
EURP Whitepaper

1, Introduction

EURP is a new stablecoin system, built on ethereum, with the purpose of being the underlying tool for user transfers and other dapp systems, such as transactions, lending, and insurance.

Compared with other stable coins, EURP has the following characteristics: full asset reserves, anonymity, no censorship, fast and easy to integrate with other dapps.

2, Stablecoins introduction

Bitcoin and Ethereum are currently the dominant cryptocurrencies, but their prices fluctuate. The volatility of cryptocurrencies will increase speculation. In the long run, it will hinder real world adoption.

When trading cryptocurrency, neither businesses nor consumers want to face unnecessary risks. Bitcoin cannot be used to pay wages, because no one can afford the continuous fluctuations in the purchasing power of wages. The volatility of cryptocurrencies is also not conducive to the development of blockchain-based financial markets, such as lending, derivatives, prediction markets, and other long-term smart contracts that require price stability.

Of course, some long-tail users don't want to participate in speculation. They just want to store value on an immutable ledger to avoid currency control and a collapsed economy. Today, Bitcoin and Ethereum are not enough to provide these people with what they want.

The idea of stablecoins has been proposed for a long time. Many cryptocurrencies have encountered price stability bottlenecks when they innovate and move towards mainstream people. As a result, the creation of "stable coins" has been considered the holy grail of the crypto world for a long time.

But how to design a stable coin? To answer this question, we must first deeply understand the meaning behind asset price stability.

Stable price

All stablecoins are meant to be anchored. The current stablecoins are often anchored to the US dollar. Generally speaking, a stablecoin price is 1 US dollar, but they can sometimes be linked to other major currencies or consumer price indices.

Any anchor currency involves four major issues:

- How much volatility can this anchor withstand? That is, under the pressure of downward selling.
- How expensive is it to maintain anchoring?
- How easy is it to analyze the range of behaviors that it can recover?
- How transparent is the trader's observation of real market conditions?

The last two points are particularly important, because currency anchoring is basically related to Schelling points. If market participants cannot distinguish when anchoring is objectively weak, it can easily trigger the spread of false news, cause market panic, and further trigger selling, which is a death spiral. In the face of market manipulation or mood swings, transparent anchoring is more robust.

In summary, an ideal stable currency should be able to do the following: it can withstand market fluctuations; it should not be expensive to maintain; it should be easy to analyze its stability parameters; it should be for traders and arbitrageurs transparent. These features have greatly improved its stability in the real world.

Types of stablecoins

The more you understand the mechanism of stablecoins, the more you realize how small the design space of stablecoins is. Most of the schemes are variants of each other, with little difference, and only a few basic models are actually running.

From a higher level, there are three classifications of stablecoins: fiat-collateralized tokens, cryptocurrency-collateralized tokens, and non-collateralized tokens.

Fiat-collateralized stablecoins

Fiat-collateralized stablecoins generally deposit US dollars in a bank account by a centralized institution, and then issue stablecoins at a ratio of 1:1. When a user wants to liquidate his stablecoin into US dollars, he can recover and destroy this part of the stablecoins, and give the US dollars to the user. This asset is traded at a 1:1 ratio in US dollars. It is not only an anchor to the US dollar, it is more like a digital expression of the US dollar.

This is the simplest solution among stablecoins. It needs to be centralized, you can only trust the custodian, so the custodian must be reliable. You also hope that a third-party audit can audit the custodian on a regular basis, which may not be cheap.

However, there are also benefits. Centralized hosting brings the greatest price stability. This mechanism can withstand the price fluctuations of cryptocurrencies. Because all collaterals are made in fiat currency reserves, and it can be unaffected when cryptocurrencies collapse. And no other type of stable currency can do it.

The mechanism supported by fiat currency is also highly regulated and restricted by traditional payment channels. If users want to convert stablecoins into fiat currencies, they need to send money or mail checks, which is a slow and expensive process.

Advantage:

- 100% price stability
- The simplest
- Not easy to be attacked by hackers (because there is no mortgage funds on the blockchain)

Shortcoming:

- Centralization
- The process of liquidation into fiat currency is slow and expensive
- Highly regulated
- Regular audits are required to ensure transparency

Cryptocurrency-collateralized stablecoins

Refers to stablecoins minted by collateralizing cryptocurrencies.

But due to the instability of cryptocurrencies, this means that mortgage assets will also fluctuate. But stablecoins should not be volatile. At this time, the general approach is to over-collateralize the mortgaged assets so that it can offset the price fluctuations of the collateral.

Users are willing to over-collateralize, generally because there are two incentives that can be used: one is that the system can give interest to stablecoin issuers, and there are mechanisms to do so. Alternatively, issuers can also use stablecoins that create over-value collateral as a form of leverage.

Fundamentally speaking, all cryptocurrency-collateralized stablecoins use variants similar to this scheme. Other tokens can be used for over-collateralization, and if the price drops, the stablecoin will be liquidated. All of these can be done through the blockchain with decentralization.

In this process, there is a key detail: stablecoins must know the current USD/ETH transaction price. But if the blockchain cannot access the data of the outside world, price information will be impossible to obtain.

One method is to allow some people to continuously publish price information to the blockchain, that is, the oracle system. But this can be easily manipulated. If the person publishes the price information is credible, then this can meet the demand. Another way is to use the Schelling Point token scheme. This one is more complicated and requires a lot of coordination, but in the end, it is less centralized and more difficult to manipulate prices.

Advantage:

More decentralized

- It can be cleared quickly and at a low cost, and it can be converted into cryptocurrency collateral only through blockchain transactions (no need to deal with fiat currency payment channels)
- Very transparent, it is easy for everyone to check the mortgage rate of stablecoins
- Can be used to create leverage

Shortcoming:

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- When the price collapses, it will be automatically liquidated into the mortgaged cryptocurrency
 - Price stability is lower than that of fiat currency mortgage
 - It is closely related to the stability of a specific cryptocurrency or a basket of cryptocurrencies
 - Inefficient use of funds
 - High complexity

The first stablecoin to use this mechanism was BitUSD (collateralized by BitShares), which was created by Dan Larimer in 2013. Since then, MakerDAO's Dai has been paid attention to by everyone, and it uses Ether as the collateral. Vitalik Buterin also proposed a stablecoin plan. He suggested using CDO to issue stablecoins to offset loans with different qualifications (the highest-level part can be used as stablecoins).

Non-collateralized stablecoins

In other words, algorithmic stablecoins, generally encourage market arbitrageurs to issue bonds or other methods to encourage market participants to maintain their prices within the price range anchored by stablecoins.

These systems need to conduct a lot of liquidity guidance in the early stage until they can achieve a benign balance. But in the end, these mechanisms make full use of a key insight: stablecoins are ultimately a Schelling point. If enough people can reach a consensus on the survival of the system, then this belief can ensure its survival and allow it to continue in a virtuous circle.

Non-collateralized stablecoins do not depend on any other currencies. Even if the U.S. dollar and Ether collapse, a non-collateralized stablecoin can survive as a stable value store token. Unlike the central banks of some countries, non-collateralized stablecoins will not have improper incentives to inflate or deflate the currency. Its algorithm has only one purpose: stability.

Advantage:

- Non-collateralized
- Almost decentralized and independent (not linked to any other cryptocurrency or legal currency)

Shortcoming

- Must achieve sustained growth
- It is susceptible to the overall decline or collapse of cryptocurrencies, and cannot be liquidated once it collapses
- It is difficult to analyze where its security boundary is
- Partial complexity

At present, the most promising project in this model is Basecoin (later renamed Basis), which builds Seignorage shares by adding a first-in-first-out "bond" queue mechanism. They claim that this added design improves the stability of the Basecoin (Basis) protocol, and they have conducted multiple simulations with different results.

deal stablecoin

Stablecoins are important to the future of the crypto world. There are subtle differences between these different designs, but they are very important.

There may not be an ideal stablecoin at the moment. Like most new technologies, what we can do is to weigh the advantages and disadvantages of a particular solution.

Maybe there will be new plans in the future. But in the long run, no matter which stablecoin wins, they are basically constructed based on the above three models.

3, EURP's solution

EURP itself is composed of a series of contracts deployed on Ethereum, and its operating mechanism is different from all current stablecoins in many aspects.

Cryptocurrency-collateralized stablecoins, using only Eth as a reserve

From the perspective of collateralized types, EURP, like Dai, is supported by the underlying value of cryptocurrency. But the operating logic is very different.

In the MakerDai system, the user obtains a certain amount of Dai loan by collateralizing a series of cryptocurrencies, then lends the Dai. And the Dai that the user mortgages

remains in the MakerDai system as a value reserve. The ownership of the mortgaged tokens is still the user's, and the user can retrieve the over-collateralized cryptocurrency by repaying the loaned DAI and interest at any time.

In EURP, cryptocurrency is also accepted, but compared with Dai, the implementation logic is still somewhat different.

First, EURP only accepts eth (which may support btc in the future) as a reserve asset, that is, the underlying assets of EURP are fully supported by Eth.

Compared with the MakerDai system, this has two advantages. One is that compared to the multiple assets supported by MakerDai, Eth is more secure, and there is no risk of tokens returning to zero.

In addition, some assets supported by MakerDai, such as USDC, have their censorship mechanism. If the stable currency is generated by USDC, then the generated stable currency is the bottom layer of other DEFI systems. It may bring about the risk of censorship, reduce the availability of the entire system.

The goal of EURP is to serve as a tool or bottom layer for other projects in the entire DEFI system, so it chooses to accept only the most stable and safest ETH as a reserve.

Second, EURP chose to anchor the Euro instead of the US dollar.

The vast majority of current stablecoins are USD stablecoins. This is related to the initial use of stablecoins as a centralized cryptocurrency exchange. Most cryptocurrency transactions are denominated in US dollars.

However, there are more and more usage scenarios for stablecoins at any time. As the second largest fiat currency Euro used by hundreds of millions of people, we think there will be more and more use cases for stablecoins anchored by this, so the Euro is chosen as the anchor.

Real time calculation of interest rates and incentives to stabilize prices

In MakerDao, the market price is mainly affected by interest rate adjustments. When the price of a stablecoin is lower than \$1, it means that the supply exceeds the demand. At this time, the minter is encouraged to repay the loan by raising the interest rate and destroying the token to reduce the supply. When the price of the stablecoin is higher than the US dollar. It indicates that the demand is greater than the supply. At this time, MakerDao will lower the interest rate to encourage the market to increase the supply.

But for the adjustment of interest rates, MakerDao needs to be confirmed by DAO voting, and the general cycle is two weeks. If prices fluctuate sharply in the short term,

MakerDao's interest rate adjustment mechanism may not be able to cope.

At the same time, MakerDao's interest rate mechanism cannot achieve negative interest rates. When supply is less than demand, the price will be higher than 1, and the interest rate will be reduced to 0 at most. Since the mortgager needs to over-collateralize his other cryptocurrencies, when the stable currency price arbitrage income is low to the cost of over-collateralization, market participants may not have the incentive to mint new coins, and the price of stable coins may be higher than 1 for a long time.

EURP solves these problems in different ways.

First of all, EURP calculates the interest rate in real time through a token price obtained from the oracle at regular intervals in the contract, so that when the price of the token is lower than 1, the interest rate will increase in real time, prompting market participants to destroy the tokens as soon as possible.

Secondly, EURP will issue governance tokens SUP, which will be distributed to market participants as minting rewards. The specific quantity will also be determined according to the price of EURP. When the EURP price is lower than 1, the SUP reward is 0. When the EURP is higher than a certain threshold, such as 1.03, an additional SUP reward will be provided to the minter. This is equivalent to another form of negative interest rate to reward minting. This increases the supply of the market.

The reward ratio of SUP, like the interest rate, will be automatically calculated through the contract at regular intervals.

In this way, EURP will react to market prices faster, through interest rates and distribute SUP, affecting the behavior of market participants, and keeping the price at 1EUR as much as possible.

Issue governance tokens, conduct voting governance, and distribute them as minting rewards.

EURP will issue governance tokens SUP, one of the reasons for that described in the previous section, as a distribution reward, when the market demand for stablecoins is greater than the supply, it will be provided as a reward to the minter to stimulate the market's supply of EURP.

On the other hand, SUP is also the governance token of the entire system. The update and modification of the entire system and the adjustment of some parameters will be decided by voting to gradually realize the DAO of governance.

No censorship

Unlike USDT,USDC and other stablecoins, EURP is decentralized, which means it is censorship-free, and maximizes the privacy and security of users.

Oracle

The contract of the system needs to know the real time ETH and EURP prices.

For ETH, we need to know the price of ETH relative to EUR. Currently, we choose Chainlink as the oracle. Since there is currently no price pair of ETH/EUR, we choose to use ETH/USD and EUR/USD to synthesize ETH/EUR price in the contract. This price will be used for minting and liquidation.

For EURP, the contract needs to know the real time EURP/EUR price pair. Since we judge that the initial liquidity of EURP will come from DEX such as Uniswap and Curve, in the initial stage of the project, we will use Uniswap's transaction price, and then use sliding Window and other ways to calculate to get a price of EURP relative to EUR. This price will be mainly used to guide the calculation of interest rates and SUP awards.

Liquidation

Mortgage lending systems will need to deal with the liquidation problems caused by the fall in the collateral price. In MakerDao and EURP, the process of stablecoin minting can also be understood as a process of mortgage reception, and coin minting is equivalent to borrowing. Therefore, there will also be liquidation issues to be dealt with.

In MakerDao, if the system liquidates, it is auctioned by placing the assets of the vault to be liquidated into a self-designed auction system. Because the auction system is only used for MakerDao's asset auctions, visibility and liquidity will be problematic. If it encounters liquidity problems, it may cause assets to be liquidated at a low price, leading to a loss of the entire system. In the plummet in May 2020, MakerDao also had an event of 0 DAI liquidation, that is, the ETH pledged by users was purchased at 0 price and liquidated successfully due to no bidding, which led to the loss of the entire system.

Different liquidation solutions are used in EURP. Due to the development of DEFI in recent years, the TVL and liquidity of DEX have been very high. Therefore, EURP chooses to trade directly in DEX for liquidation. The current plan is directly to trade the ETH to be liquidated into EURP in Uniswap.

Because it is expected that in the early stage of the EURP launch, there may be insufficient liquidity of the EURP in Uniswap, we use a secondary liquidation solution that is, first determining whether the EURP in Uniswap can support the liquidation of the

current ETH, and if it is possible, it will be liquidated directly. If not, the system will first sell ETH into USDC (a compliant USD stable currency). Since USDC's current market value and liquidity are sufficient, the problem of real time liquidation can be solved. After that, it is regularly judged whether the liquidity of EURP in Uniswap is sufficient, and USDC is gradually changed to EURP to complete the entire liquidation.

During the entire liquidation period, the price of EURP may be higher than 1EUR due to buying orders in liquidation, which will bring arbitrage opportunities, allowing market participants to provide sufficient EURP through mint or secondary market arbitrage to complete liquidation. Through regular and multiple liquidate transactions, the entire system solves the problem of insufficient liquidation liquidity in MakerDao.

4, Conclusion

In summary, as a new cryptocurrency-collateralized stablecoin, EURP has been innovated in many aspects and solved the problems faced by the current stablecoin market.

