

Summary

We have noticed an inconsistent state on the aToken/vToken total supply of the AMPL asset listed on Aave v2 Ethereum as non-collateral, which will require actions by the community via governance proposals.

The problem doesn't affect any other asset of the pool anyhow, and with the current configuration, it is in a controlled state, but requires actions

Context

Back in July 2021, the AMPL asset was added to Aave v2 Ethereum. This listing is pretty specific for the following reasons:

- AMPL is a so-called supply/balance rebasing token, which targets a price and expands or contracts its supply (and the balance of its holders) in order to create pressure to reach that target.
- Both the aToken and variable debt token of AMPL are custom implementations, done by the Ampleforth team. The reason is that the rebasing dynamics needed to be taken into account in order for Aave to support the asset, requiring a deep adaptation of the codebase.
- Even if never collateral in order to protect the protocol, the dynamics of AMPL were always really aggressive for example interest-rate wise, in order to balance the fast and aggressive rebasing of the underlying.

Following a plan of off-boarding multiple assets on Aave v2 Ethereum, AMPL was frozen (together with multiple assets) on November 2022, on [proposal 121](#).

The problem

Lately, during our work on un-related development tasks on Aave v2, we noticed what it seemed like inconsistency on the AMPL asset: the aToken supply of the asset appeared to be way more than it should, bigger than the sum of the variable debt plus available liquidity

Even if we are not deeply familiar with the Ampleforth system, and their custom aToken/vToken implementations, this is a problem, as technical aAMPL holders balancers grows, but virtually: it should not if the variable debt token doesn't proportionally.

After consulting the Ampleforth team, we confirmed that this is probably consequence of imprecision created by the complex rebasing dynamics on aAMPL and vAMPL, in combination with the really aggressive historic interest rate, and probably accrual to the Aave Collector.

As a result, the aAMPL supply is currently not representative of the claims over AMPL underlying, and action should be taken.

The following aspects should be considered for actions to execute:

- Currently, being on off-boarding stage, the RF parameter of AMPL and other assets is maximised (99.9%). This is positive for the AMPL problem, because all the aAMPL growth reflects in the Aave Collector aAMPL balance. Important to highlight that this growth is virtual, non-existent, but being on the Aave Collector is easier to reconcile, as potentially can simply be written down.
- As mentioned, the aToken supply is not consistent with how the claims should be. Given that knowledge of the AMPL/aAMPL/vAMPL custom dynamics are not our expertise, we will reach the Ampleforth team in order to analyse which should be the real value of aAMPL at the moment, if the supply would be precise
- There is no risk for Aave, as AMPL is pretty isolated. Regarding aAMPL suppliers, from the aforementioned analysis, further steps should be defined/proposed from Ampleforth and/or Aave on how to cover expected withdrawals.

It is important to clarify again that not having developed the custom implementation of a/v AMPL, feedback from the Ampleforth team is mandatory, and our role given our service provider scope is to support on all Aave related steps on how to solve the situation, for example via governance proposals.

We will also involve the 2 risk providers of the community.

Next steps

- We will ask the Ampleforth team for the aforementioned analysis on what would be a precise aAMPL supply, following the implementation intention, and share with the community.
- As commented, the asset is frozen at the moment, so only withdrawals, repayments and liquidations can technically happen. As the utilisation is 100%, no withdrawals can be executed, only repayments and liquidations.

Again, the aToken supply and balancers are virtual at the moment, so factually the reserve is paused currently.

- Once more precise data is available, next steps should be defined, like doing updates via governance proposals on the AMPL data, or injecting liquidity for withdrawals, amongst others.