Numina: a Multi-Chain Lending Protocol with Zero Liquidations.

last-ancestor, 0x7183

Abstract

Numina is a lending protocol presenting peculiar features that distinguish it from most of the protocol of this type. First of all, Numina will not provide for liquidations, thus ensuring the safety of users assets. In the second instance, it will be multi-chain from the date of it launch, addressing interoperability challenges that often plague decentralized platforms.

1 Introduction

Numina essentially consists in a set of pools in which users are able to deposit a specific asset (different for each pool). These users are addressed as *liquidity providers* and the asset they provide to the pool will be referred to as *Rogatio*.

Users can borrow Rogatio from the pool by providing a specific asset as collateral: they will be called *borrowers* and the asset deposited as collateral will be reffered to as *Oblatio*.

As already mentioned, Numina is composed by different pools that are independent from each other. Thus, users can choose to which pool provide liquidity, that is they can choose to which Oblatio (collateral) expose themselves.

The pools will track assets through the following quantities.

- **Rogatio available**: total amount of Rogatio assets that are available to be borrowed.

- **Rogatio locked**: total amount of Rogatio assets that has been issued as loans.

- **Oblatio locked**: total amount of Oblatio assets deposited in the pool as collateral for current loans.
- **Oblatio available**: total amount of Oblatio assets within the pool that are not related to any loan. They result from extinguished debt position (see section 3).

Now that the main elements of Numina have been presented, this paper will examine in depth some aspects of the protocol. Section 2 provides detailed information on how LP tokens are distributed and how the protocol compute their value. Section 3 explains when debt are extinguished. Section 4 describes how interest is computed. Section .... Finally, section 6 concludes the paper.

2 Liquidity Provider Tokens

Liquidity providers play a pivotal role within Numina ecosystem, since they enhance liquidity by contributing to the Rogatio asset. In return for their service, the pool issues *Liquidity Provider Token* (LPT): these tokens serve as a receipt and represent the share of the pool belonging to the provider.

In order to determine the precise quantity of LPTs minted for a liquidity provider, it must first defined the total value of a liquidity pool.

$$PV = Rogatio\ available + Oblatio\ available + Rogatio\ locked \tag{1}$$

PV is the total value of the pool. Note that all assets are evaluated with respect to the

When a user provide liquidity to the pool, a certain amount of LPTs will be minted and sent to him according to the following formula:

$$LPT\ minted = \frac{Rogatio\ provided}{PV * LPTs\ issued} \tag{2}$$

Where *Rogatio provided* is the amount of Rogatio tokens deposited by the users and $LPTs\ issued$ is the total amount of LPTs minted before the moment of deposit.

3 Loan duration

4 Interest model

5 External swaps

6 Conclusions