Stable Coin

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1 Introduction

Very quick introduction to blockchain/crypto What is stability vs volatility. About coin supply and volatility [10]. Short-term stability is important for transactions and long-term stability is important for holding‘ [6].

currencies are judged by their ability to serve three functions???as a medium of exchange, a unit of account, and a store of value. To successfully serve these functions, a currency must be easily and broadly usable (necessary for being a medium of exchange) and demonstrate at least some level of value stability (necessary for acting as a unit of account and store of value).

2 The current state of the stable coins

Today, stablecoins together represent just 1.5 percent of the total market value of all crypto-assets, according to researchers at the digital wallet company, Blockchain. https://www.euromoney.com/article/b1bbk5rb8gp227/forget-bitcoin-stablecoins-will-change-how-money-works?copyrightInfo=true

Stablecoins can be categorized into three groups based on the way they achieve stability: fiat-collateralized, crypto-collateralized, and non-collateralized.

1) Fiat-collateralized stablecoins: These type of stable coins are backed by fiat currency and backing by USD is one of the most common types. Generally, there is a 1:1 peg between the fiat currency and the stablecoin that indicates a convergence between their values [3]. USD being one of the most common choices for the fiat currecncy to back the stablecoin, IBM states that they are also interested in projects that use other national fiat currencies, as they will be helpful for IBM's blockchain integration [5].

Tether and TrueUSD are USD are prominent examples of USD pegged tokens. Some projects like Digix Gold Token prefer to use gold to back their stablecoin, as gold has a relatively slow increase in its value compared to fiat currencies.

Discussion about centralization: Backing up with fiat currency means that there is a need for third party. The amount of money to back the stablecoin up should be held in an account [9]. The involvement of a third party causes controversy in the community, as the third party can just deny giving money to the users. Tether explains this point as follows [7]:

> "Redemptions will not be unreasonably denied, but we reserve the right to selectively deny redemption and creation of Tethers on a case-by-case basis."

2) Crypto-collateralized stablecoins: These type of stablecoins uses other cryptocurrencies as a back up value rather than a fiat currency. Over-collateralization is needed this case as the underlying cryptocurrency is also volatile [3]. MakerDAO and Reserve use this approach. Reserve utilizes a smart contract to back the stablecoin with another cryptocurrency [5].

However, in case of a black swan event, where the underlying asset becomes completely worthless, the stablecoin would collapse too. In this case the loss-exposure would even be amplified for the stablecoin owners because of the over-collateralization. This is also why some experts are strongly discouraging this approach. https://medium.com/@argongroup/stablecoins-explained-206466da5e61

3) Non-collateralized stablecoins: Unlike the previous types of stable coins, these aren't back by fiat currencies of another cryptocurrency. The stability is achieved algorithmically [3]. Basis is one of the first projects that use this approach.

Basis and Carbon use the dual-token model [7]. There is dynamic adjustment of the existing supply of the stablecoin. While one token is stable, the other is used to achieve the stability of the value.

Another approach is the seigniorage shares method [4]. Here, the smart contract automatically adjusts the supply based on the algorithm to achieve stability in the value.

Basis is intended to peg at roughly one-to-one against the dollar. If it gains acceptance as a popular medium of exchange in the crypto world and increases in value to, say, $1.10, the system will print more Basis tokens to increase supply and so reduce the price. If the price falls below $1, the code will issue bonds worth one basis token each, use the proceeds to buy existing Basis tokens to reduce supply and so bid the price back up, later repaying bondholders when Basis tokens trade above par. It is a complicated, seigniorage based system. https://www.euromoney.com/article/b1bbk5rb8gp227/forget-bitcoin-stablecoins-will-change-how-money-works?copyrightInfo=true

3 Problems that stable coin addresses

As mentioned in the ..., currencies can serve as a store of value, a unit of account, and a medium of exchange [11]. In order to serves as a unit of account and store of value, currencies have to denote a minimum level of value stability. In this regard, stable coins are proposed to provide store of value and unit of account functionalities, due to their non-fluctuating value in terms of fiat currencies or any other alternative. In addition, they purport to solve a group of critical issues that were introduced when using cryptocurrencies introduce. In this section, we discuss these issues.

3.1 Lending with Cryptocurrencies

Despite quite a few blockchain applications in financial technologies, there has been little deployment of lending. One of the main challenges with the lending

that makes it difficult to be deployed on the blockchains is the monetary instability observed in the the existing cryptocurrencies [8]. This volatility has led the existing cryptocurrencies to be used more as speculative investments instead of serving as store of value and unit of account. In a lending situation with volatile currencies, where their value is being depreciated or appreciated over time, the cash taker will eventually owe more than what he has borrowed or the vice versa. Therefore, the volatility in the value of cryptocurrencies cause serious concerns and difficulties both for cash takers and cash providers [8]. In the contrast, lending perfectly works if a loan is done with a stable cryptocurrency, whose value remains stable over the time.

3.2 Government Surveillance

Governments have recently started examining the idea of issuing a central bank-issued digital currency (CBDC) [1]. These national digital currencies are regulated by federal regulators instead of serving in a form of decentralized currencies– where only the owner has the sole control and ownership of the assets. CBDCs are not backed by any tangible assets and are issued by central banks so that they could keep their monetary policy while adopting the trend of digital assets. However, an oppressive government may abuse these assets to manipulate the markets or to limit the ownership of these assets to a special group of people (*e.g.,* citizens of that specific country). However, since stable coins are not backed by any central party and financial regulator, users are assured about the stability as well as having easier access no matter where they live and/or come from.

3.3 Promoting Trust in the Crypto Space

Discussion on Paxos, Gemini vs Tether. How having monthly attestations increase the reliability of Paxos and Gemini?

For a stablecoin to consistently trade at par, its issuer must, in effect, convince a wide a community of future tokenholders of its future solvency. And that degree of trust can be hard to maintain, as it involves the psychology of the market, which can shift significantly over time. Consider Tether's predicament. Whether it has the funds it says it has isn't the only question. The other, perhaps even more important, is whether the market believes those commitments will hold up against a wider environment of waning confidence.

For reserves-backed stablecoins, this includes practices such as: naming the banking relationship so that users can properly assess the underlying counterparty risk; committing to independent security audits of the underlying code to show that tokens are destroyed when funds are redeemed; holding regular attestations of the firms' balances by trusted third-party auditors. (Note: this does not mean a full "audit" per se. Calls for an audit of Tether were misleading; there is no way that a crypto system's past transactions can be audited in the traditional sense. Instead, proofs rely on attestations as to the accuracy of the firm's claims about its balances at a point in time.)

(https://www.coindesk.com/the-delicate-psychology-of-stablecoins/)

Other possible solutions to lending: While stable coin is one of them what can be the other possible solutions?

Taken from [8], paraphrasing needed! Addressing monetary instability:

- The rate of release of new currency into the system could be modified to enable new currency to be introduced at (i) a more insightful rate or (ii) based on some internal metrics of the system like number of transactions. [Remark: an insightful rate has been elusive despite many alt-coins customizing the schedule and it is difficult to see how metrics could not be gamed].
- A cryptocurrency can also use explicit pegging but it is no better suited to this system than standard currencies.
- A central bank could manage currency circulation while allowing other aspects to be decentralized. [Remark:Central banks have been historically unsuccessful at using money circulation as a target].
- The loan could be use the cryptocurrency as the medium of exchange but use a stable (e.g., government) currency as the unit of account.

Other possible solutions to lending: While stable coin is one of them what can be the other possible solutions?

4 Comparison Framework

Define the properties that are considered during the design of stable coins. Collateralization info from [2], decide which projects to choose that exemplify each category best.

	Collateralization (+ the value of the collateral)	Price Oracle	Centralization
BitShares (BitUSD)	Crypto-collateralized	No	
BitBay	Non-collateralized		
DAI	Crypto-collateralized (ETH)	Yes	No
BitShares	Crypto-collateralized	Yes	
Basis	Non-collateralized		
Tether	Fiat-collateralized (USD)		Yes

Decentral price oracle and Schelling point [7] DAI and Bitshares [7]

5 Critical Issues with Stable Coins

–Most stable coins fail (this is historically true, it doesn?t speak to the current stable coins). When they fail, they may or may not be redeemable for the promised amount. That is the harsh truth. None of the old stable coins are with us today aside from Nubits?. and Nubits has recently been trading for under .50

cents here in late March 2018. TUSD, Tether, and Dia all seem solid in there here and now, and they likely have learned from the mistakes of their formers, but if we are being honest about the history of stable coins, it is as volatile as the history of crypto itself.

–Some say that stable coins bring stability to the crypto space, but that idea doesn?t seem to be empirically proven. Instead, I?d argue that the perks of stable coins are in the ability for traders to go to a dollar quickly and the ability of exchanges to increase liquidity. Further, I?d argue that stable coins actually add volatility to the crypto space, because they allow for more speculation (which in theory creates stability, but which in practice hasn?t really seemed to do anything of the sort). The bottom line on this point is that the crypto space isn?t a stable place, and no type of cryptocurrency, regulation, or derivative I?ve seen has yet to change that (so here the point is, let us not give credit where it is not due). The term used is ?stable coin? or ?price-stable cryptocurrency,? not because this coin brings stability, but because the token ideally holds a stable value.

–Stable coins generally require us to trust a central third party. Each stable coin has its own way around being overly centralized, but there generally needs to be some way to manage these assets to ensure their stability (even though they tend to be blockchain based). Anything centralized requires the trust of a third party to some extent. Requiring the trust of a third party in crypto goes against the concept of crypto somewhat. This isn?t a problem per-say, but it is worth noting. With that said, most exchanges aren?t decentralized and thus using a stable coin as a currency on an already centralized exchange is hardly the a reason not to use stable coins (or exchanges).

-Discussion about collateralization: The second type of stable coin is partly collateralized. In this case, the platform holds dollars equal to, say 50%, of the value of the coins in circulation.The problem with this variant will be familiar to any monetary policy maker whose central bank has sought to peg an exchange rate while holding reserves that are only a fraction of its liabilities. If some coin owners harbor doubts about the durability of the peg, they will sell their holdings. The platform will have to purchase them using its dollar reserves to keep their price from falling. But, because the stock of dollar reserves is limited, other investors will scramble to get out before the cupboard is bare. The result will be the equivalent of a bank run, leading to the collapse of the peg.

6 Discussion

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