Summary

Reduce Borrow Caps for long-tailed assets on Aave V3 Ethereum.

Motivation

As part of our ongoing strategy to minimize theoretical exposure to long-tailed debt on Aave, this proposal aims to mitigate the impact of volatility in debt assets further by implementing a substantial reduction in Borrow Cap values. Borrowing these assets typically yields minimal revenue but can pose significant risks, particularly in scenarios where liquidating these positions necessitates obtaining the underlying asset during a large pump. Given the recent upward volatility in asset prices, we propose a refined methodology for determining and implementing these Borrow Cap reductions. This approach aims to enhance the protocol's resilience and stability amidst dynamic market conditions, safeguarding the interests of Aave users and stakeholders.

Long-tail asset debt as % of the total debt on Aave V3 on Ethereum

Methodology

The recent 50% price surge in UNI within an hour-long timeframe on February 23rd, triggered by the activation of a fee distribution proposal for token holders, resulted in a significant shortfall on Compound. While this was attributed to inadequate dual-bounded fallback oracle logic on Compound, a feature not employed by Aave, the subsequent mispricing of UNI debt and upward debt asset volatility highlighted broader market sentiments favoring risk-taking. In the context of Aave, it becomes imperative to define parameters that account for debt dynamics concerning Chainlink oracle feed latency and update frequency, particularly during periods of rapid price pumps. Therefore, leveraging the UNI/USD Chainlink feed data during the UNI pump as a means to assess Chainlink latency practices can be used to mitigate similar risks in the future.

UNI/USD Chainlink Feed Update Frequency (Hour of UNI Pump)

UNI/USD Chainlink Feed Update Frequency (Day of UNI Pump)

During the recent 50% UNI price surge, the UNI/USD Chainlink feed displayed a total of 64 updates within the hour. Notably, the maximum price change between any two updates reached 4.6%, occurring within just two blocks, underscoring the significance of rapid fluctuations in asset prices.

Expanding upon this, the UNI's positive price change of 4.6%, coupled with other significant deviations from the recent pump, represents the most substantial movement observed over the last 10,000 oracle updates.

Upon excluding the data pertaining to the pump, the maximum positive price change diminishes to just 2.5%.

Given that Borrow Caps are denominated in tokens, it's crucial to recognize that a proportional increase in the underlying asset's price will directly translate to a linear rise in dollar-denominated Borrow Caps. In light of these observations, it becomes imperative to establish stress-tested assumptions and parameters to reinforce this framework, ensuring its resilience and effectiveness amidst dynamic market conditions. These are all worst-case assumptions to derive a conservative parameter set that will protect from bad debt even in such cases:

Assumptions:

1. We formally refer to the maximum UNI oracle price change from the last update as

, where time

is the time at which this price jump in the debt asset occurs. We utilize this maximum price change value as an input within our formula below.

1. The underlying debt asset has undergone a rapid 50% surge in value, reminiscent of the UNI token's price movement while retaining linearity in the context of on-chain liquidity distribution.
2. We assume that the Borrow Cap is at 100% utilization.
3. At time

all borrowers uniformly possess an LTV ratio equivalent to

. This ensures that the debt value upon liquidation eligibility at time

is overvalued by approximately

, or 4.6%, given the assumption that the stable collateral asset i

with the highest LT on Aave Ethereum serves as collateral.

1. The

update indicates the final update at which the 50% price surge has been reached, prior to liquidations occurring.

1. Our

assumption is based on our proposal to decrease LTs for stablecoins, returning a value of 78% on Ethereum.

Under these extreme assumptions, we define a final targeted price impact formula, denoted as

, to approximate a risk-averse Borrow Cap value.

In essence, this expression represents the critical threshold for price impact, beyond which the liquidation of all positions tied to the underlying debt asset can occur without risking bad debt accumulation on the platform, even under highly adverse conditions. We now introduce a new variable, denoted as

, which represents the token output or value as a function of the targeted price impact set at 12.3% for a specific debt asset i. This is the expected amount that can be safely liquidated under an extreme scenario. This variable serves as a safeguard against adverse scenarios, such as a significant surge in the underlying debt asset's price, resulting in an entire Borrow Cap's worth of debt nearing liquidation, compounded by an "overpriced" oracle.

For assets with ample liquidity where the current Borrow Cap exceeds the indicated price impact values, or the current borrow usage surpasses the

, we simply employ a normalization approach by adjusting the current values in dollar terms to accommodate a 50% increase in the underlying assets. More formally,

, where

refers to the current Borrow Cap denominated in tokens for all debt assets i

.

Computing our Borrow Cap recommendations for each asset i

:

Specification

Next Steps

1. Following community feedback, submit the ARFC for a snapshot vote for final approval.
2. If consensus is reached, submit an Aave Improvement Proposal (AIP) to implement the proposed updates.

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