Risk Assessment - UNI Collateral Asset on FiRM

Useful Links

- Coingecko: https://www.coingecko.com/en/coins/uniswap
- Website: https://uniswap.org/
- Github: https://github.com/Uniswap
- Blog: https://uniswap.org/blog
- Twitter: https://twitter.com/Uniswap
- Twitter (Grants): https://twitter.com/uniswapgrants
- Twitter (DeFi Education Fund): https://twitter.com/fund_defi
- Main Discord: https://discord.com/invite/FCfyBSbCU5
- Bug Bounty: https://uniswap.org/bug-bounty
- Docs: https://docs.uniswap.org/
- Snapshot: https://snapshot.org/#/uniswap
- Forum: https://gov.uniswap.org/
- Prime Rating Report: https://www.prime.xyz/ratings/uniswap

Background

Formally established in 2018, Uniswap is one of the original decentralized exchanges/AMMs and currently is the largest DEX by total volume with coverage for Ethereum and four related L2's/side chains–Polygon, Optimism, Arbitrum, and Celo. While Uniswap's core contribution was it's novel introduction of a trustless, peer-to-peer exchange mechanism for ERC20 tokens, several new DEX competitors (i.e. Curve, Balancer, etc.) have emerged since and have been eroding a portion of Uniswap's market share. Despite this, Uniswap continues to dominate DEX trading activity. Over time, Uniswap has successfully implemented three versions of its dapp:

- Version 1 implemented Uniswap's initial concept with support for ERC20-ETH swaps;
- Version 2, launched in 2020, introduced single swaps for ERC20-ERC20 pairs; and
- Version 3, launched in 2021, introduced dynamic liquidity for custom price ranges (i.e. concentrated liquidity) along with several other features.

Although the core technology powering Uniswap is "non-upgradable", the protocol can continue to scale by expanding its compatibility with other layer 2's and supporting swaps/pools for more tokens. So far, Uniswap has demonstrated an ability to successfully retain market leadership across several iterations of its product.

Protocol Analysis

Org. Structure

- ☐ **Is the Protocol a DAO? How is it governed eg. delegates , snapshot (10)**

The governance mechanisms for Uniswap include both off-chain and on-chain processes. Historical on-chain governance proposals have included major changes, including fee tier amendments and the disbursement of treasury funds, but have not included larger version upgrades, like the introduction of v3 made in 2021.

UNI holders participate in governance in three primary phases:

1. **A temperature check** determines if there is sufficient desire from the community to enact a change. Voters use Snapshot to indicate their interest and link to the vote from a governance forum post.
2. **A consensus check** then establishes formal discussion around a proposal through a follow up Snapshot proposal (a 50k UNI yes-vote quorum is required for a consensus check to pass).
3. A formal **governance proposal** is then made based on the winning outcome from the consensus check.Governance proposals are submitted on Uniswap's voting app.Any addresses with more than 2.5 million UNI may propose governance actions. When a proposal is created, the community can cast their votes during a 3 day voting period. If a majority, and at least 4 million votes are cast for the proposal, it is queued in a timelock mechanism and may be executed after a 2 day waiting period.

Steps 1 and 2 are performed off-chain and not necessarily required in order to proceed to step 3. Version upgrades and other changes are possible to implement outside of this governance framework by the core team at Uniswap Labs. Community governance is a significant–but not the only–part of administration of the Uniswap project.

Uniswap does not utilize admin keys. However, core developers and the Uniswap Labs team are able to implement significant changes to the system without wider community or governance support. For example, the recent upgrades to the project in V3 were implemented outside of a governance proposal. Admin control information is documented at this location, in their whitepaper, and in their docs. Uniswap cannot be paused due to its immutable nature. This is described here.

- ☐ **Does Protocol publish analytics / transparency via Dune or similar? (10)**

Uniswap hosts their own analytics platform at Uniswap Info**.** Uniswap also has a dedicated and detailed page on Dune Analytics. The repo for their analytics product is publicly available on Github.

- ☐ **Working group structure (10)**

Uniswap currently has the largest treasury of all DAO's tracked by DeepDAO and is actively recruiting for multiple roles to further build out its team. Treasury funds were raised primarily from the UNI token launch in September 2020. As mentioned previously, investors were allocated a significant portion of the token launch and include prominent VCs like Paradigm, Andreessen Horowitz, and Union Square Ventures. Working group structure is unclear publicly, but one can assume it exists as the protocol is legally incorporated under the name Uniswap Labs.

- ☐ **Are core contributors compensated / Doxed? (10)**

The core team behind Uniswap Labs–the corporate entity that originally developed the Uniswap protocol–is public and highly credible. Hayden Adams (Founder and Chief Executive Officer), Mary-Catherine Lader (Chief Operating Officer), Marvin Ammori (Chief Legal Officer), and Chad DePue (VP of Engineering) are all senior members of the leadership team with public profiles and quality backgrounds. Uniswap Labs is based in New York, NY USA. Each of the senior members of the Uniswap Labs team has lengthy backgrounds at high quality institutions including Siemens, BlackRock, Snap, Protocol Labs, Harvard University, Columbia University and others. The team's backgrounds are publicly available via sources like LinkedIn and others.

- ☐ **Any known controversies in crypto space (8)**

At the time of writing, Uniswap has many active discussions taking place on the community's governance PrimeRating forum, but has only executed 20 total governance proposal since

inception, leading speculators to question the ‘decentralization’ and overall health of their governance process. The most recent proposals have seen between 10-50% participation from voters, which is healthy.

Uniswap’s reputation is established and mostly positive. Criticism stems from the impression that they are failing to innovate and their success stems solely on first-movers advantage. Moreover, the UNI token is considered a ‘useless’ governance token, and many believe it to be overvalued. This will likely remain true until any fee switch is turned on.

- ☐ **Do they have a security or risk management team (10)**

Unclear. They have a bug bounty program, and a security page on their website, and have an open position to hire an Application Security Engineer, so one can assume they have a Sec-Ops/Risk team.

Multisig Structure

- ☐ **Is protocol transparent of multisigs and signers, List/links of multisigs, purpose, and setup x of x (10)**

Smart Contracts are owned by the Uniswap governance contract, which is then controlled by UNI token holders. Smart contract change capabilities are identified in the Uniswap V3 core whitepaper. Uniswap makes sure that users know that the protocol is immutable and that no entity can abruptly change the parameters. Uniswap makes this information readily available in user-friendly language here.

The Uniswap Foundation Custody multisig is:
0xe571dC7A558bb6D68FfE264c3d7BB98B0C6C73fC

The Uniswap Foundation Governance multisig is:
0xA37131410A76791f4A0210e91EDD554d85aFb4d4

- ☐ **Can multisigs interfere with collateral options? EOA minting (10)**

Uniswap cannot be paused due to its immutable nature. This is described here. The protocol has timelock documentation which can be found at this location. Uniswap has a rigorous process for voting and implementing proposals. Uniswap has a hard coded minimum 48 hour timelock as outlined here.

Influence, Reputation, and Partnerships

- ☐ **How long has the protocol been around , have they endured long bear markets? (10)**

They were established in 2018, during the previous crypto bear market. UNI governance token launched in 2020, therefore one can consider this current bear market to be their first.

- [ ] **Have they been exploited and how was it handled , was value restored to users if affected. (9)**

No past smart contract exploits recorded, per DefiLlama data. Phishing scam July 11th, 2022 cost users $7M.

- [ ] **Current and notable past partnerships , are they a net positive on the DEFI space (10)**

Uniswap claims integrations with more than 300 dapps and other tools. Regardless of the exact number, any DeFi user can attest to Uniswap being accessible from a wide variety of sites and protocols including wallet providers (Metamask, Coinbase, Argent, Zerion, etc.), AMM aggregators (Kyber, Matcha, ParaSwap, etc.) and DeFi applications (i.e. Maker, Augur, PoolTogether, etc.). Because the list of DeFi is growing significantly, Uniswap will need to continue expanding its reach in order to retain competitiveness.

Audits & Bug Bounties

Previous and Ongoing

- [ ] **Audits & Bounties (10)**

Uniswap V3 1.0.0 was deployed on May 5th 2021.
Uniswap V3 was audited by Trail of Bits on March 12th 2021.
Uniswap V3 was audited by ABDK on March 23rd.

Trail of bits found some high to mid severity issues, while ABDK uncovered an abnormally large number of minor issues, 159. The trail of bits audit does not specify whether the changes have been implemented.

In the past, the protocol offered a partially active bug bounty of up to $500K. In addition, the UNI Grants Program had pledged $1.5m to their internal bug bounty program. Presently however, a more “official” bug bounty program is displayed on their website, with rewards up to 2.25M USDC.

Reward Payouts

- [ ] **Rewards paid, vulnerabilities found with severity (10)**

Historically there have been bug bounty payouts. Most recently, on January 3rd, 2023, security firm Debaud found a vulnerability and was awarded $40k. Uniswap has been the stage for phishing attacks, but the protocol itself has never been exploited, per DefiLlama.

Collateral Analysis

Oracles

- ☐ **Available Chainlink Oracles**

Uniswap implements their own oracle solution in the protocol. The protocol's oracle source is documented at this location. Uniswap mitigates the extent of front running attacks through a combination of TWAP and TWAL. Technical details can be found here. This protocol does not document flashloan countermeasures. However, the inherent structure of the Uniswap TWAP makes it so that liquidity attacks are effectively mitigated via a core implementation of accumulator value checkpoints. As the price feed does not rely on a single point of data, a liquidity attack would not cause groundbreaking inaccurate prices or balances.

UNI can count on various chainlink price feeds, including a UNI/USD oracle on mainnet.

- ☐ **Does the asset have a backup oracle**

No

- ☐ **Any advanced oracle implementation required**

For Inverse's use case with FiRM, none.

- ☐ **Liquidation Routing, Do liquidations require a wrapper?, accessibility**

Simple liquidation routing.

- ☐ **Peg Risk if any**

N/A

Token Statistics

- ☐ **Contracts, are they upgradable?**

UNI contract address: 0x1f9840a85d5aF5bf1D1762F925BDADdC4201F984

Uniswap clearly details the permissionless and immutable nature of their V3 deployment here. Smart Contracts are owned by the Uniswap governance contract, which is then controlled by

UNI token holders. Smart contract change capabilities are identified in the Uniswap V3 core whitepaper. The capabilities are as follows:

- The factory is owned by UNI tokenholders, who do not have the ability to halt the operations of any core contracts.
- UNI holders can turn on and off protocol fees
- Once activated, UNI holders can vary the protocol fees from anywhere between 10% to 25% on a per pool basis
- UNI holders can add additional fee tiers, while doing so they can also define the tickSpacing (tickSpacing is the discrete demarcations in the concentrated liquidity provision distribution that liquidity providers can choose from.)
- UNI holders cannot change fee tiers and tickSpacing
- UNI governance can transfer ownership to another address

☐ **Price / Market Cap / Circulating Supply / Locked Supply / True Circulating / Total / Max**

As of May 16th, 2023
Coinmarketcap
Coingecko

Price	Market Cap	Circulating Supply	Total Supply	Max Supply
$5.13	$3.87B	753,766,667	1,000,000,000	1,000,000,000

Liquidity

☐ **AMM liquidity, (pools over 100k)**

Asset	# Markets on Ethereum	# CEX	Primary Liquidity ($)	Secondary Liquidity ($)	Alerternative Liquidity ($)
UNI	many	many	UniV3 ($37M)	UniV2 ($11M)	Pancakeswap - BNB Chain ($4M)

☐ **CEX markets with depth if available**

Many including Coinbase, Binance, OKX, with cumulative daily trading volume over $130M.

☐ **On-Chain Slippage / price impact**

Initial ->	UNI ->	USDC ->	DOLA	Slippage (%)	Price Impact (%)*
$100,000	19493	100,101	100,366	0	0.66
$200,000	38986	200,148	200,667	0	1.32
$500,000	97465	499,820	501,028	0	3.25
$1,000,000	194931	998,114	1,000,279	0	6.35
$2,000,000	389863	1,962,337	1,965,845	1.71	12.12
$5,000,000	974658	4,100,187	4,104,530	17.91	26.55

☐ **Token Holders**

Holders: 76,235

(A total of 847,823,471.01 tokens held by the top 100 accounts from the total supply of 1,000,000,000.00 token)

Rank	Address	Quantity (Token)	Percentage
1	Uniswap V2: UNI Timelock	324,081,844.07356671741233383	32.4082%
2	Uniswap Protocol: Treasury Vester 3	55,417,119.926433282597666169	5.5417%
3	Uniswap Protocol: Treasury Vester 4	43,000,000	4.3000%
4	0x47173B...c302ba1e	24,002,124.541301567	2.4002%
5	Fund: 0x7d3...782	15,000,000.1215387	1.5000%
6	0x0ec9e8...59579D0F	13,895,868.7905693	1.3896%
7	Uniswap: Token Distributor	13,419,619.937001843	1.3420%
8	0x5F246D...859586b0	12,800,000	1.2800%
9	0x7D2d43...5DbAEB40	12,777,122.2151544	1.2777%
10	0x878f08...e8D63C3B	11,674,069.64405189	1.1674%

Volatility

☐ Price Log Return Volatility

UNI Volatility

The volatility of the token price is assessed by calculating the daily log returns of the median price using the natural logarithm of the ratio between the current day's and the previous day's median price.
The variation coefficient of the token is then computed as the ratio between the volatility (standard deviation) and the mean of log returns over a specific number of days.
Our research shows that although CRV is showing a higher volatility when compared to the wETH market, the variation coefficient shows a higher stability for CRV token price. This can be partly explained by deep off-chain liquidity on Centralised Exchanges.

Emissions

- ☐ **Emissions Policy, what are emissions used for? (8)**

75% of UNI tokens are currently in circulation with the uncirculated supply residing in various Uniswap controlled vesting/treasury addresses. After four years from September 2020, the UNI token will have a 2% annual inflation rate (subject to governance approval). According to Uniswap, this is expected to ensure “continued participation and contribution to Uniswap at the expense of passive UNI holders”. Although the issuance model employed by Uniswap is not uncommon, specific details about how continued issuance will be allocated are not easily discoverable. The project’s forecasted 10+ year UNI allocations do increase the share of tokens distributed to community members, however, there is still some uncertainty over Uniswap’s specific justification for its tokenomics model and issuance plans.

Utility & Use Case

- ☐ **Does the Token have utility, Can it retain the utility while supplied to FiRM? (5)**

UNI is primarily a governance token that enables holders to participate in the evolution of the Uniswap protocol. Token holders must own a minimum of 1,000 UNI to participate in off-chain governance discussions and 2.5 million to make a formal on-chain proposal. Additionally, UNI can be utilized in multiple DeFi applications. The UNI token currently does not accrue a portion of the revenue generated by the protocol, though with the introduction of V2, Uniswap added the potential for a 0.05% protocol fee that may be implemented in the future through a governance vote. This fee would be netted from existing swap fees, which are currently distributed fully to liquidity providers.

- ☐ **Liquid or locking feature (10)**

Has been discussed on forum, but presently there is no ‘locking’ feature for UNI.

- ☐ **Goal of the token, where is value derived from? (5)**

The UNI token does not directly accrue value outside of the right it grants holders to participate in protocol governance. As mentioned previously, with the introduction of Uniswap V2, the

concept of a 0.05% protocol fee was introduced into the codebase, but is currently not utilized. If this feature were to be utilized in the future, the token can have ‘derived’ value. Currently, UNI can be productively deployed as lending collateral on Maker, Compound, Aave, and other dapps. Additionally, UNI can also be contributed to liquidity pools on Curve, Balancer, and others (including its own protocol Uniswap).

According to CryptoFees.Info, Uniswap is consistently a top protocol performer, with consistently a daily fees over $1M.

Conclusion

In conclusion, the due diligence conducted by Inverse Finance's Risk Working Group on UNI by Uniswap has determined that UNI is a suitable collateral for the fixed-rate lending market, FiRM. Uniswap is a staple name in the Cryptocurrency space and we have little reason to believe this won’t continue being the case.

The UNI token has demonstrated a strong track record of deep liquidity and has the necessary infrastructure in place to support its use as collateral on the platform. The UNI team has a clear understanding of the lending market landscape and has implemented appropriate risk management measures to ensure the safety and security of user funds. This includes one of the largest active bug bounty programs currently available, $2.25M in available rewards.

The Risk Working Group has evaluated UNI’s technical and economic characteristics and has determined that it possesses the necessary attributes to be used as collateral on the FiRM platform. The token is liquid, is paired with other reliable tokens (mainly wETH, and USDC) in deep LPs on several chains (Ethereum, Arbitrum, Optimism, Polygon), thus addressing most SPOFs. UNI also has an elegant oracle solution, making use of a Chainlink oracle for both UNI/USD and UNI/ETH feeds.

Furthermore, the team behind Uniswap Labs has shown a strong commitment to the development and growth of the project. The team is actively engaged with the community, and they regularly update and communicate their development progress and road-map.Overall, the Risk Working Group is satisfied with the findings of this due diligence report and is confident in the ability of UNI to serve as a reliable and stable collateral on the FiRM platform.

UNI is presently an available collateral asset on both Aave’s Ethereum v2 market, and Compound. On Compound, UNI’s collateral factor (CF) is set at 75%, with TVL sitting at ~$15M. On Aave, CF is set at 65%, and TVL is $16.6M. Based on these findings, the Risk Working Group recommends UNI be made available as collateral on FiRM with an initial Collateral Factor (CF) of 65%. This figure matches the current CF for UNI on Aave, and allows for increases if deemed appropriate at a later time.

Asset Score

As we build out a registry of TAS for a variety of collateral options and match them with findings from other risk profiling frameworks and methodologies, the RWG will be able to rely more and more on the Asset Scoring Model. As of now, our data indicates the following:

- Any asset with TAS > 7.5 can be deemed an asset carrying a low risk profile.
- 5 > TAS > 7.5 warrants caution, and, if approved, a “guarded” launch on FiRM.
- TAS < 5 should seldom be considered worthy of a FiRM market.

Token Contract Address: 0x1f9840a85d5af5bf1d1762f925bdaddc4201f984
Assessment date: May 16th, 2023

Component	Link/Rationale	Score
Market Capitalization (MCS)	MCS=min(10, (UNI Supply * UNI Price * 200) /(wETH Supply * wETH price)	10
DEX Trading Volume (TVS)	TVS =min(10, (30 Day Avg Token Trading Volume * 200 / 30 Day Avg wETH Trading Volume)	5.50
Price Volatility (PVS)	PVS =min(10, 10 - (Token Log Price Volatility / wETH Log Price Volatility) * 9)	6.07
Token Distribution (TDS)	Token Distribution Score = min((1- Token Gini Index) * 10 / (1 - wETH Gini Index);10)	10
Project Fundamentals (PFS)	Risk Assessment UNI Collateral on FiRM - See Protocol Analysis, and Audits & Bug Bounties Sections	9.77
Token Utility (TUS)	Risk Assessment UNI Collateral on FiRM - See Collateral Analysis Section	7

Total Asset Score

$$TAS = 10 * 0.2 + 5.50 * 0.15 + 6.07 * 0.15 + 10 * 0.1 + 9.77 * 0.2 + 7 * 0.2$$

$$TAS = 8.09 / 10$$

Parameter Recommendations

Supply Ceiling	$2,000,000
Initial Fed Supply	$500,000
Daily Borrow Limit	$500,000
Liquidation Factor	75%
Firm Global Supply Ceiling	$
Collateral Factor	75%

- ☐ **Supply Ceiling** - Setting the supply ceiling for an asset, though influenced by such factors as market demand, collateral volatility, correlation with other assets, and overall risk appetite, should ultimately be determined by considering the overall liquidity picture and slippage figures for said asset. Put simply, If the collateral has high liquidity, then the supply ceiling can be set higher because it is easier to sell the collateral in case of liquidations. In the case of UNI, liquidity is deep. UNI can count on 2 LPs with over $10M TVL. Slippage figures are also encouraging, with trades up to $1M UNI incurring ~0% slippage (due to the USDC<>DOLA swap rate). Simulations were also ran to estimate price impact, and a $1MM UNI sell order 6.35% price drop. Based on the above, we recommend the initial supply ceiling for UNI be set to $2,000,000. The data suggests this amount is on the lower end of what we can consider safe, and opens up the possibility for a revision if market demand is strong.

- ☐ **Initial Fed Supply** - the amount the Fed injects to the market up to supply ceiling. The RWG recommends this amount be $500,000.

- ☐ **Daily Borrow Limit** - Like all factors here, daily borrow limit is set to strike a balance between meeting market demand and managing risk. UNI scored well in our asset scoring model framework (8.09/10), particularly in market cap, and distribution. Based on this, the RWG recommends the daily borrow limit amount be set to $500,000 per day. This figure matches the current parameters for the CRV, gOHM, stETH, and wETH markets on FiRM.

- ☐ **Liquidation Factor** - It is important to set the liquidation factor carefully to ensure that the platform can manage its risk exposure effectively. If the collateral has a history of high price volatility, if the collateral has low liquidity, and if the platform has a low risk appetite, these are all true in our case and are grounds to set a higher liquidation factor. At the same time, it's likely our TWG will have to carry out liquidations for this market initially as we can't assume automated liquidations will take place by MEV liquidators (until we can prove UNI is being searched). As such, we recommend the liquidation factor be set to 75%, so that the liquidation incentive matches with CF.

- [ ] **Firm Global Supply Ceiling** - Global Supply ceiling (currently set at $21,000,000) will increase to $22,000,000 to account for the supply ceiling for the UNI market.

- [ ] **Collateral Factor** - Setting the collateral factor requires balancing the risks associated with the asset being used as collateral with the demand for loans. Assets with lower risks may have higher collateral factors, while assets with higher risks may have lower collateral factors. Ultimately, the collateral factor is closely related to, and influenced by many of the factors pertaining to the parameters presented above. While parameters above act as a backstop, the collateral factor determines whether an attack on the protocol can be profitable for the potential exploiter capable of manipulating our price oracle implementation. For UNI, the oracle implementation is simple, there is no unwrapping/complex liquidation mechanism, and the asset can count on deep liquidity. Given all the above and taking into account the results of our Asset Scoring Model, the RWG recommends we launch the UNI market with collateral factor set at 75%.