DeFi 1.0 Protocols**

| Borrowing & Lending Protocols | Decentralised Exchanges (DEXes) | Yield Optimisers |
|---|---|---|
| Aave | Uniswap | Yearn Finance |
| Compound | SushiSwap | Convex Finance |
| MakerDAO | Curve Finance | Harvest Finance |

*As of 1 Dec 2021* *Source: Respective DeFi Protocols, Crypto.com Research*

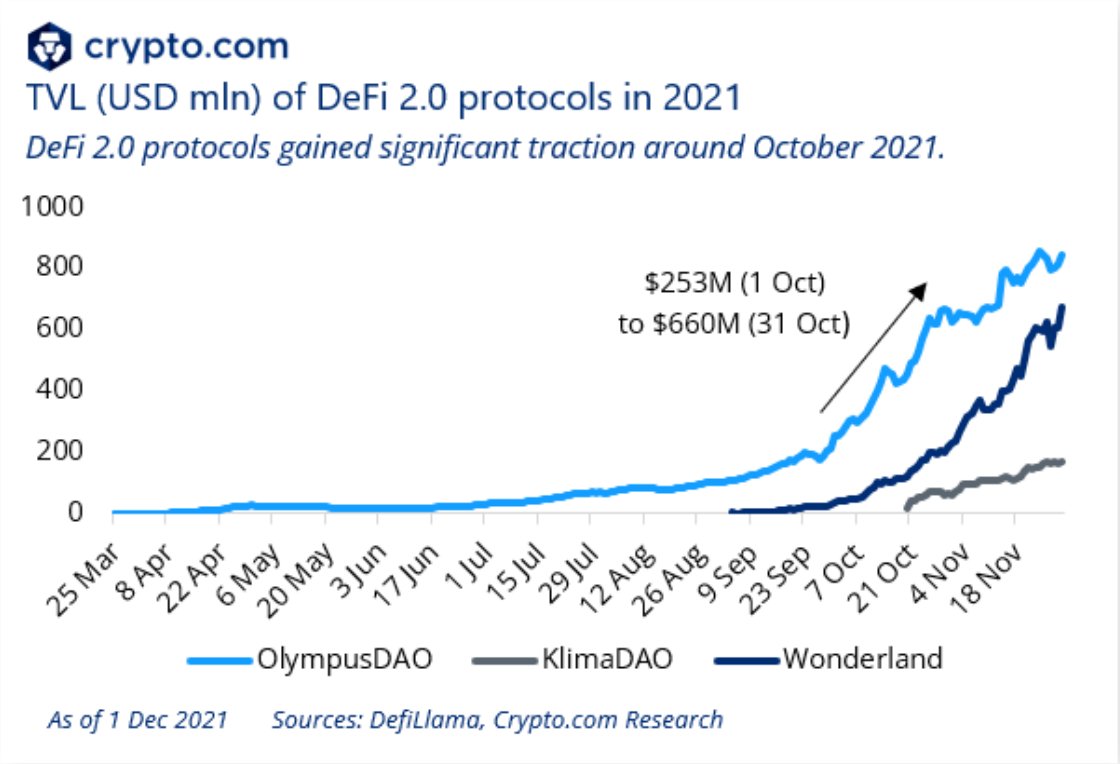
**Convex Finance can also be classified as DeFi 1.5*

## 2.1 The Rise of DeFi 2.0

**On 25 March 2021, OlympusDAO only had a TVL of $69K, but by 14 November the TVL had reached $780M, which is an increase of over 1,100,000%.** This is

indeed an astonishing growth rate for a new DeFi protocol over the timespan of less than a year.

**Despite OlympusDAO launching in February 2021, it mainly started to gain significant traction around September to October 2021.** From the chart and the table below, we can see that the rise is exceptionally swift in the month of October 2021, with an increase of 161% in TVL. By the month of November, the rise in TVL had slowed down significantly compared to the previous months, rising 'only' 35%.




**Rise of OlympusDAO TVL**

| Month | Starting TVL | Ending TVL | Change (%) |
|---|---|---|---|
| September 2021 | $102M | $213M | +109% |
| October 2021 | $253M | $660M | +161% |
| November 2021 | $625M | $842M | +35% |

*As of 1 Dec 2021* *Sources: DefiLlama, Crypto.com Research*

As for Wonderland and KlimaDAO, they are forks of OlympusDAO and launched much later (2 September 2021 and 18 October 2021 respectively). Riding on OlympusDAO's coattails, they also experienced meteoric rises in October 2021.

**From the case studies above, we note that September to October 2021 are important months to watch out for when analysing the effect of DeFi 2.0 on DeFi 1.0 protocols.** For the earlier months in 2021, DeFi 2.0 had not gained significant traction yet, or in some cases, hadn't even started (like KlimaDAO, Wonderland). Hence, during our analysis of DeFi 1.0, we will place more emphasis on the months of September and October 2021.

# 2.2 Borrowing & Lending Protocols

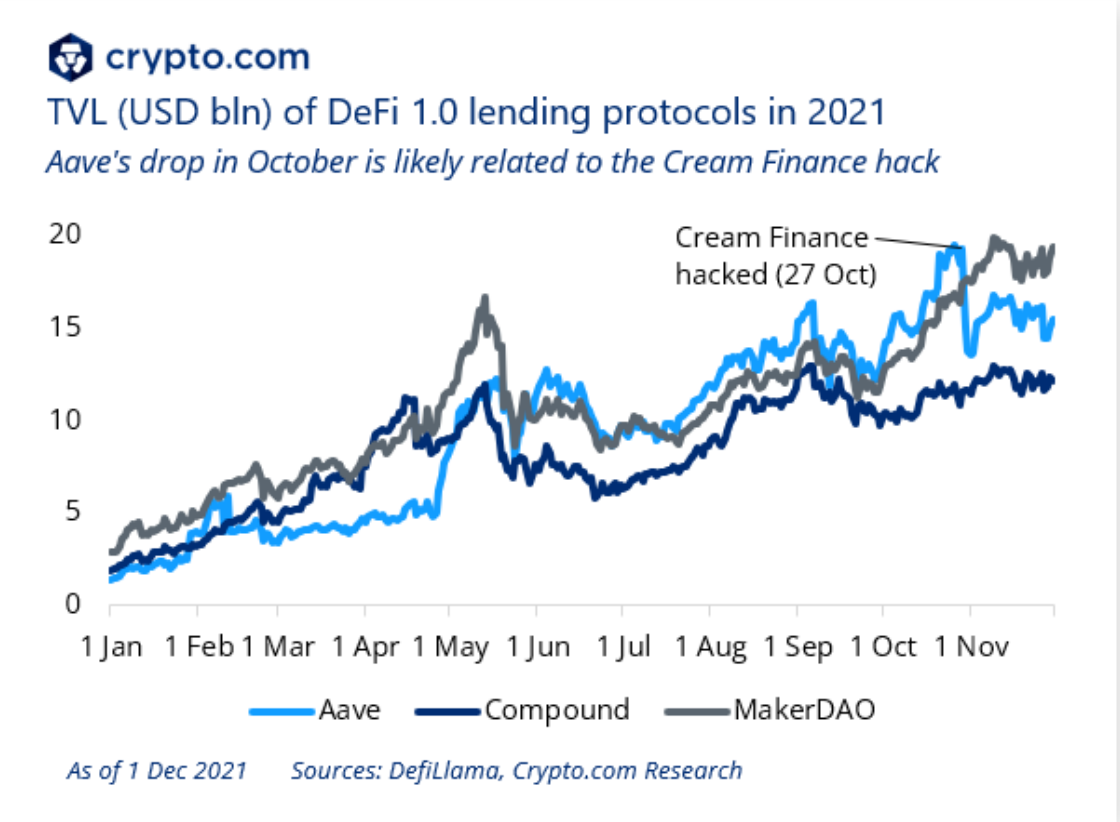
**Borrowing and lending protocols allow users to earn interest on deposits, as well as borrow various crypto assets.** MakerDAO is also responsible for regulating the Dai stablecoin.

## Total Value Locked

We observe that the TVL of these DeFi protocols all increased in the month of October, with the notable exception of Aave. **Aave experienced a sharp drop in TVL, from $19.2B on 27 October to $13.6B on 1 November, a decrease of 29% over just five days.**

**Aave's drop in TVL during October is likely not due to DeFi 2.0 taking away market share, but rather related to Cream Finance's hack on 27 October.** Following the hack, Yearn founder Andre Cronje tweeted that Aave could be vulnerable to the same risks that affected Cream Finance.

Although Aave hasn't been hacked, this likely shook the confidence of some investors who withdrew their deposits. Tron CEO Justin Sun alone withdrew $4.2 billion from Aave shortly after the Cream Finance hack.




## Outstanding Loans

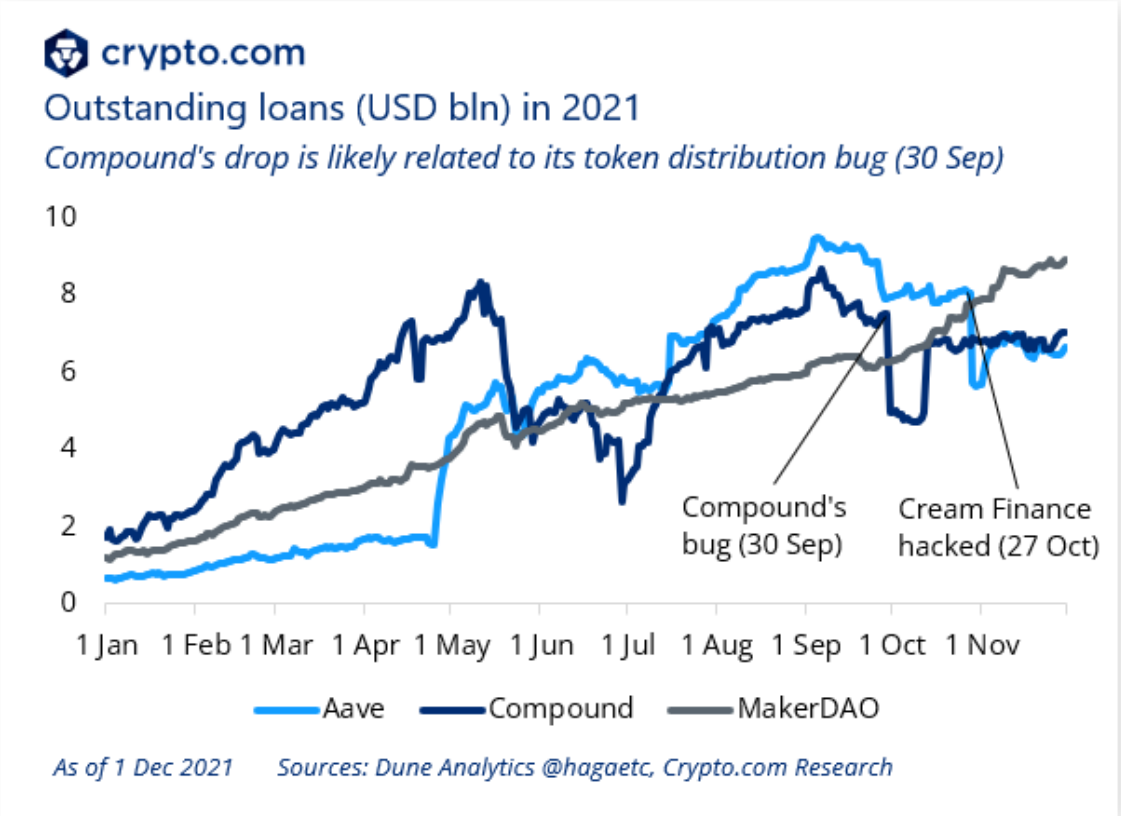
**Similar to banks, DeFi lending protocols make money via the interest rate paid on loans.** Hence, the amount of outstanding loans is an important metric for these protocols.

We observe that Compound and Aave did experience sharp drops in the amount of outstanding loans in the months of September and October 2021.

**Aave's drop in outstanding loans from $8.09B (27 October) to $5.65B (30 October) is likely related to the Cream Finance hack, as explained in the previous section.**

Meanwhile, on 30 September 2021, Compound experienced a token distribution bug that mistakenly rewarded users with $70M in tokens. The founder of Compound, Robert Leshner, has pleaded for users to return the tokens. As of 3 October, 117,000 COMP tokens, or $38.7 million, had been returned.

**Hence, it is likely that Compound's drop in outstanding loans from $7.54B (29 September) to $4.93B (3 October) is due to the token distribution bug.** Users may have felt uncomfortable and closed their positions in Compound, hence resulting in the drop in outstanding loans.




## Daily Unique Borrowers

**There did not seem to be any significant change in the number of daily unique borrowers during the critical months of September to October 2021.** In the stacked bar chart below, we see that there are daily fluctuations but no major upwards or downwards trends during September to October.

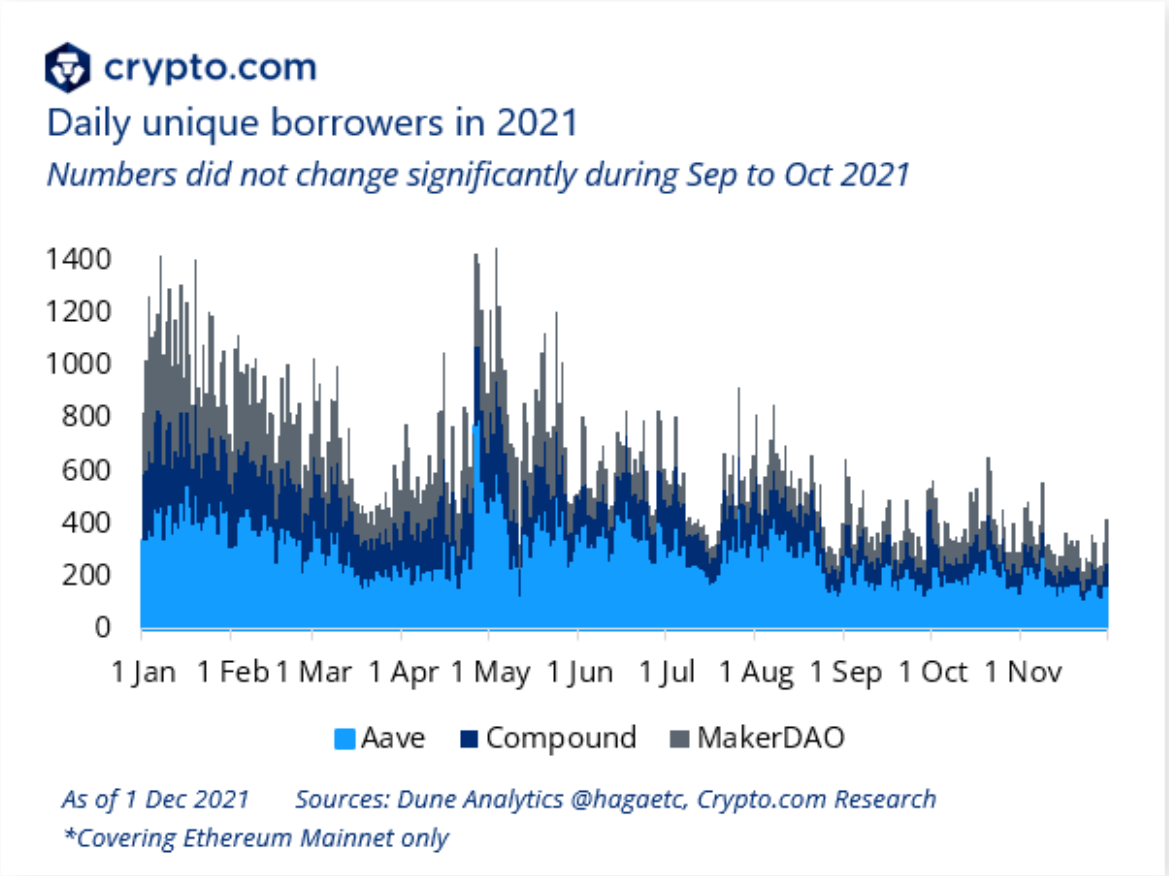
**The number of unique borrowers on 1 September were 281, 115, 248 for Aave, Compound and MakerDAO respectively (adding up to a total of 644).** On 1 November, the numbers fell to a total of 327, with the decrease likely due to the 27 October Cream Finance hack. By 2 November, the numbers had already recovered to a total of 462.

### Unique Borrowers in 2021

| Date | Aave | Compound | MakerDAO | Total |
|---|---|---|---|---|
| 1 Sep | 281 | 115 | 248 | 644 |
| 1 Oct | 233 | 111 | 217 | 561 |

| | | | | |
|---|---|---|---|---|
| 1 Nov | 167 | 73 | 87 | 327 |
| 2 Nov | 236 | 89 | 137 | 462 |

*As of 1 Dec 2021* *Source: Dune Analytics @hagaetc, Crypto.com Research*




**We conclude that it does not seem that DeFi 2.0 had any significant effect on the number of unique daily borrowers of DeFi 1.0 borrowing and lending protocols.**

# 2.3 Decentralised Exchanges (DEXes)

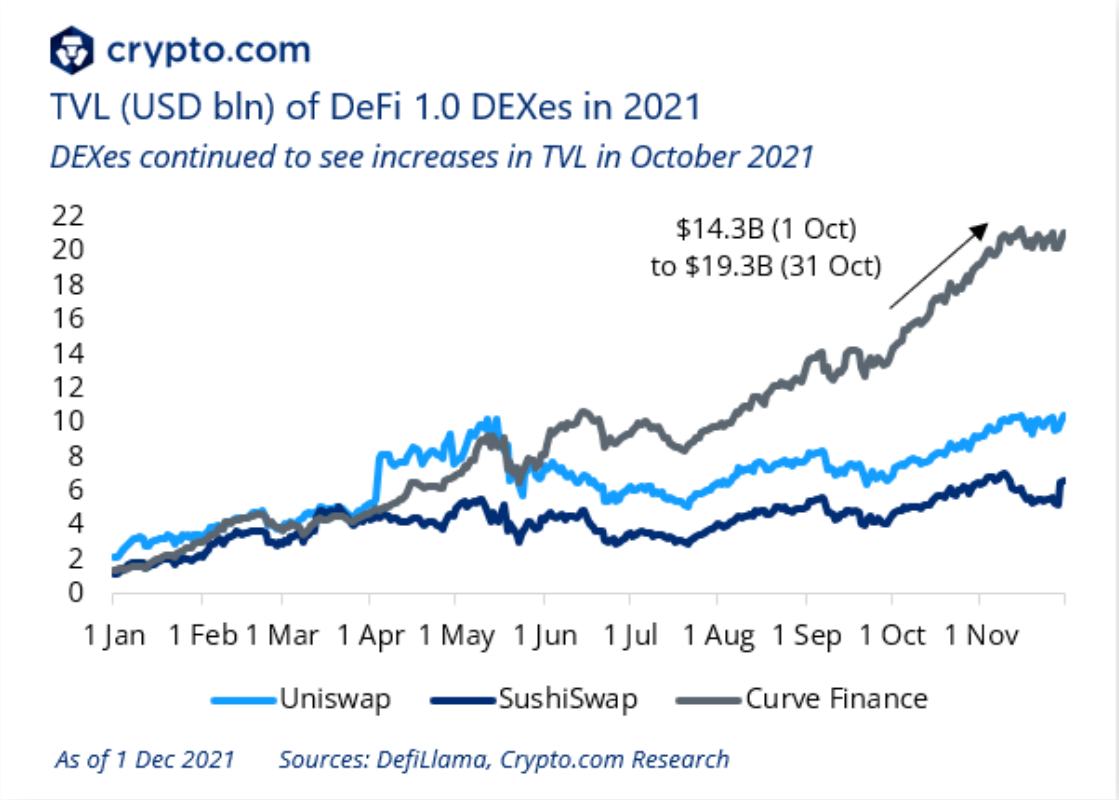
DEXes allow users to swap various cryptocurrencies without the need for an intermediary. Most DEXes are also Automated Market Makers (AMMs), meaning that they rely on a mathematical formula to price crypto assets instead of an order book.

Uniswap is one of the pioneering DEXes, having launched in November 2018. Sushiswap is a successful Uniswap fork that launched in August 2020. Curve

Finance also launched in August 2020, and is well known for specialising in stablecoin liquidity pools with low slippage.

## Total Value Locked

**The TVL of DEXes did decrease slightly in September 2021.** For example, Uniswap's TVL fell 15% from $7.96B on 1 September to $6.77B on 30 September. **However, this is likely due to the general market dip during the same period.** For example, the price of Ether (ETH) fell 17% from $3440 to $2855 during the same period of 1 to 30 September 2021.




**The TVL of DEXes continued to see good increases in October 2021, which is also the period of rapid rise of DeFi 2.0.** For example, Curve's TVL increased 35%, from $14.3B (1 October) to $19.3B (31 October). Uniswap's TVL also saw an increase of 32%, from $6.94B (1 October) to $9.16B (31 October). This is likely due to the Uptober effect and also Plan B's bullish Bitcoin forecast.

**We conclude that the TVL of DeFi 1.0 DEXes were not significantly affected by the rise of DeFi 2.0.** We think the reason could be that DeFi 2.0 protocols mainly hold their own liquidity and not other unrelated liquidity provider (LP) tokens. **Thus, DeFi 2.0 protocols are not direct competitors of DEXes.** For example, on 1 December 2021, the liquidity holdings of OlympusDAO consist of OHM-related pairs, namely OHM-DAI ($415M), OHM-ETH ($143M), OHM-LUSD ($86M),

OHM-FRAX ($38M) and OHM-LOBI ($23M). **DEXes have many other liquidity pairs that are unrelated to OHM, for example, ETH-USDC ($387M TVL on Uniswap as of 1 December 2021).**

## Trading Volume

**Trading volume is an important metric for DEXes, since DEXes make profits by charging a fee for every trade made.** For example, Uniswap charges a 0.30% fee for most trading pairs, though there are also 0.05% and 1% fee tiers. SushiSwap also charges a 0.30% fee, with 0.25% going to liquidity providers and 0.05% going to xSushi holders. Curve Finance charges a very low fee of 0.04%, of which 50% goes to liquidity providers and 50% to veCRV holders.


**From the chart, we can see that the trading volume fluctuates quite a lot daily, but there is a clear uptrend for Uniswap from September to November 2021.** For example, Uniswap daily trading volume increased 32% from $1.67B on 1 October to $2.21B on 31 October 2021.

SushiSwap daily trading volume also increased by 42%, from $0.38B to $0.54B during the same period of 1 to 31 October 2021.

For Curve Finance, there is a drop of 50%, from $0.30B to $0.15B. However, the drop is very temporary as the daily trading volume recovered to $0.35B just a few days later, on 5 November 2021.

**Daily Trading Volume in 2021**

| DEX | 1 October | 31 October | Change (%) |
|---|---|---|---|
| Uniswap | $1.67B | $2.21B | +32% |
| SushiSwap | $0.38B | $0.54B | +42% |
| Curve Finance | $0.30B | $0.15B | -50% |

*As of 1 Dec 2021* *Sources: Dune Analytics @hagaetc, Crypto.com Research*

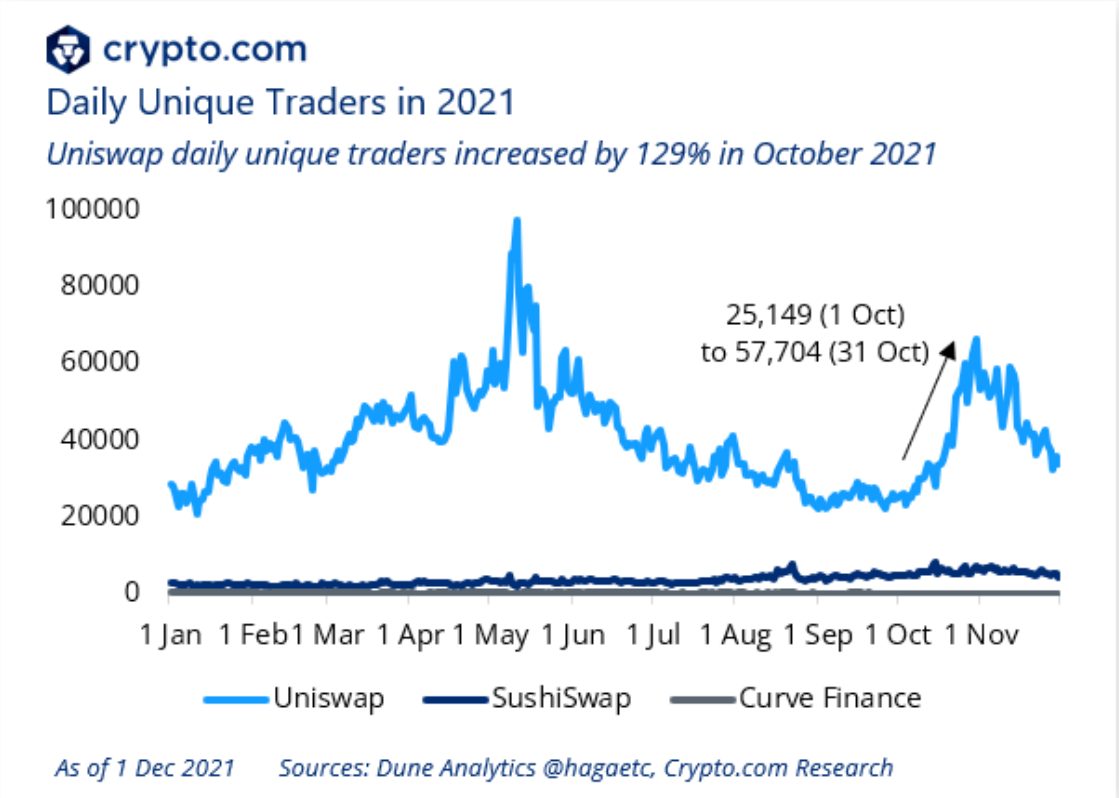
## Daily Unique Traders

Daily unique traders refer to the count of unique addresses that traded on the respective DEXes per day. We see that Uniswap is by far the most popular DEX among the three. **Uniswap daily unique traders increased by a staggering 129% in the month of October alone. SushiSwap daily unique traders also increased by 31% in October.**

**Daily Unique Traders of DEXes in October 2021**

| DEX | 1 October | 31 October | Change (%) |
|---|---|---|---|
| Uniswap | 25149 | 57704 | +129% |
| SushiSwap | 4866 | 6361 | +31% |
| Curve Finance | 129 | 93 | -28% |

*As of 1 Dec 2021* *Source: Dune Analytics @hagaetc, Crypto.com Research*




It may seem surprising that Curve Finance has so few daily unique traders (129 on 1 October and 93 on 31 October), considering that it has a very high TVL ($21.5B as of 1 December 2021). It could be due to Curve Finance having large yield optimisers using it, such as Yearn Finance, which contributes to the high TVL but only counts as one entity each. One of Yearn's main sources of revenue is Curve, with 41 of its 46 V2 vaults using a strategy involving CRV rewards. Yearn Finance's TVL alone is $6.05B as of 1 December 2021.

# 2.4 Yield Optimisers

Yield optimisers, as their name suggests, help users improve their DeFi yield rates. A major strategy of yield optimisers involves CRV tokens. **For example, in order to boost yields, both Yearn Finance and Convex Finance lock significant amounts of CRV tokens in Curve Finance's vesting escrow.** Harvest Finance is another type of yield optimiser that seeks to automatically search out the newest DeFi platforms with the highest yield. By pooling funds together, Harvest Finance can also save on gas fees.

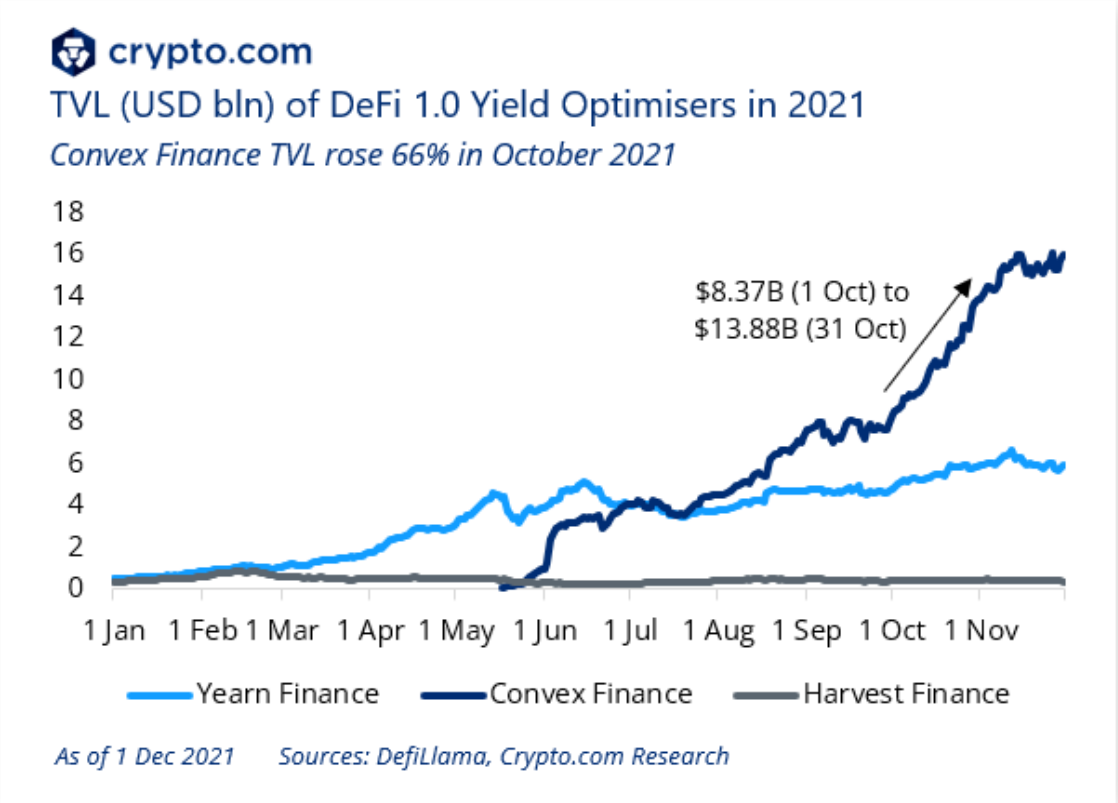
## Total Value Locked

**We observe that the TVL of yield optimisers continued to rise in October 2021, with Convex Finance's TVL rising an impressive 66% from $8.37B (1 October) to $13.88B (31 October).**

Convex (launched on 17 May 2021) has managed to overtake Yearn (launched in February 2020), despite the latter having a much earlier head start. **The reasons for this include Convex's better economics, including higher yields and no management fee.**

For example, as of 20 December 2021, Convex offers 6.47% APR (equivalent to 6.67% APY if compounded monthly) on the **Curve stETH (crvSTETH)** pool, while Yearn only gives 3.08% APY. For another popular pool **Curve MIM (crvMIM)**, Convex offers 16.65% APR (equivalent to 17.98% APY if compounded monthly) while Yearn only gives 14.50% APY.

**Convex also has a lower fee structure compared to Yearn.** Convex charges a 16% total fee, while Yearn charges a 2% management fee and a 20% performance fee.



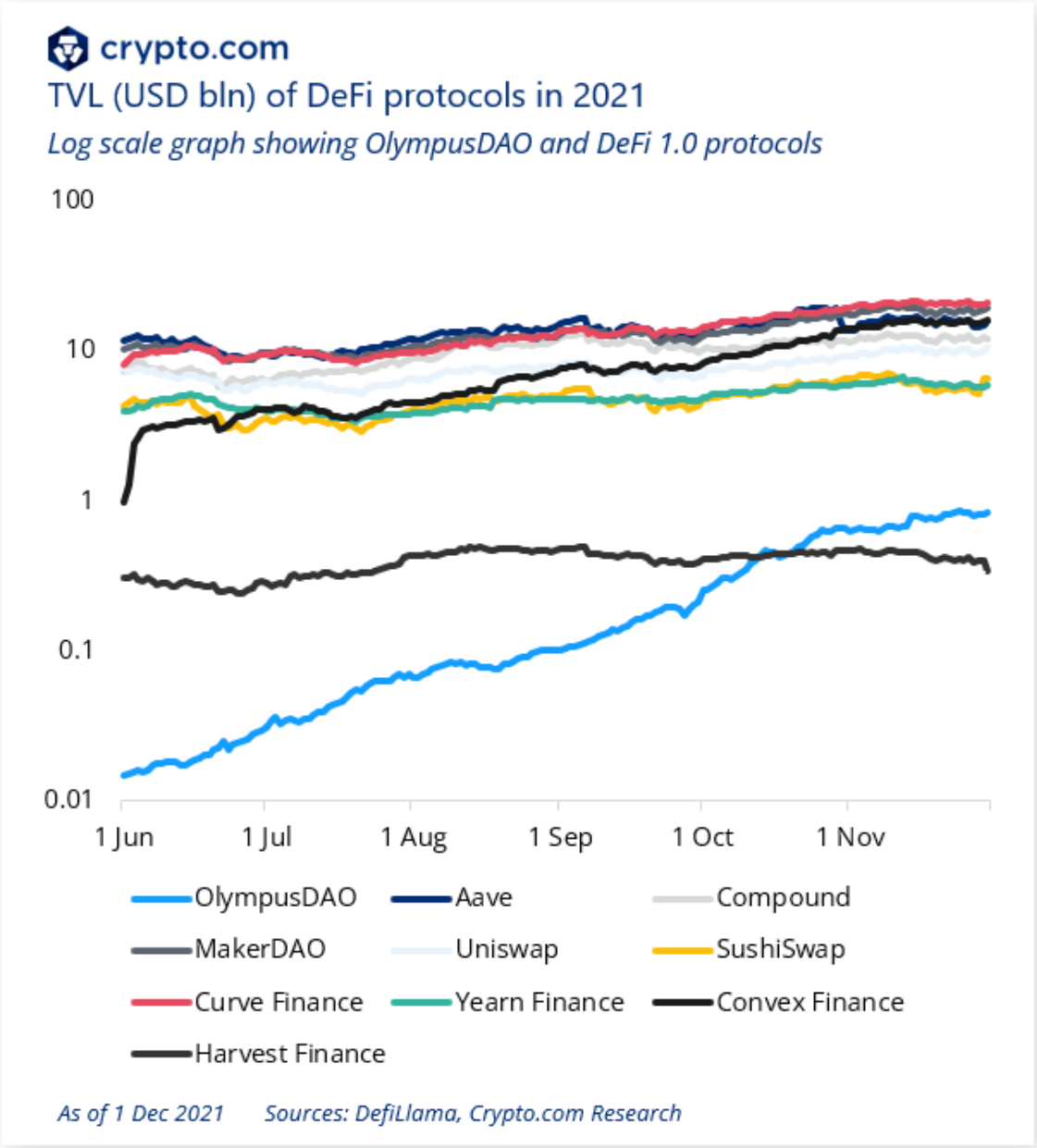
# 2.5 DeFi Governance Tokens (Compare and Contrast)

| Governance Token | Logo | Market Cap | Circulating Supply | Total Supply | Buyback/Burn | Fees Charged by Protocol | Staking APR | How Protocol Retains Liquidity |
|---|---|---|---|---|---|---|---|---|
| OlympusDAO (OHM) | | $2.87B | 6,359,150 | 7,127,864 | Buyback & burn OHM when 1 OHM < 1 DAI | - | 5114% (APY) | Protocol-Owned Liquidity |
| Wonderland (TIME) | | $0.83B | 228,574 | 750,846 | Buyback and burn TIME when 1 TIME < 1 MIM | - | 73069% (APY) | Protocol-Owned Liquidity |
| Convex Finance (CVX) | | $1.36B | 42,422,300 | 100,000,000 | - | 16% total fee on all CRV revenue | 4.14% | Gives users Curve boosted rewards |
| Aave (AAVE) | | $2.46B | 13,441,515 | 16,000,000 | 80% of fees collected are used to buyback & burn AAVE. | 0.09% flash loan fee; 0.00001% origination fee | 6.8% | Gives out native token as reward |
| Compound (COMP) | | $1.25B | 6,281,962 | 10,000,000 | - | Community votes on interest rate model | - | Gives out native token as reward |
| MakerDAO (MKR) | | $2.23B | 901,310 | 987,306 | 12,789.65 MKR burnt so far (1.3% of total supply) | Stability fee for each vault type varies | - | Allows users to generate DAI by providing collateral |
| Uniswap (UNI) | | $6.99B | 453,008,945 | 1,000,000,000 | - | Three fee levels: 0.05%, 0.30%, and 1% | - | Users can earn fees from its high volume |
| SushiSwap (SUSHI) | | $1.10B | 192,789,255 | 250,000,000 | - | 0.3% | 13.57% | Gives out native token as reward |
| Curve Finance (CRV) | | $1.96B | 391,958,099 | 3,303,030,299 | - | 0.04% | 5.88% (APY) | Gives out native token as reward |
| Yearn Finance (YFI) | | $1.18B | 35,692 | 36,666 | Recent buyback of $7,526,343 worth of YFI | 2% management fee; 20% performance fee | 10.42% | Gives users Curve boosted rewards |

*As of 22 Dec 2021* *Sources: CoinGecko, SnowTrace, Crypto.com Research*

# 3. Correlation Analysis

**In this section, we analyse the correlation of the TVLs of OlympusDAO (DeFi 2.0 representative) and other DeFi 1.0 protocols.** The time period of the TVL time series is set to be from 1 June 2021 to 30 November 2021.




**If DeFi 2.0 were taking away market share from DeFi 1.0, we would expect to see negative correlation coefficients between DeFi 2.0 protocols and the respective DeFi 1.0 protocols.** On the other hand, if we see positive correlation coefficients, then it means that DeFi 1.0 is rising together with DeFi 2.0. We remark

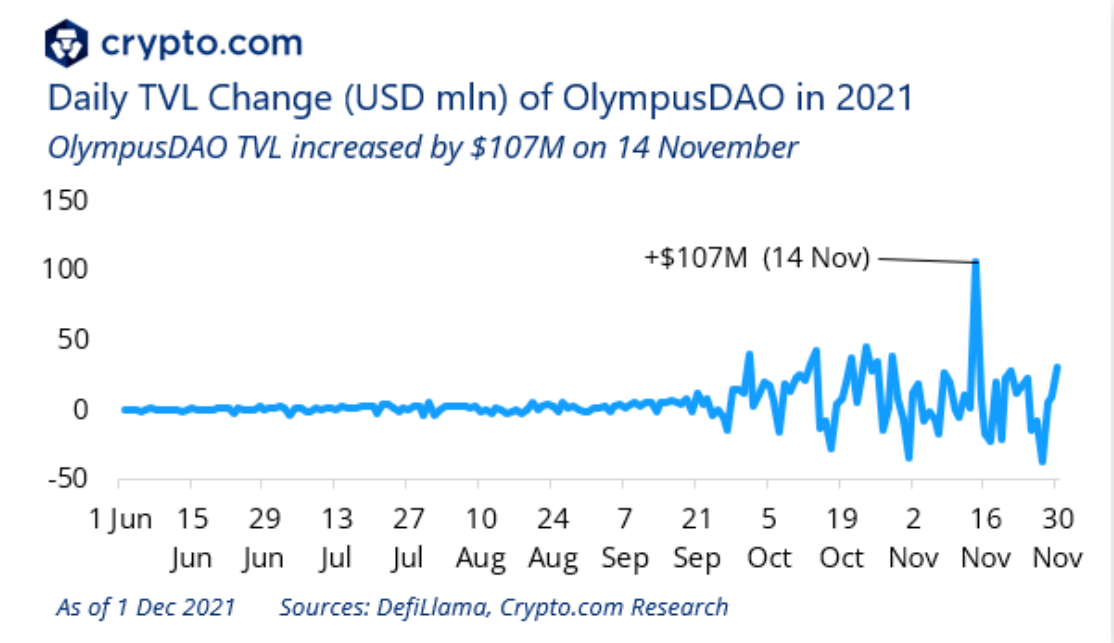
that correlation does not imply causation. Hence our correlation analysis can only detect associations but cannot deduce cause-and-effect relationships between DeFi 1.0 and DeFi 2.0.

We will conduct correlation analysis using the daily TVL change time series.

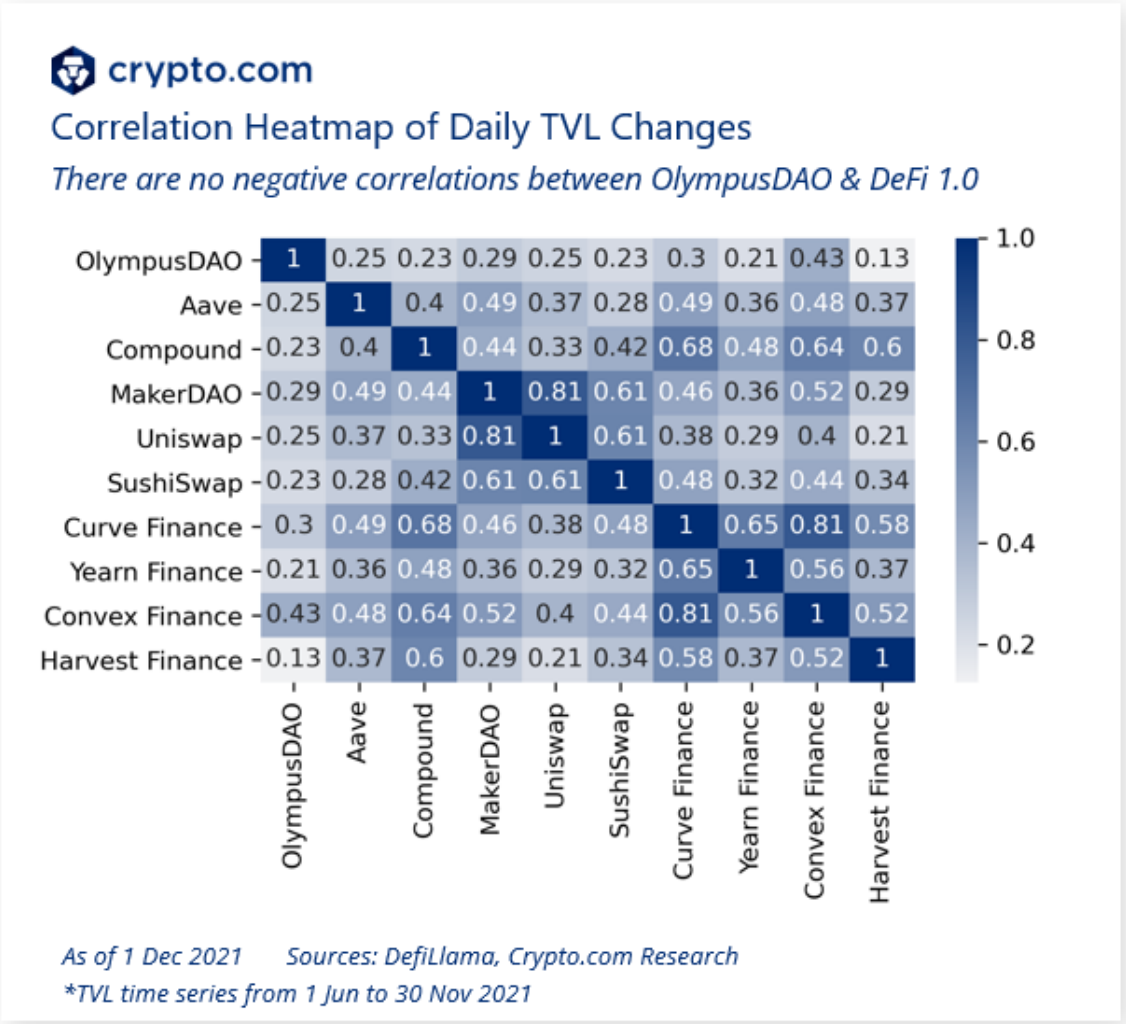
## Daily TVL Change Correlation Analysis

A trend exists when there is a long-term increase or decrease in the data. It is known that the presence of trends in time series may produce strong but spurious relationships. **In the cryptocurrency context, a trend could be a general rise in crypto prices across the market, which may make TVL time series appear more correlated than they actually are.**

To remove linear trends, a method called 'first difference' can be applied. If $y_t$ denotes the value of the time series at time $t$, then the first difference at time $t$ is equal to $y_t - y_{t-1}$. **In the context of TVL, the first difference is simply the daily TVL change of the current day compared to the previous day.**




In the above example chart of OlympusDAO, we see that using the daily TVL change has removed the linear trend, which should be beneficial for correlation analysis.




We observe that the correlation coefficients between OlympusDAO and DeFi 1.0 protocols are typically low (below 0.3 with the exception of Convex Finance) but never negative. We remark that some authors also classify Convex Finance as 'DeFi 1.5'; this may explain why it has a higher-than-usual correlation with OlympusDAO (DeFi 2.0).

To summarise, no negative coefficients were observed for our correlation analysis (daily TVL change). **Hence, we conclude that there is no evidence that OlympusDAO (the main representative of DeFi 2.0) is taking away market share from DeFi 1.0 protocols.**

# 4. Conclusion

In this report, we focused on studying the interplay between DeFi 2.0 and DeFi 1.0. We studied major players in DeFi 2.0 (OlympusDAO and its forks like KlimaDAO, Wonderland) and also traditional DeFi 1.0 protocols from three different categories (lending protocols, DEXes, and yield optimisers).

Due to the tremendous success of DeFi 2.0, it is natural to wonder if DeFi 2.0 is taking away market share from DeFi 1.0. Our analysis of various on-chain metrics found that DeFi 1.0 was generally rising together with DeFi 2.0. **We did not find any evidence of negative competition occurring between DeFi 2.0 and DeFi 1.0**.

**The DeFi space is growing rapidly, rising from a TVL of $630.26M on 1 January 2020 to $275.54B on 1 December 2021**. This is a very impressive 437-fold increase over two years.

**The DeFi market is far from saturated.** The total market capitalisation of the U.S. stock market was $48.57 trillion on 30 September 2021. On 1 December 2021, the total assets of all commercial banks in the United States added up to $22.78 trillion. Since the total TVL of DeFi has not even reached $0.3 trillion, DeFi is still in a nascent stage of development with plenty of room for growth.

Australian Senator and Minister Jane Hume recently said, "If the last 20 or 30 years have taught us anything, it's that all innovation begins as disruption and ends as a household name. **Decentralised finance underpinned by blockchain technology will present incredible opportunities.**"

**We strongly believe that the DeFi space has room to accommodate DeFi 1.0, DeFi 2.0, and even future developments.**

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