

Adaptation of stablecoins as the reserve currency

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Abstract

The article discusses the weaknesses of fiat reserve currencies and proposes modern Distributed Ledger Technologies as a way to lower transaction costs and promote digital payments for the public. Specifically, we concentrate on stablecoins, a particular category of cryptocurrencies, that are designed to maintain stability and to be used as a medium of exchange and store of value. The results allow concluding that tokens backed by commodities may be implemented in payments globally with minimum cost and processing time. Hence, it is a revolutionary solution to the existing international monetary issues.

Keywords: Distributed Ledger Technologies; stablecoins; token; cryptocurrency; gold; COFER

JEL Classification: E42, E58, F31, G23

The diminishing role of the USD as a global currency

In recent years the trend of de-dollarisation has peaked due to lack of confidence in the currency and central banks began interchange dollars in their reserves for other currencies or gold. According to IMF Data, the amount of total foreign exchange reserves rose from \$ 11,178,782.10 million in the 3rd quarter of 2015 to \$ 11,396,623.72 million in the 3rd quarter of 2018 (it is 1.9 per cent growth in 3 years) (IMF Data, 2019a). However, the growth of claims in U.S. dollars rose only by 39.7 per cent, while the claims in euro grew by 52.9 per cent through the same period.

If we look at the Total Market Capitalisation-to-U.S. GDP Ratio (Buffett Indicator), as on 25th February 2019, it is currently at the level of 139.4 per cent, which means that the stock market is significantly overvalued (GuruFocus.com LLC., 2019). For comparison, on the 30th March 2000 (the dotcom Crash) the ratio hit 148.5 per cent, while on the 30th June 2007 (the Financial crisis of 2007) it was at 110.7 per cent. Similarly, Shiller P/E ratio for the same date (Cyclically adjusted price-to-earnings ratio) shows 30.7x meaning that on average corporates' share prices 30 times exceed their earn-

ings (GuruFocus, 2019). This fact also leads to the conclusion that the stock market is too overpriced. The mentioned figure is 81.7 per cent higher than the historical mean of 16.9x. Moreover, the current number has surpassed 27.4x as it was in June 2007 and has almost reached 32.6x as it was in September 1929 (the Great Depression). There is an inevitably growing risk of a new crisis.

Notably, the share of dollars in the Currency Composition of Official Foreign Exchange Reserves (COFER) fell from 65.54 per cent to 61.94 per cent in 3 years. In the early 2000s, its weight was almost constant at the level of 67.3 per cent (3rd quarter of 2004) (Ewe-Ghee Lim, 2007). Meanwhile, the share of the euro improved from 19.79 per cent to 20.48 per cent. Concerning Chinese renminbi, it remained at the level of 1.80 per cent of COFER in the 3rd quarter of 2018.

The mentioned figures suggest that countries fill their foreign exchange reserves using euro and other currencies more actively than the U.S. dollar. In the long-term, it may cause the depreciation of the USD.

Moreover, according to Bank for International Settlements, total credit denominated in U.S. dollars to non-bank borrowers outside

the United States in the 3rd quarter of 2018 increased by 3.5 per cent compared to the previous year, while the credit denominated in euro to borrowers outside the euro area increased by 9.0 per cent (BIS Statistics, 2019). Markedly, the Russian Federation in the same period reduced its credit in USD by 14 per cent to \$ 168 billion. On the other hand, the country acquired 1.4 per cent more borrowings in EUR increasing it to € 47 billion.

Euro may not be the right solution

From the statistics above we may conclude that on the contrast with the U.S. dollar, the role of the euro becomes more significant. Contrarily, on the 5th January 2010, the official exchange rate of EUR to USD was 1.4411, while on the 5th January 2019 1 EUR was equivalent to 1.1395 USD. In other words, euro depreciated by 20.9 per cent in 9 years (Exchange Rates UK, 2019). Even though the euro seems like a more reliable currency in its essence, it is still not advised.

Any replacement of the dollar by analogical currency would not solve the central issue of the fiat, which is its natural instability. The values of modern reserve currencies too much depend on the economic conditions in emitting countries. Their prices are not pegged to any real asset, but they are somewhat based on one's belief about the other's belief that the given economies are stable. Because of such weak assumptions, the prices of major fiat currencies tend to fluctuate daily depending on the news, press releases and other sources of public opinions. The volatility attracts speculation, which in turn causes the currencies' liquidity to suffer. Without sufficient liquidity, money cannot retain one of its primary function — being a medium of exchange.

Stablecoins as a way to rearrange the weights of reserve currencies

To diversify the risk of failing economies, it is advised to implement a new reserve currency, which is backed by the portfolio of assets with little correlation. It is proposed that Special Drawing Rights (SDR) in its current version may not be a solution because its value depends on five other reserve currencies.

According to IMF, on the 5th January 1982, 1 SDR equalled 1.164801 USD (IMF, 2019b). On the 5th January 2010, 1 SDR amounted to 1.567546 USD. As for the 4th January 2019, the same amount of SDR could be exchanged for 1.390737 USD. This is 19.4 per cent appreciation of the SDR value in 37 years and 11.3 per cent depreciation in 9 years. While the figures of SDR are much better than for the dollar and euro, the rates range is still inappropriate for being used globally as a medium of exchange. For the currency to be used in exchanges, its rate should always be around the constant target price set by the regulator. With that intention in mind, stablecoins were designed.

Nowadays, financial institutions, international corporations and other organisations launch private cryptocurrency projects to attract capital from the investors. Their primary concern is that the effects of price volatility should be minimised. The main feature of cryptocurrencies is that they are issued using Distributed Ledger Technology. According to the World Bank, DLT has the following potential applications (Table 1).

Stablecoins is a separate category of cryptocurrencies, which have a limited volatility range around a target price and are pegged to an asset with a stable value. According to Bilal Memon, the Founder of Master the Crypto, “stablecoins have the potential to help people living in countries suffering from high inflation rates.” (Bilal, 2018). They can enhance consumers' purchasing power.

For instance, Tether (USDT), the most traded stablecoin with general prices range from \$ 0.99 to \$ 1.01, and TrueUSD (TUSD), the second most traded and a more transparent alternative to Tether, are coins that are backed by U.S. dollars and have a target rate of \$ 1 per token. Importantly, TrueUSD's legal framework (developed by TrustToken) allows a customer to exchange USD directly with an escrow account. Its open source smart contracts ensure a 1:1 parity between TrueUSD and USD in the accounts (TrustToken, 2019).

According to Bilal Memon, there are generally four categories of stablecoins (Bilal, 2018):

1. Fiat-Backed: a central entity should have the reserves of fiat currencies equivalent to its

Table
Overview of Potential DLT Applications (at varying stages of development)

Financial Sector Applications	
Money & Payments	<ul style="list-style-type: none"> • Digital currencies • Payment authorization, clearance & settlement • International remittances and cross-border payments (alternative to correspondent banking) • Foreign exchange • Micropayments
Financial Services & Infrastructure (beyond payments)	<ul style="list-style-type: none"> • Capital markets: digital issuance, trading & settlements of securities • Commodities trading • Notarization services (e.g. for mortgages) • Collateral registries • Movable asset registries • Syndicated loans • Crowdfunding (as initial coin offerings) • Insurance (in combination with smart contracts) for automating insurance payouts and validation of occurrence of an insured event
Collateral registries and ownership registers	<ul style="list-style-type: none"> • Land registries, property titles & other collateral registries
Internal systems of financial service providers	<ul style="list-style-type: none"> • Replacing internal ledgers maintained by large, multinational financial service providers that record information across different departments, subsidiaries, or geographies
DLT-based applications in other sectors	
Identity	<ul style="list-style-type: none"> • Digital identity platforms* • Storing personal records: birth, marriage & death certificates
Trade & Commerce	<ul style="list-style-type: none"> • Supply chain management (management of inventory and disputes) • Product provenance & authenticity (e.g. artworks, pharmaceuticals, diamonds) • Trade finance • Post-trade processing • Rewards & loyalty programs • Invoice management • Intellectual property registration • Internet of Things
Agriculture	<p>Financial services in the agricultural sector like insurance, crop finance and warehouse receipts</p> <p>Provenance of cash crops</p> <p>Safety net programs related to the delivery of seeds, fertilisers and other agricultural inputs</p>
Governance	<ul style="list-style-type: none"> • E-voting systems • E-Residence • Government record-keeping, e.g. criminal records • Reducing fraud and error in government payments • Reducing tax fraud • Protection of critical infrastructure against cyber attacks
Healthcare	<ul style="list-style-type: none"> • Electronic medical records
Humanitarian & Aid	<ul style="list-style-type: none"> • Tracking delivery & distribution of food, vaccinations, medications, etc. • Tracking distribution and expenditure of aid money

* Identity becomes a token, which can be affirmed as needed and record of identity validation also stored on the DL.

Source: Natarajan *et al.*, 2017, p. 22.

token issued and, additionally, reserves sufficient to keep the price at the target. The advantages are the structure's simplicity and stability, while the disadvantages are trustworthiness of a central body, and regulations.

2. **Commodity-Backed:** a coin represents a specific portion of gold (for example, one token equals 1 gram of gold), oil or any other commodity. The physical gold itself is often stored in a trusted third party's vault. Some great examples are the Digix (DigixGlobal, 2014) and the Goldmint (Goldmint, 2018). The advantages are the support of real assets, stability, liquidity. The main disadvantages are audit and costs of keeping commodity reserves sufficient to regulate the price.

3. **Cryptocurrency-Backed:** coins backed by other digital currencies, usually the top-ranked cryptocurrencies. Not efficient because of the natural volatility of the majority of digital currencies.

4. **Seigniorage-Style:** coins utilise an algorithm to expand or contract a stablecoin's money supply. The advantages are the decentralisation, the absence of collaterals, stability. The main disadvantage is the complexity of the technology.

We concentrate on the stablecoins that are backed by commodities, gold in particular. As it has been mentioned, one of the most successful projects today is Digix Gold Tokens (DGX). It is a token backed by physical gold that has been fully audited. It is stored in a vault in Singapore.

What contributes to the project's success is that a coin is redeemable anytime. The rate of DGX is entirely dependent on the market price of gold. The token is based on the Proof-of-Provenance algorithm, i.e. each gold bar is secured, and its ownership/custodianship status is tracked on the blockchain. The storage, the company and their ledgers are audited each quarter.

Conclusion

In conclusion, it is necessary to list the main arguments of the current article. First, the Distributed Ledger Technology, on which cryptocurrencies are based, could increase efficiency and lower transaction costs, while giving access to finance for populations, who are currently outside the traditional financial system [7] (Natarajan *et al.*, 2017). Second, the stablecoins, a select group of digital currencies, are suggested to be used as an alternative to IMF SDRs. They may be pegged to the value of real assets held by the trusted third party. The regulator always has access to information about the current level of reserves so that it could issue or kill tokens. When the price of the currency goes beyond the required range, regulators use their reserves to maintain stability. Increasing the number of authorities associated with the regulation function would lower biasedness and increase common holdings making it easier to influence the rate. Notably, a significant advantage of a stablecoin backed by the gold is that the minimum price of the token will always be the same as the amount of gold in the vault. The value of the currency may rise but would not fall beyond the baseline.

On the other hand, when prices of alternative currencies rise rapidly, investors tend to dispose of stablecoins causing the price to drop massively. It was the case when NuBits crashed in 2016 because the Bitcoin's price started peaking. There are also some risks with gold-pegged digital currencies. The investors should examine who stores the gold for a particular cryptocurrency and where the vault is located before deciding to invest. The price of a token may drop substantially if the gold disappears from the storage. The transparency is essential among developers, regulators, third-party holders and investors.

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Применение stablecoins в качестве резервной валюты

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Аннотация. В статье рассматриваются слабые стороны фиатных резервных валют и предлагаются современные технологии распределенного реестра (DLT) как способ снижения транзакционных издержек и продвижения цифровых платежей для населения. Дана характеристика и оценка криптовалюты stablecoins, которая предназначена для поддержания стабильности и использования в качестве средства обмена и хранения стоимости. Результаты исследования позволяют сделать вывод, что токены, обеспеченные сырьевыми товарами, могут быть глобально реализованы в платежах с минимальными затратами и временем обработки.

Ключевые слова: технологии распределенного реестра; stablecoin; токен; криптовалюта; золото; COFER