SOLIS FLATCOIN LITEPAPER V1

HISHAM AHMAD
hishamxrd@gmail.com
zephyrcapital.info

July 21, 2023

1. ABSTRACT

Zephyr Capital is a defi protocol on Radix DLT, enabling XRD holders to maximize liquidity against their collateral without interest. Users can lock up XRD as collateral in a smart contract, creating an individual position called a Hoard, and mint SOLIS, our Flatcoin (an inflation-pegged stablecoin), for instant liquidity. Each Hoard must be collateralized at a Dynamic Minimum Collateral Ratio, typically around 110%. SOLIS owners can redeem their flatcoins for the underlying collateral at any time. To protect the protocol from accruing bad debt during unexpected events like "MakerDAO Black Thursday", Solis incorporates a Triple Layer Liquidation mechanism based on stability pools, the Dutch auction model, and a redistribution cycle from riskier to safer Hoards.

NOTE: Anything presented in the litepaper are still subject to change as this is released to give a broad idea on the design choice and functionality of Solis. The parameters mentioned in this document are variables that can be changed via governance and are expected to be depending on ecosystem developments. This paper focuses on Solis, other parts of Zephyr Capital like governance, treasury management, oracle system, etc.. will be discussed in further papers.

2. INTRODUCTION TO SOLIS

The FLATCOIN is a decentralized stablecoin designed to protect against inflation-induced value loss. As decentralized protocols mitigate risks posed by centralized currencies, and overcollateralization maintains value during market crashes, inflation-proof flatcoins preserve value over time. A flatcoin shields against inflation by maintaining its peg at the price of a specific basket of goods, thereby protecting purchasing power. As the price of the basket of goods rises with inflation, so too does the flatcoin’s peg. Solis, a flatcoin, combines the workings of Liquity and MakerDAO, introducing new features to address their limitations.

3. UNIQUE FEATURES OF SOLIS

3.1 Inflation Proof

Solis's price is soft-pegged to the current value of a basket of goods costing US$1 on the launch date, in line with the Truflation index of authentic daily inflation data. The Truflation oracle provides Solis with the target peg daily, representing Solis’s inflation-adjusted purchasing power. Truflation is a census-level index of true inflation rates, updating daily and tracking price data across the economy, using over 30 data sources and more than 10 million data points. The basket of goods

determining Solis's peg includes a broad spectrum of physical goods and services deemed important to modern society, with twelve categories of goods included in this calculation. Details of this basket of goods can be explored on the Truflation web-app.

3.2 Dynamic Minimum Collateral Ratio

3.2.1 dMCR For Maintaining The Peg

Many of the CDP based stablecoins face the problem of depegging from its target peg. The dynamic MCR is responsible for maintaining the price of Solis as close as possible to its target peg. When the price of Solis rises above the peg, the MCR decreases for all collateral assets. This makes minting Solis more capital efficient, creating a strong incentive for users to mint more Solis and sell it on the market. As Solis supply increases on the market, its price will naturally decrease until the peg is restored. When the price of Solis drops below its peg, the MCR increases. Arbitrageurs will accelerate peg restoration as will the rise in the MCR which increases risk of liquidation for minters. This creates a strong incentive for minters to either increase their collateral or burn Solis to maintain a safe collateral ratio.

3.2.2 dMCR For Maintaining TCR

Total Collateral Ratio is the sum of the collateral of all Hoards expressed in Solis value, divided by the debt of all Hoards expressed in Solis. Protecting TCR is the most important goal of the protocol, as the protocol should always have excess collateral to repay the customers when they need the collateral. Liquity's solution to control TCR was to ramp up the MCR in an instant to 150%. This solution could trigger even more liquidations in an instant and could lead to the protocol accumulating bad debt. When the **Recovery Mode** is triggered, instead of increasing the MCR in an instant it is better to adjust it dynamically over time. By doing this we are allowing minters to adjust their position and the protocol can mitigate the risk of having to liquidate a huge number of loans in an instant.

3.3 Triple Layer Liquidation Mechanism

Solis uses a triple layer liquidation mechanism. The first layer of defense in maintaining system solvency is based on stability pool liquidation, where users could fund the stability pool by depositing Solis into it. Over time Stability Providers lose a pro-rata share of their Solis deposits, while gaining a pro-rata share of the liquidated XRD. However, because Hoards are likely to be liquidated at around 110% collateral ratios (in normal conditions), it is expected that Stability Providers will receive a greater value of collateral relative to the debt they pay off.

If the stability pool lacks funds in the case of Liquity, they redistribute the debt with the people who have the highest collateral ratio. But at Zephyr Capital we will use a dutch auction model to auction off the collateral in case the stability pool lacks funds. Then only if both these solutions fail (which is highly unlikely) we will use the redistribution of debt method, ie.. Hoards which are heavily collateralized will receive more debt and collateral from liquidated positions than those with low collateralization, ensuring that the system does not create cascading liquidations.

3.4 Automatic Liquidity Pool Solution (ALPS)

To ensure robust liquidity for Solis at the very early stages, we are introducing Automatic Liquidity Pool Solution. When minters mint Solis, a portion of the collateral and Solis is provided to the protocol which are then added with the official token of Zephyr Capital and deposited to the liquidity pool of Zephyr Capital, the liquidity pool will be made of Solis(20%), stXRD(20%) and Zephyr Capital token(60%). The user will be automatically rewarded as a Liquidity Provider (LP) with yield in the form of LP tokens and also with governance rights as the LP token will be used for governance of the protocol. ALPS prevent bad actors from minting more Solis than the liquidity available in the market, thus ensuring that Solis retains its value and utility. ALPS will impact the user's collateral ratio as they are giving away a portion of Solis and XRD to the protocol. The ALPS program will continue until the launch of the Zephyr Capital Bonds program.

4. SYSTEM FUNCTIONALITY

4.1 BORROWER OPERATIONS

Anyone may obtain liquidity anytime in an entirely permissionless manner after depositing XRD into a Hoard .The deposited XRD gets locked up in the Hoard, allowing its owner to withdraw up to the LTV percentage provided by the protocol in the form of Solis. In other words, the Hoard must always maintain a Minimum Collateral Ratio (MCR) provided by the algorithm of the protocol. Borrowers can repay or borrow more liquidity within the limits of the MCR whenever they wish. They can also retrieve their collateral or top up their Hoard with more collateral as needed. The protocol also charges a one-time Borrowing Fee for the borrowed liquidity, which is added to the Hoard's debt.

4.2 REDEMPTION MECHANISM

Our protocol will have the same redemption mechanism as Liquity, ie.. at any time, the system allows holders to redeem their Solis for the underlying XRD collateral based on the face value of the redeemed tokens. This enables direct arbitrage whenever Solis trades for less than the target peg, by creating a price floor for Solis. When redeemed, the system uses Solis to repay the riskiest Hoards with the currently lowest collateral ratio, and transfers the respective amount of XRD from the affected positions to the redeemer. The amount taken from each borrower is capped by their corresponding debt, so the affected borrowers can keep their collateral surpluses. In other words, borrowers lose the same nominal amount of debt as they lose collateral and do not suffer a net loss from redemptions. On the flipside, redemptions have a positive effect on the total collateralization of the system, increasing robustness and price stability.

Hoards that are fully redeemed from, i.e.. Hoards whose debt is 0 via redemptions are automatically closed, and the borrower can reclaim the XRD surplus. Redemptions are subject to a Redemption Fee which is a function of the base rate and the redeemed amount of Solis. The minimum Redemption Fee is 0.5%. The fee is subtracted from the redeemed Solis, reducing the XRD that the redeemer receives in return

5. RECOVERY MODE

Recovery mode is triggered when the TCR falls below the protocol's safety collateral ratio. Refer section **2.2.2** to know about how dMCR helps in maintaining the TCR during recovery mode.
During recovery mode, borrowing fees are set to 0% to encourage borrowing within the limits set by the recovery mode. Also, the redemption/burn fee begins to slowly decay and go negative, becoming a rebate for burning Solis back after sufficient time passes.