Centamint

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Abstract

Modern day stablecoins have been focused on one design aspect: Overcollateralization. Collateralized stablecoins either have custodial risk or require on-chain overcollateralization to ensure stability while being immune to market volatility. Centamint has taken on a multiple mechanism approach to stabilize its ecosystem and provide an asset which can be pegged successfully to the US dollar.

1 Introduction

Centamint presents a new collaterization engine which differentiates itself from the rest of the ecosystem. A stable asset that is collaterized dynamically using multiple algorithms to measure market sentiment, volatility and then further backed and insured by its native governance token.

2 Ratio

The protocol is designed to adjust the collateral ratio during times of market volatility. During times of minimum inflation, the protocol lowers the ratio so that less collateral is required and enables more DLR to be minted. This lowers the amount of collateral required backing all DLR. During times of deep inflation, the protocol algorithms slowly increases the ratio to ensure enough assets are stabilizing the protocol. This increases the ratio of collateral in the system as a proportion of the CMINT supply, increasing market confidence in CMINT as its backing increases.

3 Risk Index Implementation

Centamint proposes a weighted formula to determine overall risk for its dynamic collaterization values to be derived. By integrating variables and assigning weights from several sources, we can discover an adequate ratio to collaterize requested 1:1 loans.

3.1 Current Market Sentiment

The first average can be derived through a sentiment analysis system:

$$\sigma = \sqrt{\frac{1}{N}\sum_{i=1}^{N}(x_i - \mu)^2} \tag{1}$$

x_i	is an individual value
μ	is the $\frac{I(X)}{T}$
N	is K

Further Ref:

Abnormality Index is	K
Continual Population Analysis is	I
Sentiment Point is	X
Time is	T

3.2 Calculating Volatility

To begin drawing up the volatility curve, Centamint requires projections for deriving the Net Present Value of the most common crypto assets. Calculating these values is the job of the Centamint Risk Engine, which creates its risk index score allowing influence to the collaterization engine. Specifically, Centamint utilizes a modified capital asset pricing model.

$$r_a = r_{rf} + \beta(r_{mkt} - r_{rf}) \tag{2}$$

where r_{rf} is the risk free interest rate derived from the 10 year treasury bond, r_{mkt} is the average rate of return for the market of cryptocurrency and β is

$$\beta = \frac{CoVar(r_a, r_{mkt})}{Var(r_{mkt})} \tag{3}$$

the relative volatility of an asset compared to the market volatility. These factors derive the discount rate for a particular asset r_a.

3.3 Insurance Pool

Time-locking capital in the insurance pool will enable collaterization ratios to decrease as the Centamint Risk Engine weighs the time factor as one of the highest. Longer time locks and capital amounts inside the insurance pool smart contract allows for a healthy ecosystem while enabling the spread of risk into the future of the protocol. CMINT holders can earn lucrative APYs through an inflationary token model by essentially betting on the Centamint Risk Engine

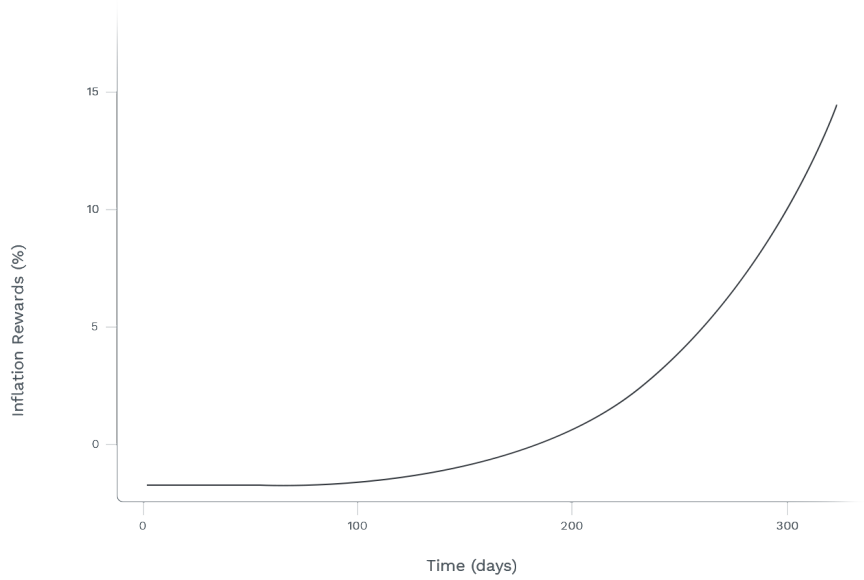

Figure 1: Interest Curve

and time locking their capital for longer periods of time. A longer time-lock will provide insurance providers higher APYs which can be claimed during every rebase event. Centamint uses a modified compound interest model to incentivize holding for long term as the rates become much more apparent and appealing further into the stake.

Proposed inflation APY increase can be calculated using the following model:

$$i = p(1+i)^t \tag{4}$$

We obtain the interest rate by analyzing the time factor, dollar amount staked and then solving for i.

4 Liquidity

To ensure sufficient initial liquidity and allow for the CMINT token to be used as insurance collateral, 50% percent of the tokens will be sold off to fund protocol development at a fair valuation to ensure adequate liquidity for future protocol supporters and a reduction in initial volatility.

Depositing liquidity tokens into one of the following pools will enable parties to

redeem CMINT tokens at a discounted price if the vesting period is followed for that specific pool.

- CMINT/USDT
- CMINT/USDC

4.1 Minting DLR

If there is $7,000,000 USD TVL of CMINT locked in the insurance pool, Centamint will adjust the maximum amount of DLR accordingly which can be minted. This value is adjusted dynamically as market sentiment and volatility changes to ensure the protocol can sufficiently stabilize itself as the market dynamics change.

Example: Bob is the first Centamint user and decides to lock in 500,000 CMINT tokens which has a present USD value of $2,000,000 in the insurance pool ($4.00 per CMINT). He is earning a fixed interest rate of 20% percent APY which inflates the supply of CMINT every rebase event. Newly minted tokens are immediately liquid and can be withdrawn at anytime while the principle stays locked to the term. This enables John who wants a loan but doesn't want to give up his native CMINT tokens to mint up to $600,000 DLR against his CMINT holdings (150,000 tokens at a $4.00 token price) with a risk index rate of 0.30. The risk index rate will vary depending on three components: How much collateral is staked in the insurance pool, market sentiment and implied volatility. This value is dynamic and will change as the market changes.

In order to take out a dollar value loan by minting DLR, John must lock up equal CMINT tokens to obtain an equal collateralized loan. When John is ready to pay the loan back, he will incur a fee based on the length of the DLR loan. In order to pay out the loan and redeem his CMINT, John will have to pay back the DLR. An appropriate fee will be deducted from the loan when the CMINT tokens are requested to be redeemed.

This ensures the protocol is collaterilized adequately.

5 Balancing Assets

Centamint encourages holders to support the protocol through time-locking as additional rewards are given to users who lock-in their CMINT tokens for longer periods of time.

DLR can at any time be acquired by minting from the system for a $1 dollar of value. This enables arbitragers to step in and balance the demand and supply of DLR in the open market. If the market price of DLR is above the price target of $1 dollar, there will be an arbitrage opportunity to mint DLR

tokens by staking CMINT in order to mint DLR. By minting $1 dollar of value into the system, there is an opportunity to sell the minted DLR for over $1 dollar in the open market providing equilibrium.

For example, if the protocol is requesting a 1 to 1 CMINT collateral ratio with a risk index score of 0.3, this means 30 percent of the insurance pool can be minted with 1:1.

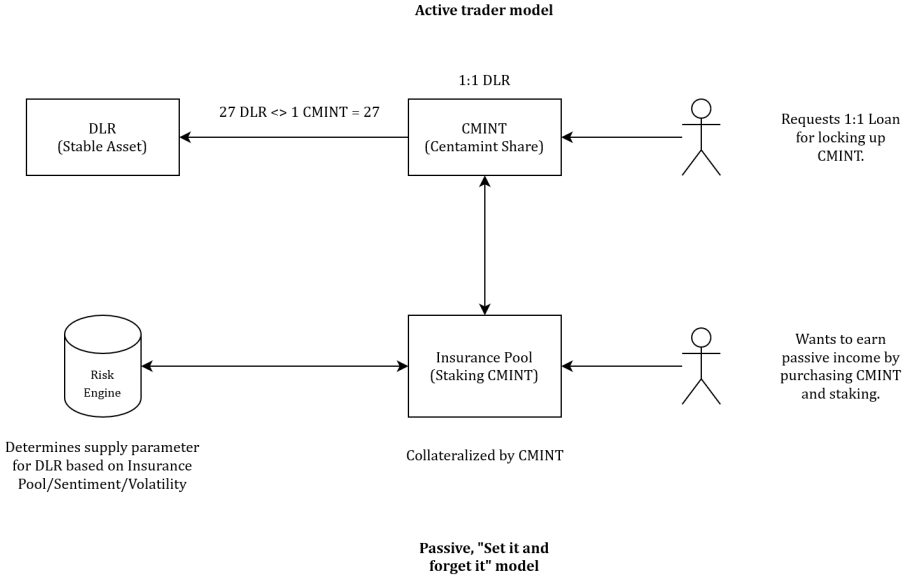

Figure 2: Components

6 Governance

CMINT is the native governance token for Centamint and will be required to vote for protocol parameters, changes and newly created features.

- Incentivizing farmers to further stake their CMINT
- Allocate voting power to long-term holders of CMINT through gCMINT
- Further utility for the CMINT token while creating a healthy APY for staked CMINT

7 Undercollaterized Loans

Centamint will utilize excessive insurance pool funds to fund undercollaterized loans backed by reputation. As loans are paid off and taken out, a credit system

can evolve allowing collaterization rates to diminish over time while the risk engine computes reputation algorithmically.

8 Conclusion

Centamint takes multiple concepts from game theory in order to build a unique hybrid stablecoin design never seen before. In traditional stablecoins, the ratio of asset A and B has to be proportional to balance the ecosystem where in Centamint, the stabilization occurs from having faith in the value of the CMINT token and protocol collaterization algorithms derived from Sentiment, Volatility and Single Asset backing.