

Soteria: A Stablecoin 100% Reserved by Bitcoin

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Abstract. A stablecoin backed by bitcoin will enable individuals and organizations to exchange value with a familiar accounting unit without the need to interact with the banking system.

The stablecoin will be pegged to the value of fiat currencies by using derivatives in the background. Arbitrage will insure that the price of stablecoins does not deviate from the price of fiat currencies. All users will be able to issue and redeem the stablecoins for bitcoin and will be ensured of the value of the stablecoin.

Users will be able to verify that the reserves exceed the amount of stablecoins in circulation by checking the blockchain.

Since the issuer and user will not touch fiat, users will not have to worry about the issuers bank account being unavailable due to censorship.

The stablecoin will have the censorship resistant properties of cryptocurrencies and the price stability of fiat currencies.

Introduction

There is a wide range of stablecoins circulating in the crypto ecosystem such as Tether, USD Coin, Paxos Standard, Dai and others. But fiat backed stablecoins suffer from censorship and audit problems. Algorithm based stablecoins can be unstable during extreme market volatility. Soteria proposes to solve these problems by eliminating the need to convert between fiat currencies and to be stable under any market volatility.

Flow of Funds

Step1

User deposits bitcoin worth 100 usd to Soteria as an example. (We will use the price of exchanges to calculate the value of bitcoin.)

Step2

Soteria will mint 100 stablecoins (100 usds). Total usd amount of bitcoin deposited by the user = amount of usds issued to user.

Step3

Users can transact with usds. The user can transfer, exchange, and store usds.

Step4

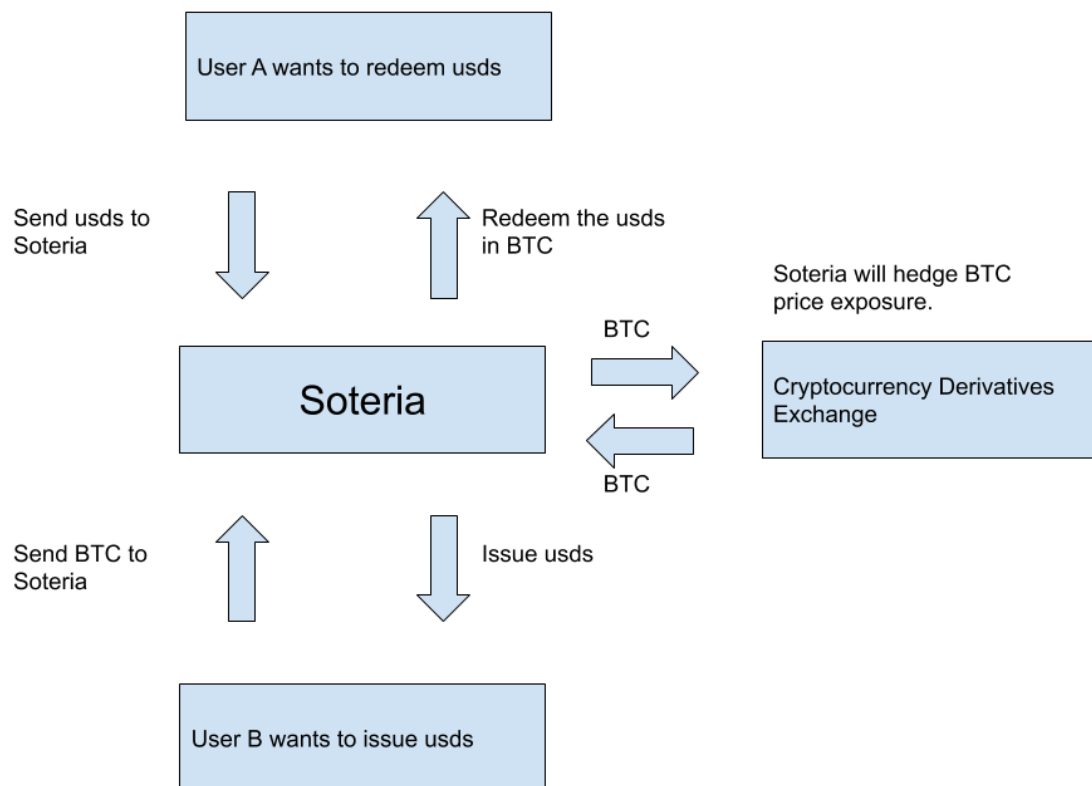
The user deposits usds with Soteria for redemption into bitcoin.

Step5

Soteria will destroy the usds and send bitcoin to the user's address.

Users will also be able to obtain usds through exchanges and other venues. Once the usds is in circulation, it is freely traded.

Flow of funds diagram



Hedging Operation

For Soteria to always issue/redeem usds at par with bitcoin, Soteria will short BTC/USD derivatives on a bitcoin derivatives exchange to an equivalent amount of the stablecoins in circulation. As a result, the position will be delta neutral to the price of BTC and Soteria will be protected from price fluctuations of BTC.

Soteria will always be able to issue/redeem usds at par value by always being delta neutral to the price of BTC.

Example

Suppose that there is 1,000,000 usds in circulation. Soteria will then have a 1,000,000 USD worth of short position on a bitcoin derivatives exchange.

The position is delta neutral and the value of the position + collateral will always be worth 1,000,000 USD.

Arbitrage

If the price of the stablecoins deviate from the price of fiat, arbitrageurs will step in to issue/redeem the stablecoins and make a profit. This will peg the price of stablecoins.

Example

Suppose that usds/usd is trading at 0.99. Traders can buy usds with usd and redeem usds for 1 usd worth of bitcoin. This will net the trader 0.01 usd of profit.

If usds/usd is trading at 1.01, the trader can issue usds with bitcoin and sell the usds for 1.01 usd. This will net the trader 0.01 usd of profit.

Arbitrage will insure that this type of transaction is not possible and usds will be pegged to the value of usd.

Audit

The amount of stablecoins in circulation and the amount of bitcoin backing the stablecoins can be audited by checking the blockchain.

The following equation will always hold.

The USD value of bitcoin in custody + The USD value of the delta neutral position = The total amount of usds in circulation.

As a result, usds holders will always be able to redeem their usds for bitcoin.

Conclusion

Soteria proposes to solve censorship and price volatility by combining cryptocurrencies censorship resistance and fiat currencies price stability. People who are excluded from the banking system will now be able to store and transact with a stable currency.