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# Tracer: Purchasing Power Stablecoin

Chris Berg, Sinclair Davidson, Jason Potts<sup>1</sup> and Lachlan Webb<sup>2</sup>

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## ABSTRACT

Stablecoins within the DeFi space to date have exclusively focussed on creating a cryptocurrency that is pegged to an off-chain asset (nominally, USD). This approach, however, ignores the fact that USD is itself a depreciating asset, and holding this asset diminishes users' value over time. An NGDP (Nominal GDP) stablecoin appreciates (depreciates) in line with nominal GDP growth estimates - ensuring that a user's **purchasing power** stays stable over time. Notably, this design also meets all the criteria to be considered money.

## INTRODUCTION

Cryptocurrencies, such as Bitcoin, are notoriously volatile. This undermines their ability to operate as a money. In particular, this undermines their ability to operate as a unit of account. To overcome this problem a category of cryptocurrency, known as stablecoins, has been developed. These stablecoins are invariably pegged on a one-to-one basis with the US dollar. Various mechanisms to secure the peg have been deployed with varying degrees of confidence and success. Some such as tether rely on reserves of actual fiat currency and near fiat currency, while others such as Fei rely on cryptographic algorithms to maintain the peg.

The problem with this approach is that the US dollar is a depreciating asset. It functions very poorly as a store of value.

## NOMINAL GDP STABLECOIN

A stablecoin tied to the value of nominal GDP over time, throughout this paper referred to as a NGDP stablecoin, will simultaneously meet the criteria of being a medium of exchange, a unit of account, and a store of value. Historically it has been those assets or commodities that have best met each of those three criteria that has emerged as money. Unfortunately, it has been the case that 'money' cannot always simultaneously meet the unit of account and the store of value criteria.

Scott Sumner (2015) describes this problem as 'the most important problem in monetary economics: stabilizing the value of the medium of account'. Historically mechanisms such as the gold standard have been deployed in an effort to stabilize the value of money across its three objective criteria. Hayek (1943) proposed a commodity reserve currency to replace the gold standard, while in later years he (1976) proposed that money be 'denationalised'. The proposal here combines insights from both Hayek and Sumner to produce a stable non-government money.

The Hayek (1943) proposal was that money be pegged to a basket of warehouse receipts. This created two problems, first what should be included in the basket, and second how would the basket be settled? Our proposal is based on Sumner's (2015) nominal GDP targeting proposal. In this proposal the value of money is pegged not to a basket of warehouse receipts, but rather to a basket of all final goods and services that have been produced in the economy.

In particular, we propose that the value of the stablecoin be pegged to the forecast value of NGDP. In this way *one unit of the NGDP stablecoin will always purchase the same quantity of final goods and services that have been produced in the economy*. In this sense, this is an asset which is **stable in purchasing power**. This remains true even when the underlying basket of goods and services that makes up NGDP changes and when the quality of the goods and services changes.

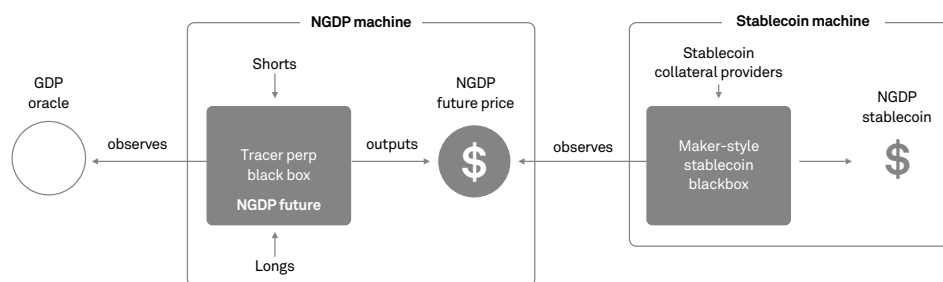
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<sup>15</sup> RMIT Blockchain Innovation Hub, RMIT University. Melbourne, Australia. This research is supported by an Australian Research Council Grant DP200101808.

<sup>2</sup> Mycellium, Brisbane, Australia.

## MECHANISMS

The mechanics of our proposal are set out in the figure below:



**Figure 1:** An overview of the processes that are required in order to construct the NGDP stablecoin.

**NGDP Futures Market:** In the first instance an NGDP futures market would need to be established. An oracle would point to a GDP data source and market participants would trade on the basis of that data feed and would establish an NGDP futures price. That price would be the informationally efficient best guess of the nominal GDP. This price can be found by way of using one of two instruments: Tracer Perpetual Swaps, or Tracer Perpetual Pools.

**Tracer Perpetual Swaps:** The NGDP futures price can be determined by a Perpetual Swap. The price at which the perpetual swap contract settles can be interpreted as the futures price.

**Tracer Perpetual Pools:** Perpetual Pools currently have no mechanism whereby it can diverge from the underlying price, as it can be done in Perpetual Swap contracts. In Tracer Perpetual Pools, anticipated price movements are indicated by way of collateral imbalance between the two sides of a pool. When there is excess collateral in the long side, a price appreciation is anticipated and vice versa for a price depreciation. When collateral between the pools are at parity, this implies that the specified price accurately reflects the market's expectations. The mechanism can determine the NGDP futures price by continually augmenting the oracle price to favour the pool with less collateral until it approaches a 1:1 collateral relationship. Once it reaches a 1:1 relationship, the price will settle.

**Collateral-backed Loan:** The NGDP futures price itself will then be an input (via an oracle) to Maker style stablecoin machine. Users would access the NGDP stablecoin by posting collateral in vaults and then making loans. Those loans would be subject to liquidation if margin requirements are breached.

Our model has two distinct products. First, the NGDP futures market is a valuable and viable product in its own right. Second, the stablecoin machine – this is a product that could be built on any blockchain and could create 'native' NGDP stablecoins for any other application. The model also scales – GDP can be defined at a nation-state level, or at a regional level (say the EU or G7 or any particular trade zone). It could also be used to create NGDP weighted exchange rates where the exchange rate could be defined as the ratio of the NGDP future prices. It is possible to design more complex mechanisms – but we believe this is the simplest model that will produce a stablecoin that is pegged to NGDP.

## Bibliography

Hayek, F. 1943. A commodity reserve currency. *Economic Journal*. 53: 176 – 184.

Hayek, F. 1976. *Denationalisation of money*. Institute of Economic Affairs.

Sumner, S. 2015. Nominal GDP futures targeting. *Journal of Financial Stability*. 17: 65 – 75.