Use case of linking a managed basket of fiat currencies to crypto-tokens

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Abstract

The number of crypto-currencies is increasing fast. On one hand, following the launch of Bitcoin in 2009, more than 1000 different crypto-currencies are listed in the crypto-currency markets. On the other hand, solutions like eCurrency exist to effectively create digital fiat currencies. There are solid economic reasons to introduce an optimized basket of fiat currencies as well, along the lines of the International Monetary Fund Special Drawing Rights, particularly for entities with global assets and liabilities or for individuals wishing to protect their purchasing power in a more and more global and multipolar world. Up to now this kind of solution was only accessible to a few large institutions due to the structure of the foreign exchange market. The main original contribution of this paper is to present the first use case of linking a managed basket of fiat currencies to a new crypto-token. The tokenisation and the use of blockchain will enable us to make it accessible to any individual gaining diversification while benefiting from good liquidity and low cost. After reviewing recent digital fiat currencies [...]
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I. Introduction

Following the launch of Bitcoin in 2009, more than 1000 different crypto-currencies have been listed in the crypto-currency markets. Solutions like eCurrency [1] exist to effectively create digital fiat currencies but there is still a gap between crypto-currencies and baskets of fiat currencies. In this document, we first give an overview of the related work. Then in Section III, we present our solution to optimize basket of fiat currencies, particularly for entities with global assets and liabilities or for individuals wishing to protect their purchasing power in a more and more global and multipolar world. We also explain how we have managed to allow any individual to benefit from such managed basket of fiat currencies thanks to a new crypto-currency called GLOBCOIN GLX implemented on top of Ethereum. Section IV concludes our use case contribution.

II. Related Work

Regarding baskets of fiat currencies, the International Monetary Fund (IMF) created in 1969 the Special Drawing Rights (SDR) [2] international reserve asset to supplement its member countries’ official reserves. As of March 2016, around 204 billion SDRs (equivalent to about $285 billion) had been created and allocated to members. SDRs can be exchanged for freely usable currencies. The value of the SDR is based on a basket of five major currencies: the US dollar, the euro, the Chinese renminbi (RMB), the Japanese yen, and the British pound sterling. In Section III, we give the details of our own solution to basket of currencies that can even be used at an individual level and not only at country reserve level.

Regarding digital currencies, eCurrency [1] is a technical solution enabling central banks to authorize and issue digital currency based on multi-tiered cryptography and off-line security processes. eCurrency argues that digital currency offers security superior to any paper currency instrument at a fraction of the cost without the environmental impacts of printing, distributing and retiring banknotes. In the crypto-currency domain, USDT [3] is a cryptocurrency asset issued by the Tether company on the Bitcoin blockchain via the Omni Layer Protocol [4], which consists of a software layer built on top of Bitcoin Core. Omni transactions are Bitcoin transactions that enable next-generation features such as the creation of custom currencies or Web wallets. They claim that each USDT unit is backed by a U.S. Dollar held in the reserves of Tether and can be redeemed through the Tether platform. Tether has also converted cash into digital currency, to anchor or tether the value to the price of national currencies like the euro and the yen. The USDT crypto-currency is listed in many major crypto-currencies exchange platforms. At time of writing, USDT has a market cap of 442 million US dollars, a daily trade volume of 123 million US dollars and a token circulating supply of 442 million USDT. The Jibrel Network [5] provides traditional financial assets, such as currencies, bonds, commodities and securities, as standard ERC-20 tokens on the Ethereum blockchain [6]. Using crypto-fiat tokens, users can store, send and receive value in their local currency with near-zero fees. They argue that by bringing traditional financial assets to the blockchain, problems plaguing traditional banking such as high fees and slow transfer times can be eliminated. However, at the time of writing, Ethereum is known to have a speed limit of around 20 transactions per second, which is far less than around 1670 transactions per second for Visa in 2016 [7] but more than current Bitcoin transaction rate at around 4 per second. A system called Raiden [8] based on Ethereum smart contracts has been in development to increase the maximum speed in the Ethereum realm to as high as one million transactions per second, but little progress has been made and an Initial Coin Offering (ICO) has just been launched for Raiden. Another Ethereum initiative called Plasma [9] will help increase transactions throughput. Bitcoin has its own project to try increase the transaction speed and throughput called Lightning Network [10].
III. GLOBCOIN Use Case

GLOBCOIN use case doesn’t require fast or high throughput transactions because the most important requirement is to optimise the value of the basket of fiat currencies. GLOBCOIN, whose value reflects that of the optimized basket, can also easily be bought or sold via a crypto-currency transaction. Such change of ownership transfer is far less frequent than in payments use case. William Stanley Jevons famously analysed money in terms of four functions: a medium of exchange, a common measure of value (or unit of account), a standard of value (or standard of deferred payment), and a store of value [11]. The main use case of GLOBCOIN crypto-currency is primarily as a store of value, with a secondary use as a medium of exchange. Better, with GLOBCOIN, the stored of value is automatically managed with the goal to optimize its value and if needed the crypto-currency can still be exchanged.

III.1 Economic Rationale of Fiat Currencies Baskets

We have explained in another paper [12] the economic rationale of owning an optimised basket of fiat currencies both for entities with global assets and liabilities or for individuals wishing to protect their purchasing power in a more and more global and multipolar world. Up to now this kind of solution, provided by OptimInvest, founded by Hélie d’Hautefort, an author of this paper, was only accessible to a few large institutions due to the structure of the foreign exchange market. The gold standard was meant to fulfil the store-of-value objective, but it was abandoned many decades ago, and its place was taken by fiat currencies, which derive their value from the mere fact that governments declare them legal tender. In this system, any student of history would find reason to worry, knowing that over the very long term, even the mightiest of empires will decline and fall. Such changes can occur even over the space of a human lifetime, as shown by the fact that the pound sterling was still the world’s primary reserve currency in the first half of the 20th century. Successful long-term wealth management requires an awareness of the fact that, at least so far, no single fiat currency has survived the test of time. Along the line of the IMF SDR [2] for countries members reserves mentioned in the above related work, OptimInvest has therefore designed a solution for institutions and wealthy families and implemented the Global Reserve Currency Index (GRCI), which has weights based on GDP for each country, adjusted for Purchasing Power Parity (PPP). We call it a “reserve currency index” because it is akin to central bank reserves. In fact, in addition to gold, central banks and other monetary authorities hold foreign exchange reserves, mostly in US dollars but also in other currencies, such as the euro, pound sterling, and yen (IMF 2012). The weight of a currency in the GRCI increases or decreases with that currency’s role in the global economy, as measured by PPP-adjusted GDP. The index thus captures the impacts of geopolitical trends and of shifts in economic power toward emerging market countries. It is worth noting, for example, that the weight of the Chinese renminbi in the GRCI more or less doubled in the last decade as China’s importance in the global economy increased. The GRCI also holds gold, with a fixed 5% weight, which is a rough estimate of the average gold allocation in central bank reserves. Emerging currencies, in addition to enjoying better fundamentals—because their countries generally have lower public debt levels than the G–7 countries—offer more attractive yields, which are captured by the GRCI. We mitigate the impact of financial repression, which reduces interest rates for the currencies of developed (and very indebted) countries, by benefiting from the better yields offered by developing countries. We also correct the bias inherent in the allocation to a typical investment benchmark. By and large, the universe of investable assets is concentrated in developed countries, which over the long term, almost by definition, are likely to grow less than developing countries. Thus, any traditional allocation has capped its growth potential. By using the GRCI as the reference currency basket, we essentially remove this low-growth bias.

Adopting our currency basket index, especially when implemented through a currency overlay approach, offers two important advantages:
1. Asset allocation decisions can be made independently of the chosen currency basket because the currency exposure is achieved through the overlay and not through asset allocation.
2. Currency allocation becomes more disciplined and systematic according to a 40-page rulebook.

Although the past is not necessarily a guide to the future, it is interesting to assess the GRCI’s historical performance. The Figure 1 below shows that for an investment in the S&P 500 Index over the 13 years ending with 2015, hedging it into the GRCI results in outperformance of nearly 45%, reflecting the outperformance of the GRCI with respect to the US dollar over the same period.

![Figure 1](image)

Figure 1. Comparison of the performance of the S&P 500 Index in USD and its performance hedged into the GRCI

The above GRCI basket solution has been adopted by several institutions and wealthy family offices because it was costly doing it themselves. Thanks to the creation of the GLOBCOIN crypto-currency, the GRCI basket can be democratized right now. The main advantage of this solution is simplicity and modest transaction costs, as compared to the cost of a direct purchase of the optimized currency basket, and subsequent rebalancing costs of the optimized basket.

### III.2 Technical Implementation

We have chosen to implement the linking between our GRCI-like optimized basket of fiat currencies to a crypto-currency token via the Ethereum platform [13]. The choice was based on the fact that Ethereum is at time of writing the most well-known blockchain platform that easily allows the creation of new crypto-currencies that are easily integrated in other crypto-currencies services and applications thanks its standardised ERC-20 token format [6]. Other platforms exist such as NEO [14] but they are currently less developed than Ethereum.

Therefore, we have developed a smart contract, a decentralised application in the Ethereum blockchain, that creates and manages the GLOBCOIN GLX token, which links to an optimised currency basket tracking the performance of the 15 largest currencies and gold. Each token represents 1 unit of a basket consisting of the fiat currencies of these 15 largest economies and gold, as measured by GDP, covering the vast majority of global production; naturally adjusts over time to the
econometrics of each constituent country. In line with the GRCI investment approach shown in the previous subsection, this basket is well-diversified amongst G10, emerging currencies and gold. Emerging currencies benefit from greater weight in the index to reflect the higher growth potential in those economies as shown in Figure 2. The weights are calculated using Gross Domestic Product (GDP) data adjusted by the Purchasing Power Parity (PPP). The key investment philosophy of the basket is ‘safety first’: not trying to pick short term winners, but trying to avoid holding a concentrated position in potentially losing currencies.

![Figure 2. GLOBCOIN GLX basket of fiat currencies and gold distribution](image)

The GLOBCOIN GLX crypto-currency is therefore a digital asset that mainly functions as a store of value and a medium of exchange if needed because an ERC-20 Ethereum compliant token can be easily exchanged on decentralised exchanges such as EtherDelta [15] or future more user-friendly ones like Kyber Network [16]. The GLOBCOIN GLX, which is a utility token, may also be listed on major centralised exchanges such as Bittrex [17]. For example, USDT mentioned above in the related work is already listed on major exchanges. An advantage of the GLX is that its value is optimized across various currencies and risks less to lose value if the USD loses value. Regarding trust in linking tokens to real fiat currencies, GLOBCOIN team is composed of public profiles with a long experience in optimizing baskets of fiat currencies. In addition, the linked funds will be regularly audited by a “big 4” [18] accounting firm.

**IV. Conclusion**

In this document, we have presented the first use case of linking a managed basket of fiat currencies to a new crypto-token. Up to now this kind of solution was only accessible to a few large institutions due to the structure of the foreign exchange market. Beyond the technical achievement, allowing any individual to benefit from such managed basket of fiat currencies is a step forward better financial inclusion for all.
References


