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Overview of Stablecoins

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Executive Summary

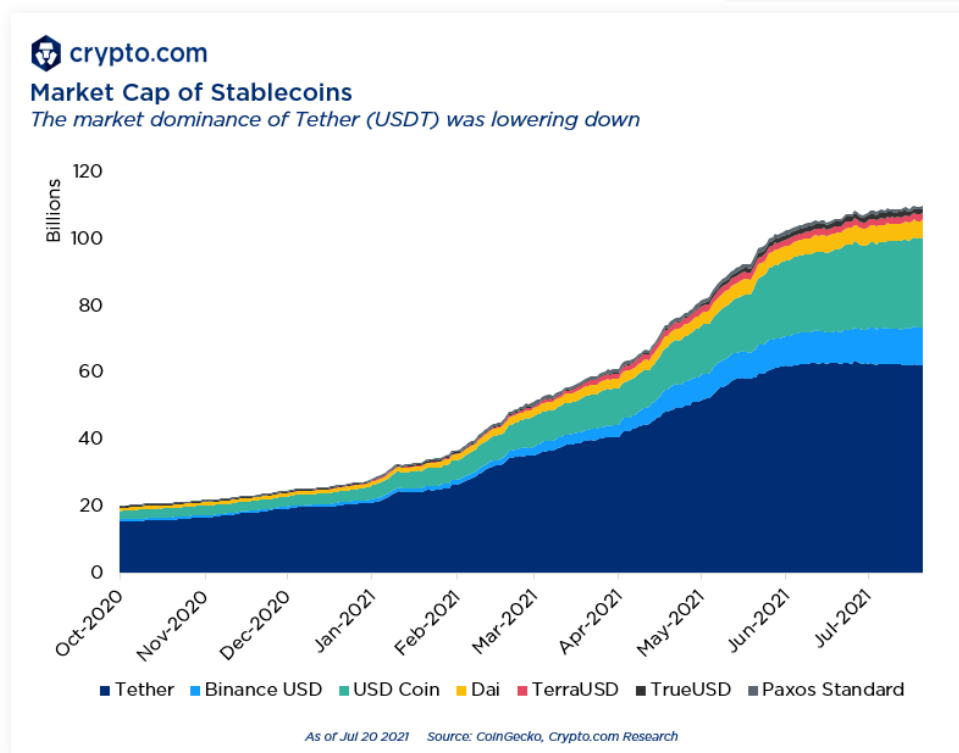
Key Takeaways

- Stablecoins are a type of cryptocurrency whose value is pegged to the value of other assets such as fiat currencies, precious metals, (e.g. gold or silver), or other crypto assets.
- There are four types of stablecoins and each of them has its own mechanism to maintain its price stability.
- The total market capitalization of stablecoins has exceeded \$110 billion and fiat-backed stablecoins such as USDT, USDC have accounted for more than 90% of the market share.
- Most of the stablecoins in circulation today are pegged to the U.S. dollar, with the Ethereum blockchain being the preferred choice on which to launch stablecoins
- Lack of transparency due to centralized operation and issuance is the main drawback of fiat-backed stablecoins.
- By providing liquidity in the cryptocurrency market, stablecoins have played an important role in mainstream crypto adoption as a means of transfer and store of value.
- Although USDT dominates the stablecoins market currently, its growth rate has flattened due to trust and transparency problems. This makes trustless, decentralized stablecoins like Dai and TerraUSD more prominent than fiat-backed stablecoins.

Introduction

Cryptocurrencies such as Bitcoin and Ethereum are considered a speculative and highly volatile asset class by some. A justified observation as for example, the price of Bitcoin peaked in April 2021 at around \$63,000 and within three months, its price halved. Price volatility is the biggest obstacle in the mainstream adoption of cryptocurrencies for various reasons. Firstly, it makes cryptocurrencies impractical to be used as a medium of exchange as the value can appreciate or depreciate dramatically relative to fiat currencies such as USD. Moreover, cryptocurrencies are not just any asset class but currencies that act as a store of value. This implies that their value must be stable over a long period as people expect to be able to know the value of the purchasing power of their crypto assets, both for their security and their livelihood.

To address the problem of instability, stablecoins were introduced in 2014 and 2015, attempting to bridge this gap between fiat currencies and cryptocurrencies and make it possible to be used as means of transferring money within the crypto world. According to Coingecko, the global market cap of stablecoins is sitting at a whopping \$110 billion as of July 2021 and fiat-backed stablecoins like USDT and USDC have accounted for more than 90% of market shares. In this article, we are going to explore what stablecoin are, different types of stablecoins, and the working mechanism behind them.



Types of Stablecoins and Their Working Mechanisms

Stablecoins today have a relatively small market cap compared with traditional asset classes like equity, which makes their prices highly volatile. Even the oldest living cryptocurrency, Bitcoin, experiences considerable fluctuations in price, posing risks for people who are interested in using them as a medium of exchange or store of value. Therefore, some businesses are hesitant to accept cryptocurrency as a form of payment out of fear that their purchasing power could change rapidly and expose them to currency risks.

Stablecoins were first introduced in 2014 and are a type of cryptocurrency whose value is pegged to another asset class such as fiat money (i.e. USD) or gold to stabilize its value. Stablecoins serve various purposes and functions but are mainly used by investors to quickly swap out of a more volatile cryptocurrency to protect the value of their holdings. The stable price of stablecoins allows investors to reduce the volatility of their crypto assets without the need to leave the crypto ecosystem during a market turmoil.

In order to be considered as a legitimate medium of exchange for daily transactions and store of value, stablecoins should possess the following features:

1. The purchasing power should remain fairly constant.
2. They should be easily redeemable for the corresponding amount of assets they are pegged to.

Until today, stablecoins have developed dramatically with more than 75 projects with a value of over \$110 billion, and Ethereum's blockchain has been the preferred choice on which to launch stablecoins.

As aforementioned, a **stablecoin** is a cryptocurrency designed to peg its value to a stable fiat currency or asset. Based on how they maintain their price stability, stablecoins can be categorized into four types:

- **Fiat-collateralized stablecoins** are stablecoins backed by fiat (i.e., USD, EUR).

- **Commodity-collateralized stablecoins** are backed by other traditional asset classes (such as commodities).
- **Crypto-collateralized stablecoins** are backed by crypto-assets.
- **Algorithmic stablecoins** are backed by users' expectations about the future purchasing power of their holdings without custody of any asset.

Fiat-Collateralized Stablecoins (Centralised)

Fiat-Collateralized stablecoins are the most common type. They are pegged to sovereign currencies like the U.S dollar, the Euro, or GBP, etc. This type of stablecoin is usually backed at a 1:1 ratio, which means that for each single stablecoin in the market, there must be an equivalent amount of fiat currency in the reserve (such as the bank account of the token issuer). Hence, it allows traders to redeem the stablecoins into fiat currencies directly. Such reserves are maintained by independent custodians and are regularly audited for compliance. Examples of fiat-Collateralized stablecoins are USDT and USDC.

Pros:

- Stable pricing as they are backed at a 1:1 ratio by fiat currencies (e.g., USD).
- The mechanism is very simple and easy to understand.
- Less vulnerable to hacks, since no collateral is held on the blockchain.

Cons:

- Lack of transparency due to centralized operations and issuance, users have to trust the institutions behind the stablecoins.
- Vulnerable to government interventions and regulations.

Tether (USDT)

The idea for Tether was officially designed and launched in 2014 by Tether Limited located in Hong Kong, which is controlled by the owners of the crypto exchange Bitfinex.

The stablecoin Tether (USDT), originally known as the MasterCoin, is one of

the most popular and widely used stablecoins in the market. It is not only the biggest stablecoin in terms of market capitalization, but is the third biggest cryptocurrency by market cap at over \$61 billion. All Tethers were initially issued on the Bitcoin blockchain via the Omni Layer protocol, and now it expands to six other blockchains – Algorand, BCH, EOS, Ethereum, Liquid Network, and Tron. Tether also introduced EURT that is pegged to the Euro and CNHT is pegged to CNH. Tether alleged that for every USDT that is bought from an exchange, \$1 will be deposited into a bank account of that exchange.

USD Coin (USDC)

The USD Coin (USDC) was launched in October 2018 by the Center Consortium, which was founded by Circle and includes members from the cryptocurrency exchange Coinbase. As of July 2021, USDC is the second largest stablecoin that has a market cap of around \$27.2 billion and holds a 23% market share of stablecoins. Similar to Tether, it has the complete backing of the US dollar.

Since USDC is issued by a regulated financial institution, which enables it to operate across different jurisdictions, it is subject to regular audits to ensure that it is backed by fully reserved assets.

Commodity-Collateralized Stablecoins

Commodity-backed stablecoins are pegged to traditional assets such as precious metals, oil, or real estate. They function similar to fiat-Collateralized stablecoins, with a similar set of pros and cons.

Digix Gold (DGX) is a stablecoin backed by physical gold where 1 DGX represents 1 gram of gold. The gold reserve is located in Singapore and holders of the token can even redeem the physical bars of gold from it. Hence, these stablecoins have the potential to appreciate in value in the future and increase incentive to hold and use them.

Crypto-Collateralized Stablecoins

Crypto-Collateralized stablecoins are backed by on-chain crypto assets

instead of relying on a centralised issuer. This type of currency can be operated in a decentralised manner and is more transparent than fiat-backed stablecoins. To purchase a crypto-Collateralized stablecoin, you will need to lock your crypto assets into a smart contract and mint tokens with equal representative value. Conversely, you can withdraw your original collateral amount by buying back your minted stablecoins. This mechanism is known as Collateralized Debt Position (CDP), which was introduced by the MakerDAO team.

The value of this type of stablecoins is pegged to other cryptocurrencies such as Ether, which may also be highly volatile. Hence, several methods are implemented to help buffer against the price fluctuations by diversifying the reserve of cryptocurrencies, or over-collateralization.

The perks of the crypto-Collateralized stablecoins is that they are decentralised and have no counterparty risk. As the underlying crypto is volatile, they need a high collateral ratio (over 150%). Also, the high volatility of the collateral means that it increases the risks of stablecoins losing their peg and/or liquidation (if the collateral crashes in price).

Over-Collateralisation

Over-collateralisation is done to ensure the stability of the stablecoins. For example, if a crypto-Collateralized stablecoin is pegged 1:2 (200% Collateralized), you will need to deposit cryptocurrency that is worth twice as much as the stablecoin to the reserve. Hence, the stablecoin will maintain its stability as long as the market price of the collateral is above a set threshold as the value of the collateral is still more than the value of the stablecoins. On the other hand, if the price of the collateral drops below the threshold value, the collateral will be paid back into the smart contract automatically to liquidate the CDP.

Dai

Dai is the most popular crypto-backed stablecoin. Its face value is pegged to the U.S. dollar and is Collateralized by Ether and other crypto-assets with a market capitalization of \$5.2 billion. Dai is facilitated by the Maker Protocol, a smart contract that runs on top of the Ethereum blockchain and attempts to maintain a stable 1:1 value with the U.S. dollar.

The collateralization ratio is currently set at 150%, which means if you deposit \$150 worth of Ether to the smart contract, you will receive 100 newly minted Dai in return. In addition, users can also deposit cryptocurrencies accepted as

collateral if they don't want to spend their Ether.

Algorithmic Stablecoins

Algorithmic stablecoins are not backed by collateral, and their price stability is derived from a consensus mechanism that controls the supply of the token based on market conditions. This proposal was made by Rober Sams back in 2014 in one of his papers, '[A Note on Cryptocurrency Stabilisation: Seigniorage Shares](#).' According to Sams' proposal, a new currency can be created by pegging it to an asset such as the dollar. Its price on exchanges, which is purely driven by demand and supply, will be monitored algorithmically. In theory, the algorithm needs to accurately respond to market movements and prevent price manipulation for this currency to maintain its price stability.

We can take a look at a simple example below to get a better understanding of the algorithm:

1. A new currency is created and pegged to the U.S. dollar. This means that each unit of this currency is priced at \$1.
2. The price of the currency has surged above \$1, which indicates an excess demand in the market. The algorithm will then increase the money supply until the price has returned to equilibrium (\$1).
3. On the other hand, if the price of the token is below \$1, there is an excess supply in the market. Hence, the algorithm will reduce the money supply by burning the coins until the price is adjusted back to equilibrium (\$1).

An example of algorithmic stablecoins is [Terra's UST](#). It is Collateralized by LUNA, the native token of the Terra blockchain. The Terra protocol acts as a market maker for UST. If the system runs out of assets, it will restock by inflating the native LUNA supply.

Pros:

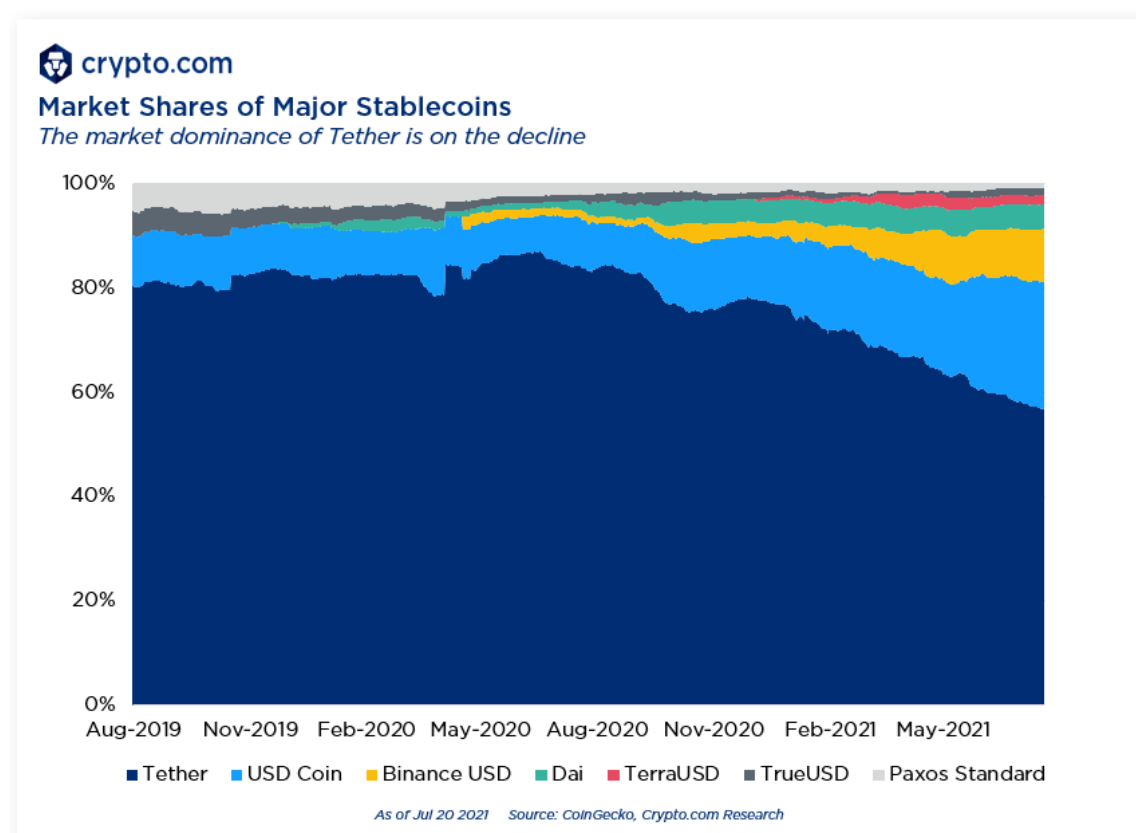
- Since algorithmic stablecoins are programmed with auditable open-source code, this has allowed for more trust since the peg is tied to an algorithm but not collateral (whose supply is less controllable).
- Algorithmic stablecoins are decentralised in design and resistant to manipulation of centralised entities.

Cons:

- Extremely complex to build and maintain as the algorithm needs to monitor and respond to any market moves quickly.
- Requires continuous growth to maintain its peg.

The Stablecoins Market

Currently, USDT and USDC are the two most popular stablecoins in the market with a total market share above 80%.

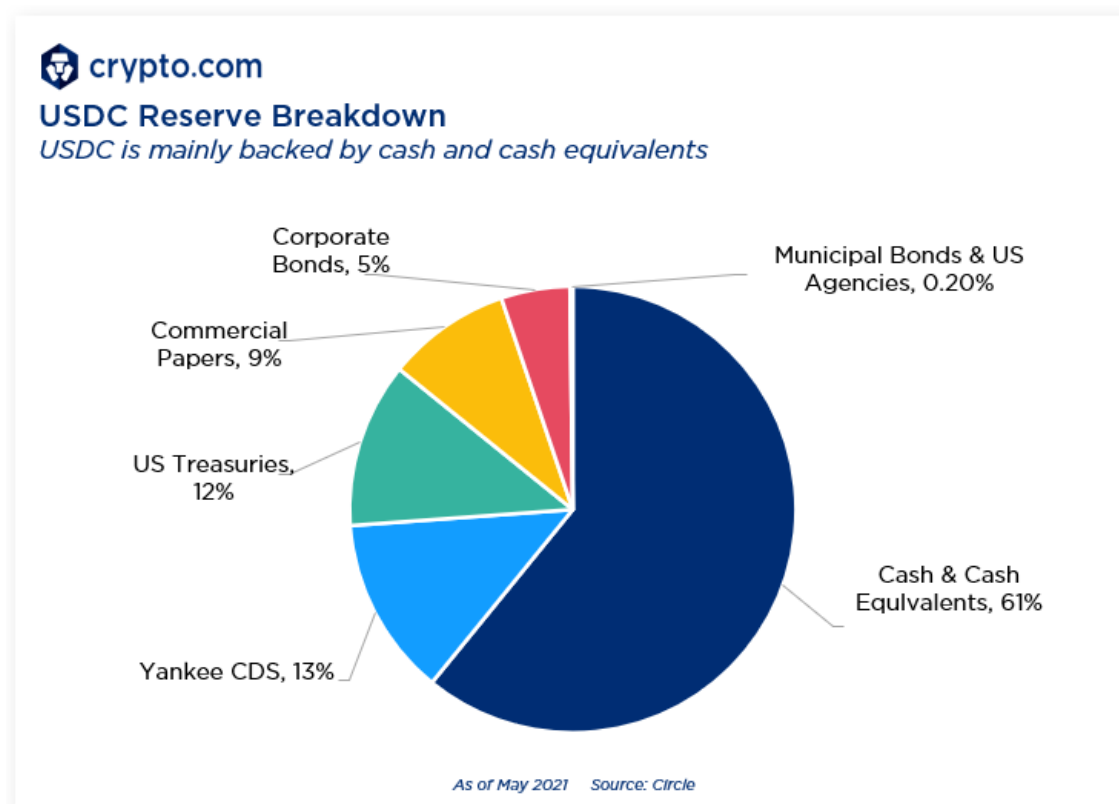


The popularity of USDT has skyrocketed during the ongoing bull run in 2020. It faced a strong demand from participants of derivatives-only exchanges like FTX or Binance Futures where the majority of the derivatives products are USDT-based. It has also become a top choice of stablecoins among users from emerging markets like Eastern Europe, Africa, South America, and East Asia as it is the earliest stablecoin (launched in 2014). On top of that, USDT is also issued on multiple chains (Bitcoin, Ethereum, EOS, Tron, Algorand, SLP, and OMG) which allows users to enjoy lower fees as well as diversification of

the Tether ecosystem.

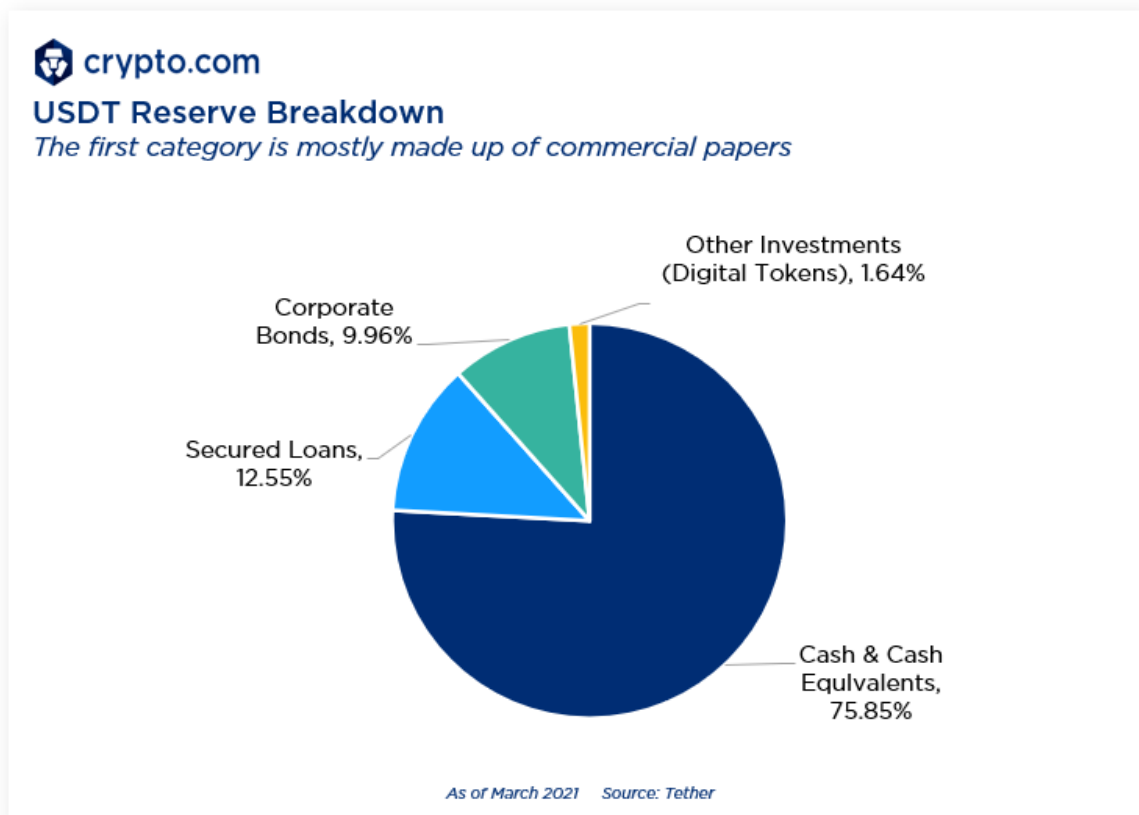
According to [CoinmarketCap](#), USDT had dominated the stablecoins space with a growth rate of nearly 300% in 2020. Moreover, in 2021, the market cap of USDC had gained significantly by more than 1,820% since January while Tether only experienced a 200% growth. The above figure also illustrates the trends that the market of USDT was declining as USDC was climbing. Furthermore, synthetic stablecoins like Dai and TerraUSD also arrived at the stage.

So why these changes? The answer lies in the issues of trust and transparency. Circle Ltd issues publicly verifiable audits monthly to show that the stablecoin is backed 1:1 by USD held in their reserves. None of the USDC's smart contracts have been hacked or compromised so far. The founding company, Circle, is fully licensed to operate and all USDC transactions are publicly verifiable on the Ethereum blockchain.



On the other hand, Tether Holdings never release publicly verifiable audits, so it is impossible to verify if USDT is backed 1:1 by USD or not. Tether Holdings has released a full breakdown of its reserve for the first time in May 2021, proving that only 75.85% of the stablecoins are backed by cash (composition of the

reserve is shown below). The breakdown showed nearly half the reserves are in commercial papers, yet does not specify the issuers or ratings of those debts.



However, both USDC and USDT cannot solve the trust issue given that they are backed by their centralised parties respectively. Users have to choose their pegging mechanism that works forever to keep the value of their funds.

On the contrary, synthetic stablecoins (crypto-Collateralized and algorithmic stablecoins) like Dai and TerraUSD play a unique role because of their decentralisation, making them potentially more resistant to censorship and also more transparent. That is likely the reason behind their rising popularity and we believe they will become the next leaders of the stablecoins market.

Key Takeaways

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