SoftLink

A new synthetic asset

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Abstract

Most existing cryptoassets based on AMPL[1] aim to be synthetic commodities uncorrelated against the general block-chain market, by enforcing their own independent set of rules to produce a unique volatility footprint. This paper presents SoftLink - a similar elastic supply token that instead focuses solely on achieving a non-collateralized & non-dilutive[2] price peg to LINK[3]. SLINK[4] aims to provide data for what exactly happens when this sort of *pseudo-peg* is achieved. This paper will also speculate on potential outcomes provided this type of peg is successful.

1 Introduction

SLINK is an elastic supply asset that aims to explore the effects of a new kind of price peg, one that is achieved by distributing supply delta pro-rata over all balances. Unlike other coin stabilization schemes such as Seignorage Shares[1], this approach only stabilizes *coin price*, and not the *purchasing power* of a wallet balance.

This kind of approach, advocated by Ametrano in his coin stabilization scheme dubbed "Hayek Money"[2], has been implemented in protocols such as Ampleforth. These protocols in the short term have shown to be non-optimal in achieving their price peg, instead existing more to serve as uncorrelated synthetic commodities. This is achieved by classifying *rebasing* as a rules-based event, that would ultimately alter the volatility fingerprint of the asset[3].

SLINK shifts the focus more towards achieving the price-peg instead. This paper will describe protocol parameter optimizations that are implemented to achieve this, and it will explore potential outcomes if this sort of volatile store-of-value price-peg is achieved.

[1] AMPL, ticker for Ampleforth.

[2] non-dilutive meaning supply delta distributed pro-rata across all wallet balances, such that each person's % market share stays constant.

[3] LINK, ticker for the native token of Chainlink.

[4] SLINK, ticker for SoftLink.

2 Protocol

2.1 Parameter Fundamentals

All supply-adjustment functions are handled by a monetary policy contract, which requests price information from an oracle provider contract. The basic idea of the rebase is that if the oracle rate of SLINK in terms of LINK changes by a certain percentage, then supply will change by the same rate divided by a constant *rebase lag* which dampens the price change. For example, if the price change is +10%, the supply will expand by 10%, assuming no dampening (rebase lag is 1). If the rebase lag is less than 1, then the supply will expand slower, by $(10/l)\%$. The protocol will behave similarly after a price decrease, in which case the supply will contract. Thus, on a rebase, the change in supply of tokens Δq is

$$\Delta q = \frac{q_t - q_0}{l}$$
$$\text{where} \quad q_t = \frac{q_0 p_0}{p_t}$$

with the variables defined as:

- l = the *rebaseLag* (a constant)
- q_0 = the current total supply
- q_t = future *target* total supply
- p_0 = oracle price of SLINK (this token) in terms of LINK
- p_t = target price of this token in terms of LINK (a constant)

Furthermore, the monetary policy contains other configurable variables:

- The *deviationThreshold* – the rebase will only happen if there is a minimum change in price. For example, if the threshold is 5%, then the rebase will happen if the price deviation is outside the range +5% to −5%.
- The *rebaseInterval* – the minimum time between rebases.
- The rebase window offset in seconds – the start time of the time window in which rebasing is allowed.
- The rebase window length.

For example with values from AMPL, if the minimum rebase time interval is 24h, with a rebase window length of 30 minutes offset by 3 hours, then rebases can be called between `03:00-03:30 UTC` every day.

2.2 Parameter Optimizations

Unlike AMPL, which is focused on being an uncorrelated synthetic commodity, SLINK is more interested in achieving an accurate unit-of-acocunt price peg with a fluctuating store-of-value.

The few constants that can be adjusted to bolster this peg include the *deviationThreshold*, the *rebaseLag*, and the *rebaseInterval*.[5]

2.2.1 Deviation Threshold

Large *deviationThreshold* values increase the price-equilibirium range without actually bringing the price closer to the peg. There are no immediate downsides to setting a small *deviationThreshold*, so SLINK will adopt a low *deviationThreshold* value of 1%.

2.2.2 Rebase Lag & Rebase Interval

Provided supply changes are priced in instantly according to the $P * S$ market capitalization constant[6], both the *rebaseLag* and the *rebaseInterval* should produce a step-like function that gradually approaches the target price.

Let the old price be p_0. After a rebase, the new supply of tokens will be

$$\begin{aligned} q_1 &= q_0 + \frac{\frac{q_0 p_0}{p_t} - q_0}{l} \\ &= q_0 \left(1 + \frac{\frac{p_0}{p_t} - 1}{l}\right) \\ &= q_0 \left(1 + \frac{p_0 - p_t}{p_t l}\right) \end{aligned}$$

Hence the supply will increase by:

$$\frac{q_1}{q_0} = 1 + \frac{p_0 - p_t}{p_t l}$$

So the new price of SLINK p_1 will eventually become:

$$p_1 = \frac{p_0}{1 + \frac{p_0 - p_t}{p_t l}} = \frac{p_0 p_t l}{l p_t - p_t + p_0}$$

A plot of price after a rebase against rebase iteration is illustrated in figure 1, showing SLINK's chosen values against AMPL's.

[5] The values mentioned here may be subject to change in the future.

[6] SLINK's primary market consists of reserve-based AMMs like Uniswap. Spot prices are updated instantly as supply changes are synced on rebase.

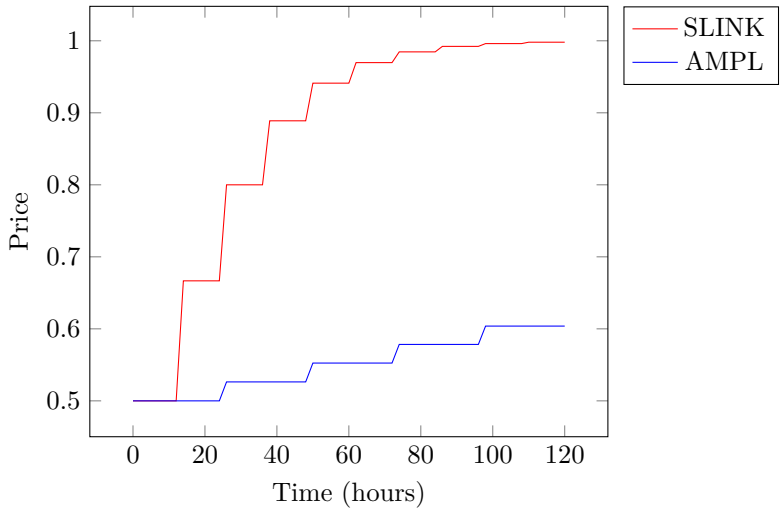

Figure 1: SLINK has a *rebaseLag* of 2, and a *rebaseInterval* of 12 hours. AMPL has a *rebaseLag* of 10, and a *rebaseInterval* of 24 hours. The starting price for both is 0.5, with the target at 1, both in terms of their peg asset.

SLINK is shown to have a significantly more aggressive path towards the peg price, reaching its equilibrium window well before AMPL.

2.2.3 Price Oracle

SLINK's oracle utilizes a 1-hour time weighted average price for the most up-to-date information[7]. This is pushed randomly within a 30-minute period before the rebase window.

3 Peg Choice

For the purposes of exploring a non-collaterized & non-dilutive price peg, a reliable target asset with sufficient volatility, market capitilization, trading volume & compatibility was chosen.

Chainlink's native token (LINK) was the obvious peg choice for this project, being one of the most significant ERC20 tokens on the Ethereum network, boasting a current market-capitalization of around 6.6 billion USD & a 24 hour trading volume of 1.5 billion USD.[8].

As a first-of-a-kind experiment, no extravagant price-pegs were chosen. A peg to LINK would allow ease of analysis for any data generated by SLINK, making way for comprehensive reports in the future.

[7]This may be subject to change along with the other constants.
[8]Data taken from `https://www.coingecko.com/en/coins/chainlink`.

4 Predictions

The natural question to ask is; "will SLINK, an asset with no inherent value relevant to the asset it's pegged to, be correlated with LINK in returns?". Whether this is true or not depends purely on speculative forces & market psychology. One can assume that there may be some correlation to LINK based on the unit-of-account peg, however unless enough data is collected, there is no evidence to back this.

4.1 A new type of synthetic asset?

Let us entertain the thought for a second, that SLINK *is* somehow be correlated to LINK. If it is correlated to a sizeable degree, what sort of implications would that have? Would it be plausible that we have just created a successful non-collateralized synthetic asset? Would it be possible to have more impactful longs & shorts by trading SLINK rather than LINK? How much of SLINK's value would be determined by interest in SLINK, rather than LINK itself?

SLINK will serve as a benchmark asset to generate sufficient data for exploring these questions, answers of which we will hopefully have sometime in the near future.

References

[1] **Robert Sams**, *A Note on Cryptocurrency Stabilisation: Seigniorage Shares* (April 28, 2015).

[2] **Ferdinando M. Ametrano**, *Hayek Money: The Cryptocurrency Price Stability Solution* (August 19, 2014).

[3] **Evan Kuo, Brandon Iles, Manny Rincon Cruz**, *Ampleforth: A New Synthetic Commodity* (July 12, 2019).