USDCoin: A Better Way to Pay

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Abstract

USC is an encrypted digital currency that is stable, readily convertible and secured by the United States dollar. It has been created and is being used as one of the most advanced and sophisticated payment instruments available. Blockchain is an application for distributed data storage, through point-to-point transmission, a consensus mechanism and an encryption algorithm, that achieves consensus among participants without any third parties involved, enabling reliable transmission of trust and value at extremely low costs. While cryptocurrency is a media that transmits value in the blockchain, payment serves as the area where blockchain is most likely to produce real value. The price fluctuation of encrypting digital currency is a problem for applying blockchain payment to reality. By referring to the linked exchange rate system in Hong Kong, and legal tender as a reserve, the cryptocurrency is issued on the blockchain in accordance with fixed proportions, while a payment gateway of exchange between legal tender and cryptocurrency is provided for all users, thus ensuring price stability of the cryptocurrency, and reducing price volatility caused by speculation.

1. Introduction

As an underlying technology of bitcoin and other digital currencies, blockchain emerged along with a new generation of digital currencies. The core innovation of blockchain is that it creates an electronic payment system based on password authentication rather than trusted intermediaries, allowing the transaction parties to trade in the absence of any third party.

Unlike traditional payment technologies, blockchain payments provide advantages, including: an algorithm-based consensus mechanism, decentralized credit systems, broker-free trading systems and improved transaction costs. In addition, a distributed network reduces risks of traditional centralized financial systems; and new tamper-proof accounting process facilitates supervision and audit.

Blockchain technology presents unique advantages in the field of payments, but the current mainstream public chains are constrained by the number of transactions per second they can handle. Take, for example, Bitcoin with its measly 7 transactions per second at peak and Ethereum with an only slightly higher figure of 25. By contrast, the Visa network handles up to 10,000 transactions per second, while Alipay's record is 120,000, acheived in 2016. USC relies on multi-cross public chains and its infrastructure is extremely efficient. Among public chains equipped with smart contracts, its throughput of 1,000 on-chain transactions per second has far outperformed other mainstream public chains, meeting USD's current demands.

Mainstream cryptocurrencies' price volatility increases market speculation, bringing uncertainty to economic activities and complicating the completion of transactions. Since an unstable cryptocurrency is not suited to frequent daily trading, the price of cryptocurrency needs to be stabilized. In reference to the linked exchange rate system in Hong Kong, note-issuing banks, at a rate of 1 USD = 7.8 HKD, pay in USD to the exchange fund in advance, to obtain a Certificate of Indebtedness in the equivalent value of HKD before additional HKD banknotes are issued. Meanwhile, the government also promises that the HKD banknotes, having returned from circulation, are reversed into USD by note-issuing banks at the same rate. US dollar, a legal tender, is used as a reserve, and the cryptocurrency USC is proportionately issued on the chain in light of the reserve quantity.

User   USC.SG   Bank

USC is issued based on multi-cross public networks with the following attributes as a cryptocurrency:

• USC can be freely exchanged in a P2P, anonymous, safe and decentralized environment.

• USC integrates multi-cross public chain's traits.

• USC is based on a RDPoS consensus mechanism smart contract platform, able to issue or destroy tokens through smart contract in transparent way and it can be used or saved in numerous wallets; such as Achain, Ethereum, etc.

A 24/7 payment gateway for exchange between legal tender and cryptocurrency is provided for all users, allowing them to make such exchange in a convenient and economic way. In addition, users may also acquire USC through exchanges and personal transactions. The USD amount in reserve shall never be less than the USC amount in circulation. The quantity of circulated USC can be checked via open-source browsers. USC SG deposits USD reserves to a plurality of trusted banks, and regularly publishes the reserve amounts in the bank accounts which will be audited by third-party agencies before announcing results. However, issuing and destroying USC in such a manner is not complete decentralization, so efforts should be made for some prospective improvement.

1. Collaboration with trusted banks to open the banks' API interfaces, with smart contracts based on multi-chains used to to issue or destroy USC, thus decentralizing the procedure.

2. As managers for their bank accounts, companies will invite third-party agencies for regulation and auditing, so that balance and capital flow in their accounts will be more transparent.

3. USC SG communicates with all relevant government and regulatory institutions to facilitate the regulation of blockchain payment applications.

4. USC SG invites media to announce stable currencies' area of utilization.

5. USC SG invites independent rating institutions and coin holders to rate and evaluate USC.

2. Stable Digital Currency Overview

Money has three main functions: a medium of exchange, a value of scale and a value of storage. Among them, perhaps the most promising function in cryptocurrency lies in its function as a medium of exchange since the magnitude of price changes in most cryptocurrencies affects their role as a measure of value and storage. Compared with the stable value-storage medium of gold, BTC has shown great volatility in its history, and other digital currencies such as ETH, BCH, etc. have shown similar characteristics. The fluctuations of encrypted digital currencies may increase their speculative power, but in the long run, this has greatly hindered their application in practical life.

Firstly, as a medium of exchange, neither institutions nor individuals can accept the risk of unnecessary price fluctuations. Therefore, at present, the magnitude of fluctuations displayed by digital currencies makes it difficult for large companies and individuals to use the technology as medium for payment. Secondly, the price of digital currencies fluctuates greatly, making the medium a very difficult price scale. Take for example, the case of Bitcoin: in general, users cannot use Bitcoin to price real estate or automobiles. Although digital currency is easy to store and portability is very suitable as a value store, currently Bitcoin and Ethereum cannot provide users with a hedging function. Therefore, if we can combine the existing advantages of digital currencies with stability, we will be able to enable more innovation and applications in the digital currency field and beyond. Many innovations and applications in the field of cryptocurrency have also been shelved due to price instability, thence designing a stable digital currency has long been an area of great concern.

Right now, the price of non-stable digital currencies in the market are subject to price fluctuations due to the market supply and demand. All stable currencies therefore require a reference system as a link. Stable currencies can be linked to the US dollar, gold, etc, so that their price is not affected by the cryptocurrency market. The problems that they might encounter are the question of how to maintain the corresponding hooking mechanism for long enough, and the question of what kind of reference standard to choose to hook to. An ideal stable currency should be able to withstand significant market fluctuations without excessive costs to maintain, and allow for the easy analysis of stability parameters, as well as providing complete transparency to traders and arbitrageurs, maximizing their practical stability. There are several different stable digital currencies on the market, but from the basics of design, they can be summarized by the following three basic scenarios:

2.1. Stable Digital Currency Secured by Legal Assets

If you want to design a stable digital currency, the most direct way is to start with the mortgage of legal assets. The legal assets in question can be international currencies, gold, crude oil, etc. For example, depositing U.S. dollar into a bank account and issuing a stable currency with a 1:1

conversion ratio. When the user wants to settle the stable currency in U.S. dollars, he or she will convert the stable currency back to U.S. dollars. This is the most simple and stable digital currency design scheme. In addition to the underlying technology of the blockchain to support stable currencies, this scheme requires one or more banks as the interface for users to deposit and withdraw currency. Strictly speaking, this kind of program is not decentralized. Therefore, to ensure the transparency and credibility of digital currency, custodians need regular inspections by professional audit firms. The custodian also needs excellent technical and operational capabilities to ensure the safety and stability of the assets.

However, this centralization can bring with it the greatest degree of price stability. This solution can withstand any cryptocurrency fluctuations because all collateral is stored as a statutory reserve and can remain unchanged in the case of devaluation of the cryptocurrency. The statutory support programs are highly regulated and constrained by the traditional payment framework. If you want to withdraw the stable currency and reclaim legal assets, you need to do so by remittance or mailing. This process is not only time-consuming but also expensive. Other than USC, currently in the market, USDT, TrueUSD, and Digix Global are available. USDT and TrueUSD are secured in US Dollars, while Digix Global uses gold as collateral. However, the fundamental properties are the same.

Advantages	Disadvantages
Easy and straightforward	Currency issuance and recovery rates are constrained by the speed of bank liquidation
Stable price	The custodian needs to ensure credibility and custody
Collateral exists in physical banks or other entities and is not subject to cybersecurity	

2.2. Stable Digital Currency Secured by Digital Currencies

The second type of stable currency is directly secured by a digital currency and does not require integration with traditional payments. If we abandon legal assets, we can also avoid centralization. The design idea is to use another cryptocurrency reserve as collateral. Everything is done in the blockchain and does not involve legal assets as collateral. The problem with this approach is that cryptocurrencies (such as Bitcoin and Ethereum) are inherently unstable, meaning that the value of collateral will be in constant flux. The value of the stable currency should obviously not fluctuate, so the solution is to ensure that the stable number of issuances have sufficient collateral to deal with the volatility of collateral prices.

Advantages	Disadvantages

Independent of legal assets	The price of collateral is not stable and can even be liquidated automatically when the price collapses
Mortgage of digital currency assets can be liquidated quickly and at a low price	Affected by the specific mortgaged underlying digital currency
Digital currency used for mortgage is open and transparent	Low capital use efficiency
Can be used to create leverage	More complex than legal currency mortgage

The first stable currency to use this scheme was BitUSD (with BitShares used as collateral) created by Dan Larimer in 2013.Since then, MakerDAO's Dai has been widely regarded as the most promising stable currency secured by a cryptocurrency as collateral (Ethernet).

2.3. Unsecured Stable Currency

With an in-depth understanding of the encryption field, you might ask the question: Why must we must use collateral to underpin the stable currency? In any case, arbitrageurs only need to believe that our stable currency will eventually be traded for one US dollar. Can the United States not get rid of the gold standard stop support from underlying assets? Perhaps this means that collateral is not necessary, and stable currencies can take the same pattern.

Advantages	Disadvantages
No collateral required	Too complex
Centralized and independent (unlimited to any other digital or fiat currency)	Most of the assets are vulnerable to falling or crashed assets and cannot be liquidated
	Difficult to analyze safety limits and healthy conditions

To maintain price parity, algorithm-backed stable coins attempt to control their money supply through monetary policy. They do this by expanding and contracting the available supply of coins on the market. For example, if the price of a stable coin is too high, the stable coin protocol's algorithm will mint new units and introduce them into the market — increasing the supply until price parity. If the price is too low, the algorithm will buy up the stable coin on the market by selling bonds at a discount. These bonds entitle their holders the right to one unit of a stable coin at a future date incentivizing stable coin holders to sell their stable coins for bonds and decreasing the total supply until price parity.

	USDT	USC.ACT	USC.ETH	USC.EOS

		Up to 1000 TPS	Up to 25 TPS	Up to 3000 TPS
Transaction Speed	7 TPs			
Consensus Algorithm	PoW & PoS	RDPoS	PoW	DPoS
Trading Confirmation Time	1 hour	30 seconds		
Bank Reserves Transparency	Non-Transparent	Transparent		
USD Convertibility	Only traded if seller and buyer meets	Traded and exchanged 24/7 directly via bank account		
Affected by Base Currency	Affected by BTC price	ACT price does not affect USC.		
Service Fees	Service charges generally over 1 USD.	Only "gas" expenses (not over 0.5 cents per transaction) is necessary based on Achain smart contracts.		

Funds Flow Process

USC circulation generally progresses as follows:

• User deposits appropriate USD funds into the company's bank account

• In accordance with the USD amount deposited, company releases corresponding USC at 1:1 to user's target chain address.

• User deposits USC to the address of company wallet and exchanges it into USD.

• Company sends USD into the user's bank account and destroys the USC.
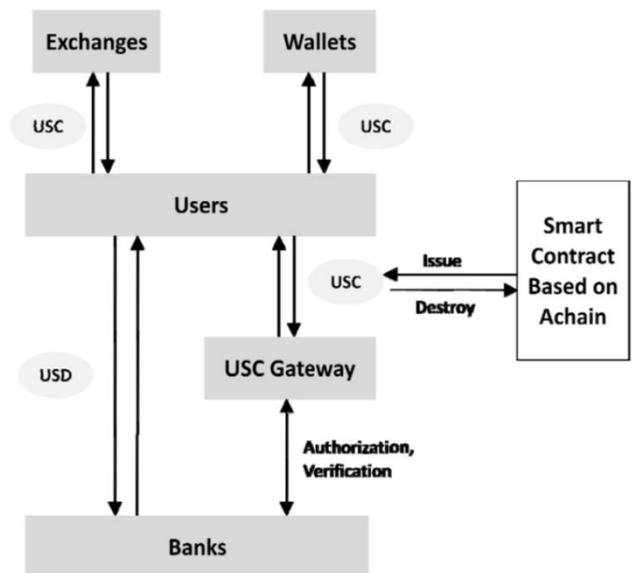
4. Proof of Solvency

Executed by our company through smart contracts, each issuance or destruction of USC indicates a sum of USD deposited into or withdrawn from the bank account. This process is always performed at a rate of 1 USD = 1 USC.

To demonstrate our exchanging capability, the quantity of circulated USC and balance in the bank accounts will be disclosed periodically. This measure ensures the balance is not less than the amount of circulated USC, and manifests that our company is able to exchange USC in circulation.

The quantity of circulated USC is properly disclosed, as USC is an asset issued based on public chains, and all records can be queried via blockchain browsers.

ETH Contract address: 0x2C5dcd12141c56FBEa08e95f54f12c8B22d492Eb

ACT Contract address: CON92cJUVM6qS9qp1ihnJB5DJrf1pP9F2fSB

The dynamic disclosure of bank account balances and capital flows requires supports from banks, so professional third-party agencies will be invited to make regular audits and publish results publicly. The amounts of USC in circulation will be collected and disclosed according to time points of bank accounts.

Afterwards, closer cooperation with banks should be expected, to make the process more functional in real-time and convenient.

5. USC Main Applications

Stable encrypted digital currencies play an indispensable role in the increasingly popular currency-to-currency trading market, which is more adaptive for daily transactions than other volatile digital currencies.

5.1 Exchange

At present, digital currency exchanges are classified into currency-to-currency exchanges and legal tender exchanges. For traditional currency exchanges, legal tender is the most commonly used. Utilizing a traditional financial system presents many problems, such as complicated access, long time periods, high risk, large trading costs, and obstructed global circulation for legal tenders.

For currency-to-currency exchanges, assets owned by users are digital currencies, which use blockchain directly as an access channel, and are free from regulation and limitation by anti-money-laundering rules. The open API in blockchain optimizes and accelerates the process of confirming deposited or withdrawn assets, and introduces the exchange to more users by relying on the global nature of digital currencies. As the global volume of currency-to-currency transactions has surpassed that for digital assets to legal tenders, currency-to-currency exchanges are becoming extremely popular.
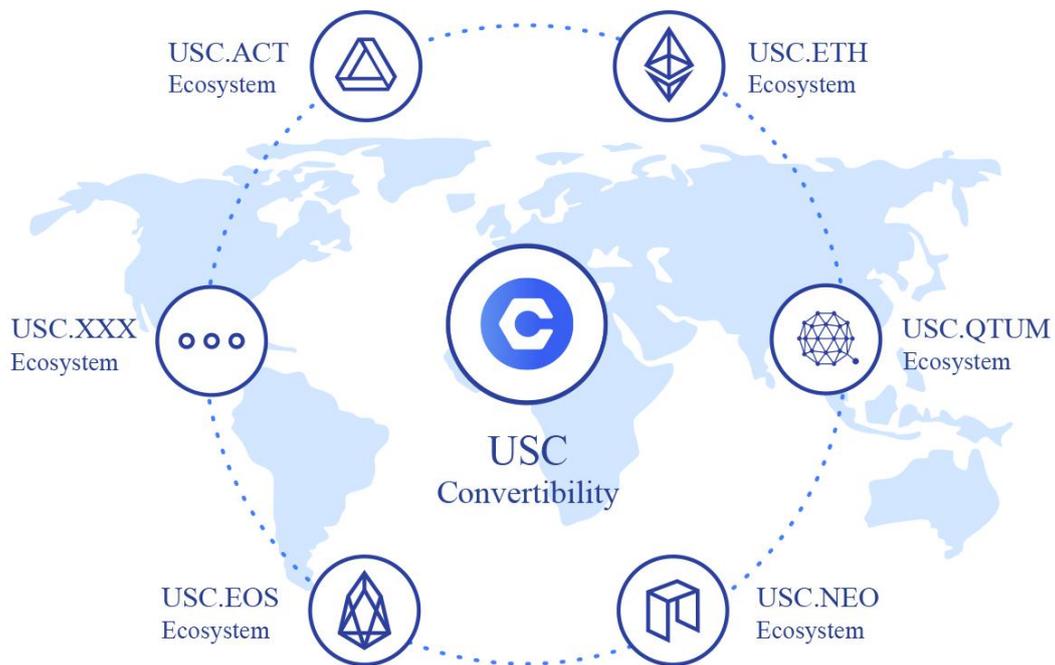
How stable digital currencies impact currency-to-currency exchanges is analogous to how legal tenders impact traditional exchanges, where users, who demand profits preferentially, require a stable digital currency as a medium to reduce risk during speculation. When bullish, users exchange the stable currency into a more volatile one to obtain earnings, and when bearish, they do the opposite to avoid risk. If there are no stable digital currencies in an exchange for avoidance, users can encounter grave risks.

In digital currency exchanges, there is a class of users who profit from different digital currencies' prices in exchanges, which may be exemplified by a loop achieved by buying currencies from platform A, then selling them to platform B at a higher price, and transferring funds from platform B back to A. For such circulation processes, stable digital currencies can provide the following advantages:

• Stable digital currencies are international currencies, meaning they can cover more alternative exchanges without exchanges among legal tenders

• Stable digital currencies are free from any losses caused by price fluctuation during deposits and withdrawals

- Stable digital currencies are based on open-source blockchain network, offering better API services to minimize handling times and seize market opportunities

5.2 Payment

Blockchain's distributed structure and low-cost trust-construction mechanism present new methods to solve and optimize defects related to payments. The low-cost trust-construction mechanism helps construct a social trust system; the distributed network reduces systemic risks implicit in financial systems; new accounting processes resist tampering and facilitate supervision and audit directly; real-time trading systems in full range improves payment efficiency, allowing real-time supervision and enhanced compliance for participating enterprise; trading systems with weakened intermediary roles reduce transaction costs; and smart contracts based on the blockchain promote the evolution of smart financial payment.

- Reducing costs: blockchain presents incomparable advantages in terms of infrastructure construction, multi-system connections, and trading procedures.

- Infrastructure construction: as the core of traditional payment system, infrastructure serves as proprietary equipment and network among banks or for banks themselves, while the infrastructure of blockchain payments can utilize existing network facilities, extending the coverage of current payment systems at lower costs.

- Multi-system connections: traditional payment systems require unified institutions to enable direct liquidation of banks, where agencies are necessary among banks and payment organizations, resulting in high expenses for banks operated under a proxy mechanism. However, blockchain is constructed with a unified network, and equipped with a uniform consensus mechanism, which is convenient to link different payment organizations, and shows great cost advantages in multi-system connections.

- Trading procedures: blockchain is more competitive in terms of the daily operational costs, whose payment and liquidation need no trusted intermediary interventions. This can decrease the maintenance costs of trust intermediaries.

- Enhancing efficiency: without involving any agencies, blockchain is able to realize end-to-end payment for both parties, eliminating the time cost of additional liquidation among different payment organizations and optimizing transaction cycles. The blockchain payment system needs no extra construction of infrastructure, but can expand directly on the existing network, and quickly establish a globalized mechanism.

- Reconstruction of credit system for control and auditing: the advantage of blockchain is that it can rely on algorithms to automatically and faithfully record each transaction and store this information on every computer in the blockchain network. All records have the characteristics of full-process tracking and cannot be falsified. This greatly facilitates the establishment of a credit system and facilitates the supervision and auditing of transactions.

- Zero margin costs: benefiting from cheap infrastructure and marginal HR costs, blockchain payment systems hold natural advantages in terms of extensive expansion and compatibility with underlying networks, meaning it is suitable for international expansion. Like internet applications, blockchain payment systems also display obvious scale advantages.

As for costs and efficiency, blockchain shows unique advantages in payment, but it is still too early to replace existing payment systems. In order to grow better, blockchain needs to combine and integrate with current payment systems to eliminate its defects and achieve an upgrade in capabilities. Currently, several blockchain applications are engaged in combining which are integrating digital currencies into the Visa system, so as to reduce payment costs and increase efficiency.

Stable digital currencies issued strictly at 1 USD = 1 USC are more acceptable in blockchain payment systems than other volatile ones. As more of the population recognize and use USC, the blockchain payment made by USC will become more efficient and convenient.

5.3 Storage

Another function of USC as a stable currency is its function as a medium of storage, allowing greater suitability than unstable digital currencies. When the digital currency market fluctuates greatly, investors are reluctant to invest in other currencies, and USC becomes a very good hedge. Users can also store USC in their wallets. Real-time transfers can be made between wallets and exchanges.

6. Conclusion

In the future, it is necessary to explore better methods to issue and destroy cryptocurrencies, as well as methods to publicize bank accounts, so as to demonstrate capabilities of exchanging cryptocurrencies.

Our payment gateway will be improved further, thereby allowing all users across the planet to perform exchange between legal tender and our digital currency in an efficient and economical way.

In addition, there will be more collaboration with exchanges, wallet tools and merchants, providing more application scenarios and mobility for our cryptocurrency.