Motivation

Following the USDC De-Peg and the bad debt accrued as a result, we are evaluating the optimal operation mode of the stablecoin E-Mode category.

As we have observed during the USDC depeg, the parameters of E-Mode categories fully expose them to de-peg events. While stablecoin E-Mode provides a strong competitive advantage, allowing very high leverage on stablecoins, it also encapsulates big risks.

Almost all of the bad debt on Avalanche during the USDC de-peg was caused by 3 large E-Mode positions.

Mitigating Stablecoin de-peg risk

AAVE V3 provides a set of risk levers to control different aspects of risk. We have examined several alternatives to mitigate such shortfalls in the future while examining their impact both on risk and protocol reward:

1. Increasing Stablecoin Reserve Factor

2. Removing assets from the E-Mode category

3. Decreasing E-Mode Category LT

4. Tight supply caps and/or borrow caps to limit exposure on E-Mode

5. Placing specific stablecoins in Isolation Mode (more on that on that soon)

Ultimately, we recommend increasing stablecoins' reserve factor as the most effective method to address stablecoin de-peg risk.

Increasing Stablecoins' Reserve Factor

The above are options to limit the risk exposure to stablecoin de-peg events. However, every risk management decision is essentially the valuation of risk vs. reward. By increasing the reserve factor of stablecoins, we seek to increase protocol revenue (reward) such that it will compensate for the de-peg risk.

The original documentation of AAVE V3 reads:

"The Reserve Factor is a risk premium calibrated based on the overall risk of the asset. Stablecoins are the least risky assets with a lower reserve factor".

This holds for V2, where stablecoin borrows are treated equally to non-stablecoins, as there is no E-mode for increased capital efficiency. However, considering the increased risk exposure allowed by E-Mode, the risk premium should be higher.

To evaluate the increase in risk premium that needs to account for the increased risk in E-Mode due to de-peg events, we evaluate for an asset a:

1. f(a) - The frequency of de-peg events per asset per year

2. l(a)- The expected loss or bad debt in case of a de-peg event

For all assets in the category, we evaluate

1. r - The revenues generated from borrowed assets

Then we calculate the expectancy of annual loss from de-peg events:

To account for the loss, we increase the reserve factor of the stablecoins by the percent of the de-peg losses from protocol revenues.

By applying an increase in the reserve factor proportional to the loss amount, we compensate for the extra risk incurred by listing assets in E-Mode.

Next, we will share a simulation-based evaluation of stablecoin de-peg risk losses and recommend the appropriate reserve factor settings. To get an intuition as to the amounts, the bad debt incurred by the recent USDC de-peg on AAVE V3 on Avalanche amounted to $260K, over 10% of the annual protocol revenues from stablecoin borrowing in E-Mode.

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Other Alternatives

Removing assets from the E-Mode category

A potential solution is to remove certain assets from the stablecoin E-Mode category. Although this would eliminate any risk associated with the stablecoin's de-peg impact on E-Mode positions, it comes with significant drawbacks:

1. Determining which assets should or should not be included is challenging, as USDC was previously considered the safest centralized stablecoin until the SVB announcement.

2. This change will immediately affect E-Mode positions with this asset as collateral, as they will be subject to Non-E-Mode LT. Since E-Mode is commonly used to obtain high leverage, most positions are maintained with low health factors, making them susceptible to immediate liquidation.

3. Aave may lose its competitive advantage in offering high-leverage borrowing of pegged assets.

Decreasing E-Mode Category LT

Reducing the E-Mode LT can enhance position sustainability during limited de-peg occurrences. Currently, with an LT setting of 97.5%, temporary deviations can lead to liquidations and bad debt since most E-Mode-managed funds have a low health factor below 1.1.

Notably, the three significant positions responsible for the majority of bad debt during recent events on Avalanche would have faced liquidation with a de-peg of as little as 2.5%.

While decreasing LT may trigger some liquidations, if done gradually, it will allow E-Mode position holders to adjust while incurring small amounts to be liquidated.

This action reduces leverage and may also decrease the stablecoin supply to Aave. Nevertheless, it still provides higher leverage than other protocols.

Using supply caps and/or borrow caps to limit E-Mode

One way to limit exposure to E-Mode is by limiting the supply or borrow caps of stablecoins. However, since the supply and borrow caps apply to all positions, this will decrease asset supply to Non-E-Mode markets. This, in turn, could severely affect the usability and revenue of the protocol, given that many positions involve stable<>crypto transactions.

Setting stringent supply caps is akin to eliminating assets from E-Mode, as it restricts Aave's offering, losing its competitive edge. Therefore, if adopted, we must do so thoughtfully, such that the caps will mitigate fat-tail risk and contain the loss percentage from a de-peg while also allowing reasonable usage.

Conclusion

E-Mode presents a higher leverage option, which comes with a new risk to the AAVE protocol. Currently, the risk of de-peg events is not factored into the protocol's risk settings. To address this, the anticipated loss from such events should be considered, and we propose increasing the Reserve Factor proportionally. This approach preserves AAVE's risk-reward balance and has fewer adverse effects than the alternatives.

Next Steps

We invite the community to discuss the options presented above. We value the community's feedback and suggestions, which we will consider when developing our final recommendation.