

Valuing Uniswap - The World's Largest Decentralized Exchange

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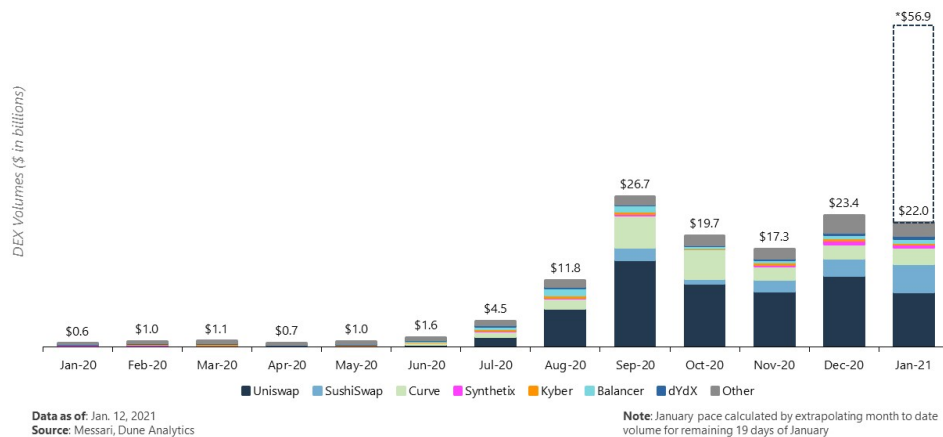
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Decentralized Exchange (DEX) volumes have been soaring to start 2021. At their current pace, monthly DEX volumes could blow past their previous record set in September 2020, reaching more than \$55 billion. With clear product-market fit, accelerating volumes, and significant earnings potential, DEXs – and in particular automated market makers – have quickly become the most successful DeFi protocols to date.

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Monthly DEX Volumes

DEXs are off to a hot start in 2021 with Jan volumes on pace to smash their previous monthly record set in Sept, potentially reaching \$55+ billion



But how valuable are DEXs actually?

In our first piece in a series on DEX valuations, we look at Uniswap - the industry leader to provide readers with a framework for how to think about valuation.

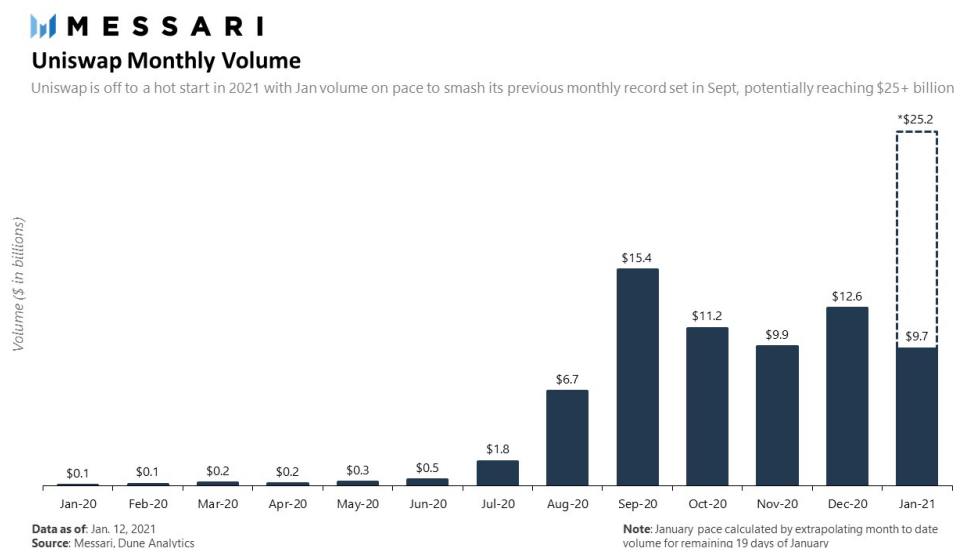
Uniswap: Overview

Uniswap is a decentralized exchange built on Ethereum that utilizes an automated market making (AMM) system rather than a traditional order-book. Instead of matching individual buy and sell orders, users can pool together two assets that are then traded against. The price is determined based on the ratio between the two assets. On the platform, users can permissionlessly swap tokens, and create (and add tokens to) liquidity pools to earn swap fees.

In a nutshell, Uniswap coordinates a decentralized exchange by providing the rules and incentives to get users to supply their capital in order to make markets for any asset on Ethereum.

The product of this is a globally accessible, always available, decentralized exchange with programmatic liquidity.

Over the past six months, Uniswap's exchange volumes have grown to rival many of its centralized counterparts. This was in spite of Uniswap's current inability to compete on things such as latency, feature-completeness (limit orders, stop orders, etc), and liquidity for some of the larger cryptoassets.



What makes Uniswap competitive are primarily two things.

The first is that it bootstraps liquidity for the long-tail of cryptoassets. Typically these assets are not listed on centralized exchanges and, if they are, typically have very little liquidity. This problem exists because there is little incentive for professional market makers to provide liquidity on very thinly traded assets. However, with Uniswap, anyone can be a market maker by depositing assets into a pool and earning fees based on the amount of trading activity. This allows liquidity to be bootstrapped for these assets virtually from the moment they launch so long as someone is willing to create a pool.

The second reason is that Uniswap is non-custodial and offers a far superior onboarding experience. It can sometimes take days and multiple identification checks later before you're onboarded to a centralized exchange. Uniswap allows you to onboard in just seconds by connecting your wallet.

The first version (Uniswap v1) has been live since November 2018 while the second version (Uniswap v2) has been live since May 2020. The primary difference is that Uniswap v1 only enables users to pool liquidity between ETH and other ERC-20 tokens, while v2 enables the pooling of any two ERC-20 tokens. Uniswap v1 is fully functional but is no longer under active development. It **does not** have a native token or a platform fee, unlike v2 which charges a **flat fee of 30bps** (or 0.3%). This fee is split by liquidity providers proportional to their contribution to the liquidity reserves.

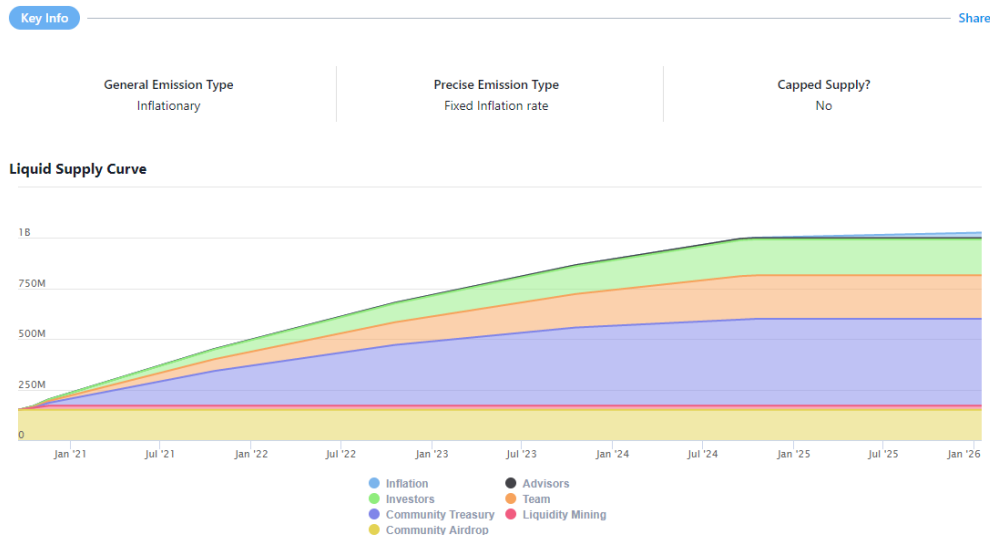
The third version (V3) is estimated to launch sometime in Q1'21E. It seeks to be more scalable, capital-efficient, and may also have a more optimal or variable fee model than the flat rate that v2 charges. However, the upgrade has been tightly under wraps as the DeFi community awaits its launch.

Uni Token

On September 16, 2020, Uniswap announced its token and revealed that 150 million UNI (15% of the UNI supply) would be distributed retroactively to a variety of Uniswap stakeholders including users, liquidity providers, and even SOCKS redeemers/holders. Approximately 49 million UNI went to all 49,192 historical LPs using a formula that accounted for LP liquidity on a per-second basis since the deployment of Uniswap v1 and ensured that rewards were weighted towards LPs that provided liquidity when total liquidity was low. Approximately 101 million UNI (currently worth ~\$420 million) went to all 251,534 user addresses (400 UNI each) that interacted with either Uniswap v1 or v2. And 220,000 UNI went to all 220 SOCKS holders/redeemers. Within hours of UNI's launch, [13,000 users had claimed](#) their free UNI and large exchanges like Binance and OKEx had [listed](#) the token. At the time of writing, it has a market cap of \$1.8 billion.

At genesis, one billion UNI tokens were minted, which are released over a four year period. Of the one billion, 60% was allocated to community members. The remaining tokens have a four year vesting period with 21.266% allocated to team members, 18.044% to investors, and 0.69% to advisors. After four years, the supply will inflate at 2% per year.

The supply schedule is shown below:



Uni Token Usage

UNI is predominantly a governance token. Although the Uniswap team owns a substantial portion of the token supply, the team stated in a [blog](#) post that they "will not participate directly in governance for the foreseeable future". This became somewhat problematic given that the initial governance parameters mandated that 1% of UNI total supply (delegation is accepted) would be required to submit a governance proposal, and that, 4% of UNI supply would be required to vote "yes" to reach quorum, with a seven day voting period and two-day timelock delay on execution. The result is that Uniswap's governance system has been ineffective out the gate as the community struggled to reach quorums.

Other uses of UNI token include ownership of UNI's community treasury, uniswap.eth's ENS domain name and Uniswap Default List (tokens.uniswap.eth). It also gives ownership of the protocol [fee switch](#) which would allocate 5bps (of the 30bps fees) to UNI holders. This

would mean that Liquidity Provider's reward would decrease to 25bps.

Valuation Methodology

We value UNI as if the fee switch has been turned on and UNI is rewarding token holders. We use various methods:

- Dividend Discount Model (DDM)
- Discounted Cash Flow (DCF) analysis
- Price to Sales (P/S) Multiples
- Dividend Yield Comparables

In our [model](#), we have a Base Case of projected volumes. We then use a Bull Case and Bear Case for the platform's cost of equity to project the low and high-end of UNI's valuations.

- **Long Term or Terminal Growth Rate:** We estimate the future volume on Uniswap v2 in the model and place a 5% terminal growth rate. While [GDP growth](#) is 2-3%, we believe that Money Supply (M2) is a better indicator of volumes. The latest data of November 2020 showed G20 Countries' M2 supply has increased by an average of [0.97% a month](#) (12% annualized). Given this is a growing industry (but more competition will come in) we believe a 5% long term Uniswap volume growth rate is likely. You can edit the growth rate to your own assumptions in the [model](#) or you can see our sensitivity analysis on how various growth rates affect valuations.
- **Cost of Equity:** We also estimate UNI's cost of equity (COE) based on the yield of other decentralized finance (DeFi) platforms. The COE represents the cost of doing business, or the return Liquidity Providers (LPs) expect in return for the risk of providing liquidity. LPs act like 'money lenders' to the platform and expect a rate of return. To estimate the COE, we look at the outstanding borrowing yields on other DeFi platforms Cream Finance, Compound Finance, and Aave v2.

Another way to think about this is to reframe Uniswap as an entity that operates on 100% debt. If Uniswap was one entity, what would it cost them to borrow off other platforms to fund their liquidity pools? The higher the COE, the less efficient UNI will be at generating value for token holders.

Below is our range of COE for the platform:



UNI's Cost of Equity is Based on DeFi Rates

Borrow Annual Percentage Yield (APY) and Annual Percentage Rate (APR) by platform

	Borrow APY (%)	Variable Borrow APR
Cream Finance		
Average	12.77%	
Weighted Average of Borrow Liquidity	9.10%	
Compound Finance		
Average	8.17%	
Weighted Average of Borrow Liquidity	3.56%	
Aave v2		
Average	6.08%	10.79%
Weighted Average of Total Borrowed	4.19%	8.79%
Overall Average	7.93%	
Maximum	12.77%	
Minimum	3.56%	

Data as of: January 5, 2021
Source: Bloomberg, Messari

Valuation Method: Dividend Discount Model (DDM)

A DDM is mostly used to value equities whose core feature is to payout a dividend, such as a Real Estate Investment Trust (REIT) that owns investment properties and passes on almost all its rent payments to shareholders. The DDM calculates the value of the sum of all future 'dividend' payments discounted to present value, ignoring short term market dynamics.

For the discount rate, we use the simple average of the three DeFi platforms, giving us 7.9% in the Bull Case and the maximum of 12.8% to reflect the Bear Case of valuations. Using this range of COE, we get a valuation between \$7.0 and \$18.6 per UNI for September 2021E.

Below is a sensitivity analysis on September-2021E valuations for various COE and Long Term Growth Rates.



Sensitivity Analysis: Growth Rate vs COE

UNI Token September 2021E Price based on various long term growth rates and cost of equity

		Long Term Growth Rate									
		1.0%	2.0%	3.0%	4.0%	5.0%	6.0%	7.0%	8.0%	9.0%	10.0%
Cost of Equity	5.0%	\$13.6	\$18.2	\$27.3	\$54.6						
	7.5%	8.4	9.9	12.1	15.6	21.8	36.4	109.2			
	10.0%	6.1	6.8	7.8	9.1	10.9	13.6	18.2	27.3	54.6	
	12.5%	4.7	5.2	5.7	6.4	7.3	8.4	9.9	12.1	15.6	21.8
	15.0%	3.9	4.2	4.5	5.0	5.5	6.1	6.8	7.8	9.1	10.9
	17.5%	3.3	3.5	3.8	4.0	4.4	4.7	5.2	5.7	6.4	7.3
	20.0%	2.9	3.0	3.2	3.4	3.6	3.9	4.2	4.5	5.0	5.5

Source: Bloomberg, Messari

Valuation Method: Discounted Cash Flow (DCF) Analysis

Compared to the DDM, a DCF analysis also determines an investment value based on future cash flows but incorporates short term market dynamics. In the long term, the valuations from DCF and DDM will converge.

While valuations typically take the weighted average cost of capital (WACC) as the discount

rate, we liken Uniswap to a business entity that has 100% debt (temporarily 'borrowing' off LPs) and no taxes. Therefore its discount rate is equal to the cost of borrowing off other DeFi platforms.

As a result, the September 2021E DCF valuations range from \$6.90 to \$18.20.

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Average UNI Valuation is \$12.7

Valuation as of September 2021

			Sep-20	Sep-21	Sep-22	Sep-23	Sep-24	Sep-25	Sep-26
UNI Price: Dividend Discount Model	LongTerm Growth	Cost of Equity							
Bull Case	5.0%	7.9%	\$13.8	\$18.6	\$21.6	\$22.9	\$24.3	\$25.7	\$26.5
Bear Case	5.0%	12.8%	5.2	7.0	8.1	8.6	9.2	9.7	10.0
UNI Price: Discounted Cash Flow	Terminal Growth	Cost of Equity							
Bull Case	5.0%	7.9%	16.9	18.2	19.3	20.3	21.2	22.3	23.3
Bear Case	5.0%	12.8%	6.2	6.9	7.4	7.8	8.2	8.5	8.9
Average of DDM & DCF			\$10.5	\$12.7	\$14.1	\$14.9	\$15.7	\$16.5	\$17.2

Source: Messari

Note: Dividend payout is illustrative only as UNI does not currently payout dividends.

Of course the challenge with DDM and DCF is that it is extremely difficult to accurately predict the cash flows of what is essentially a startup. Thus we also look to relative valuation.

Listed Equities Comparables

Below we look at comparables to listed equities, such as the Singapore Exchange (SGX SP) or the Intercontinental Exchange (ICE US). Although UNI is not equity, we can find parallels with governance tokens and equity owing to the following:

- Financials: Assuming the fee switch goes on UNI will distribute a portion of protocol fees to token holders, and Uniswap's smart contract ensures that fees are distributed to LPs and token holders programmatically. . Therefore, even without legal recourse, UNI provides the same outcome.
- Governance: While token holders don't have legal ownership of Uniswap, given its decentralized nature, UNI does provide governance rights over the Uniswap protocol. Once again this is ensured through Uniswap's smart contracts.

Price to Sales Multiple

We look at global exchanges as a set of comparables for UNI. For the sales metric we assume all fees to liquidity providers are revenue with fees to token holders being considered residual income. As of January 13, 2021, they trade at a median Price / Sales (P/S) multiple of 11.5x and an average of 21.5x. We use both multiples for our Bear and Bull Case respectively.

Dividend Yield

In the same set of comparables, we look at their Dividend Yield. Assuming UNI's fee switch is on, comparable median and average dividend yields are at 1.9% and 2.4% respectively. Again, we use these percentages for our Bear and Bull Case respectively.



UNI Comparables to Listed Equities

Comparables for Price / Sales and Dividend Yields

	Price / Sales	Dividend Yield	Total (USD)	FY2021E Total	Bull Case	Bear Case
Uniswap	3.7x	8.0%	\$1,790			
Traditional Exchanges						
Hong Kong Exchange (388 HK)	36.4x	1.5%	\$73,974			
Intercontinental Exchange (ICE US)	11.5x	1.0%	66,153			
Japan Exchange (8697 JP)	11.0x	2.0%	13,716			
Singapore Exchange (SGX SP)	10.2x	3.1%	8,097			
Euronext (ENX FP)	7.6x	1.8%	7,630			
Moscow Exchange (MOEX RM)	7.4x	5.0%	4,861			
Crypto-Native Listed Comparables						
BC Technology Group (863 HK)	46.9x		774			
Galaxy Digital Holdings (GLXY CN)	18.8x		2,493			
Coinbase (Based on FTX Futures)	43.8x		70,417			
Exchanges (Median)	11.5x	1.9%				
Exchanges (Average)	21.5x	2.4%				
Target Price / Sales Multiple				\$444	21.5x	11.5x
UNI Fiscal Year Sept-2021 Valuation					\$29.35	\$15.63
Target Dividend Yield				136	2.4%	1.9%
UNI Fiscal Year Sept-2021 Valuation					\$17.50	\$22.40

Data as of: January 13, 2021
Source: Bloomberg, Messari

Note: Dividend payout is illustrative only as UNI does not currently payout dividends.

Uni Valuation

Finally, we value UNI based on the probability-weighted outcomes of each method. We've placed a lower weighting on the target P/S and Dividend Yield methods since comparing UNI to listed exchanges will take time. For September-2021E, we value UNI at \$14.4 per token. Based on January 13 2021 prices, UNI is priced at a -60% discount.



Average UNI Valuation is \$13.8

Probability-Weighted Valuation for September 2021E

	Fiscal Year Sep-21	Probability Weight
Dividend Discount Model		
Bull Case	\$18.6	20%
Bear Case	7.0	20%
Discounted Cash Flow		
Bull Case	18.2	20%
Bear Case	6.9	20%
Price to Sales		
Bull Case	19.1	5%
Bear Case	14.4	5%
Dividend Yield		
Bull Case	22.4	5%
Bear Case	17.5	5%
UNI Valuation	\$13.8	
Discount to Price (Last Price \$5.8)	(58%)	

Source: Messari

Note: Dividend payout is illustrative only as UNI does not currently payout dividends.

Valuation of Governance Control

We don't assign a valuation for governance control at this time. While the Uniswap team [said](#) it wants to bring in a "diverse and high-quality set of protocol delegates", famed developer Andre Cronje showed that even someone of his clout was [unsuccessful](#) in getting the 10 million votes required to be a [delegate](#). As other delegates are elected, it could be even [harder](#) to make proposals. This means that the utility of UNI as a governance token is muted until the circulating supply increases further over the next four years.

To mitigate these factors, UNI could have decreased the amount required to be a delegate (10 million UNI) to form a quorum (40 million UNI). However, there is no way to change that without the team exercising its voting power.

Furthermore, it's not entirely clear what the value of governance in and of itself is. Chris Burniske and Joel Monegro of Placeholder have made interesting [arguments](#) for the value of governance alone, in one case drawing an [analogy](#) to the rising amount of money it takes to win seats in the US congress. But the value of governance alone remains a fickle thing to value at the moment.

Therefore, we assign no valuation to governance until the community can exercise influence on the direction of UNI.

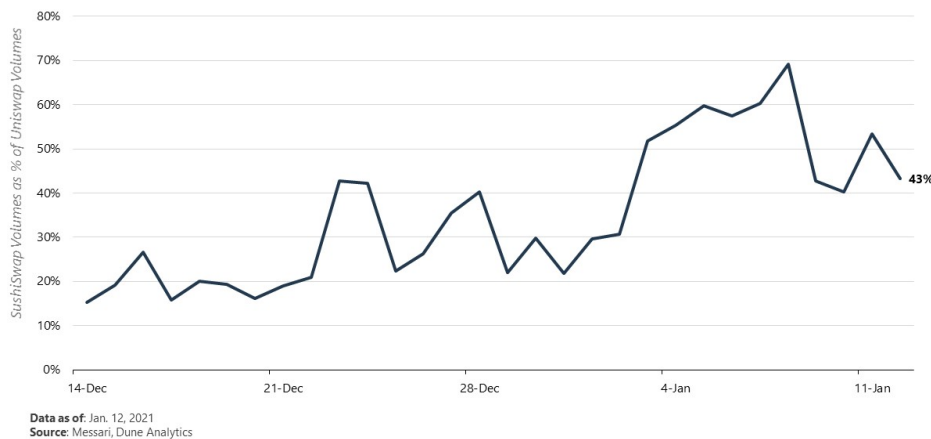
Risks

AMMs have arguably been the most successful protocols to come out of DeFi, both in terms of facilitating economic activity and generating fees. However, it's also one of the most competitive areas of DeFi. In particular, Uniswap has felt increasing pressure from SushiSwap - a fork of Uniswap that launched in August 2020 with its high profile [vampire mining attack](#) in which it attempted to steal Uniswap's liquidity and introduce a token that would be distributed more equitably among community members than a venture-backed token. Despite SushiSwap's early struggles surrounding its contentious launch and [controversial decisions](#) made by its initial founder, SushiSwap has reinvented itself and emerged as a serious competitor on the strength of a new leader, innovative new features, and merger with Yearn. SushiSwap has offered a more community-driven, grassroots alternative to Uniswap, which has attracted high profile contributors and resulted in surging volumes.

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SushiSwap Volumes as a Percentage of Uniswap Volumes

SushiSwap volumes relative to Uniswap are growing rapidly and recently reached a new high of 70%

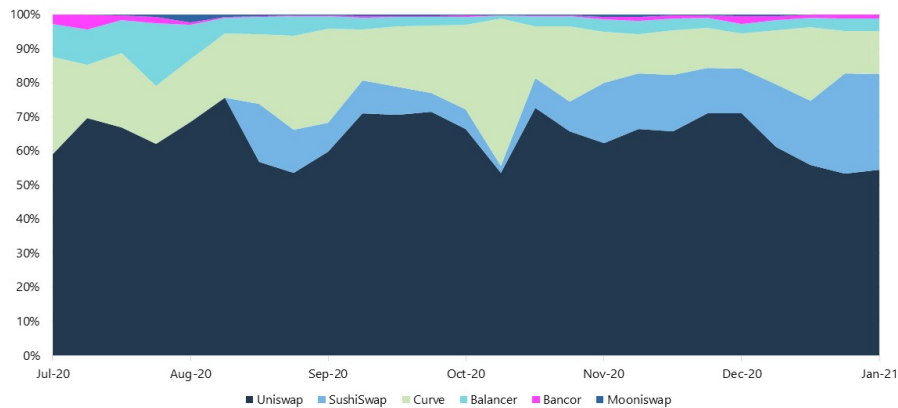


Uniswap now finds itself in the position of needing to deliver on the high expectations many have on its upcoming V3 launch which is supposed to introduce major improvements around capital efficiency, slippage, and speed. It will likely launch on Optimism by the end of Q1'21, which should scale Uniswap orders of magnitude and provide a significant leg up over its peers who don't quickly follow to layer-2. Competition is creeping up on Uniswap, but for now, the race is still Uniswap's to lose.



Market Share Among Automated Market Makers

Uniswap is the clear market leader in the AMM segment; however, recently SushiSwap has begun to eat into its market share



Data as of: Jan. 12, 2021
Source: Messari, Dune Analytics

Conclusion

Uniswap may not have intended on launching a token as soon as it did, but given the direction of DeFi as a sector, their hand was likely forced. Assuming the fee switch is on, we believe that UNI is currently trading below peers. The community has high expectations for Uniswap to deliver something special for V3 and it could be a game-changer, offering a more scalable, capital-efficient DEX.

Whether Uniswap is able to close this valuation gap may depend on its ability to stay ahead of its competition. Still, it maintains dominance in the AMM space and its valuation will set the tone for future projects.

Please edit the model to your own assumptions [here](#).

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