

1 Summary of System Variables

1.1 Discussion

- Fees should only be given to those who have actually issued nomins?
- How do we incentivise people to even transfer stuff.
- Utilisation ratio needs to have distinct parts. Number of escrowed curits is not quite the same as the number of issued nomins.

1.1.1 Investment incentives

Why would anyone buy curits in the first place? A potential buyer of curits has two avenues for making money in Havven:

Capital gains due to the appreciation of curits. Presumably the currency will appreciate due to a demand for curits that is founded in the intrinsic utility of a stablecoin. Speculators will of course be important players too, though.

Interest accrued from fees. If and when the price of curits stabilises, then this may be the only long term positive-expected source of revenue. Ideally fees are set at a level where they are both high enough to be an incentive for rent-seekers to hold curits in the long term (thus assuming the risk of providing collateral for the system) and low enough not to be a disincentive for ordinary users to transact in nomins. It is desirable, perhaps in a future world dominated by micropayments, for these fees to be negligible for end users, while still being macroeconomically important for the system.

1.1.2 Fees

There are a number of questions to be asked, and answered:

1. What are fees for?
2. When can fees be levied?
3. Who gets those fees?
4. What macroeconomic effect does this levy have as a coin travels through the system?

1.1.3 Liquidity

1.2 Quantities of Interest

Money Supply

$$\begin{aligned}
 C & \quad (\text{curits}) & : & \text{Quantity of curits, should be constant} \\
 C_e = C \cdot U & \quad (\text{curits}) & : & \text{Quantity of reserved curits, i.e. the value of tokens have been issued against} \\
 N = \frac{U_a \cdot C \cdot P_c}{P_n} & \quad (\text{nomins}) & : & \text{Quantity of nomins. This can float.}
 \end{aligned}$$

Utilisation Ratios We should work out a good level for U_{max} .

$$\begin{aligned}
 U = \frac{P_n \cdot N}{C_e \cdot P_c} & \quad (\text{dimensionless}) & : & \text{Empirical issuance ratio.} \\
 U_{max} & \quad (\text{dimensionless}) & : & \text{Targeted issuance ratio ceiling. Ideally, } 0 \leq U \leq U_{max} \leq 1
 \end{aligned}$$

Prices These values are important, with the goal of stabilising the nomin price.

$$\begin{aligned}
 P_c & \quad \left(\frac{\$}{\text{curits}} \right) & : & \text{curit price} \\
 P_n & \quad \left(\frac{\$}{\text{nomins}} \right) & : & \text{nomin price} \\
 P'_c = \alpha \cdot f(V_n, V_v) \cdot R & \quad \left(\frac{\$}{\text{nomins} \cdot \text{seconds}} \right) & : & \text{R a risk term incorporating volatility? \#buyers - \#sellers?}
 \end{aligned}$$

Fees

F_x, F_i, F_r (dimensionless) : transfer, issuance, redemption fees; these should be ratios, e.g. 0.1%

Money Movement

$$\begin{aligned}
 V_n = S_n \cdot N & \quad \left(\frac{\text{nomins}}{\text{seconds}} \right) & : & \text{nomin transfer rate} \\
 V_v = V_i + V_r & \quad \left(\frac{\text{curits}}{\text{seconds}} \right) & : & \text{nomin} \leftrightarrow \text{curit conversion rate.} \\
 V_i = (C - C_e) \cdot S_i & \quad \left(\frac{\text{curits}}{\text{seconds}} \right) & : & \text{nomin issuance rate. Assumed to grow as there are more free curits in the} \\
 V_r = C_e \cdot S_r & \quad \left(\frac{\text{curits}}{\text{seconds}} \right) & : & \text{rate at which curits are redeemed in return for nomins (which are burned)}
 \end{aligned}$$

Microeconomic Variables These should be defined as functions of P_n, P_c , fees, etc.

S_n	$(\frac{1}{\text{seconds}})$: average nomin spend rate
S_i	$(\frac{1}{\text{seconds}})$: average issuance rate
S_r	$(\frac{1}{\text{seconds}})$: average redemption rate