

STABLECOIN TYPES (1/5)

– OVERVIEW

KEY TAKEAWAYS

Stablecoins can be categorised into four different types by their reserve composition, reserve maintenance, and pegging mechanism:

- Fiat-backed / referenced** stablecoins are directly pegged to a fiat currency through reserves held in traditional, highly liquid assets;
- Crypto-backed (over-collateralised)** stablecoins are backed by cryptoassets that exceed the value of the stablecoin issued as buffers for underlying value fluctuations;
- Crypto-backed (risk-hedged)** stablecoins use a combination of collateral and financial instruments to mitigate risks and maintain price stability; and
- Algorithmic** stablecoins use automated algorithms to adjust supply based on demand and are increasingly incorporating collateralisation to enhance stability.

There are four major types of stablecoins currently in circulation, differentiated by their reserve composition, reserve maintenance, and pegging mechanism

Stablecoin Types

Fiat-referenced, Crypto-backed (Over-collateralised), Crypto-backed (Risk-hedged), Algorithmic

	 Fiat-referenced	 Crypto-backed (Over-collateralised)	 Crypto-backed (Risk-hedged)	 Algorithmic
Reserve Composition				
Cash / Fiat Equivalent ¹	✓	-	-	-
Cryptoassets ²	-	✓	✓	-
Reserve Maintenance				
Over-collateralisation	-	✓	-	✗
Derivative Hedging	✗	✗	✓	✗
Pegging Mechanism				
Market Arbitrage	✓	✓	✓	✗
Algorithm	✗	✗	✗	✓
Issuer Intervention	-	-	-	-

 tether

 USD Coin

 DAI

 USDD

 Frax

 USDe

 USDB

 Frax

 Terra

✓ Applicable - Dependent ✗ Not Applicable

STABLECOIN TYPES (2/5)

– FIAT-REFERENCED

KEY TAKEAWAYS

Fiat-referenced stablecoins are linked to a fiat currency by maintaining reserves in traditional, highly liquid assets.

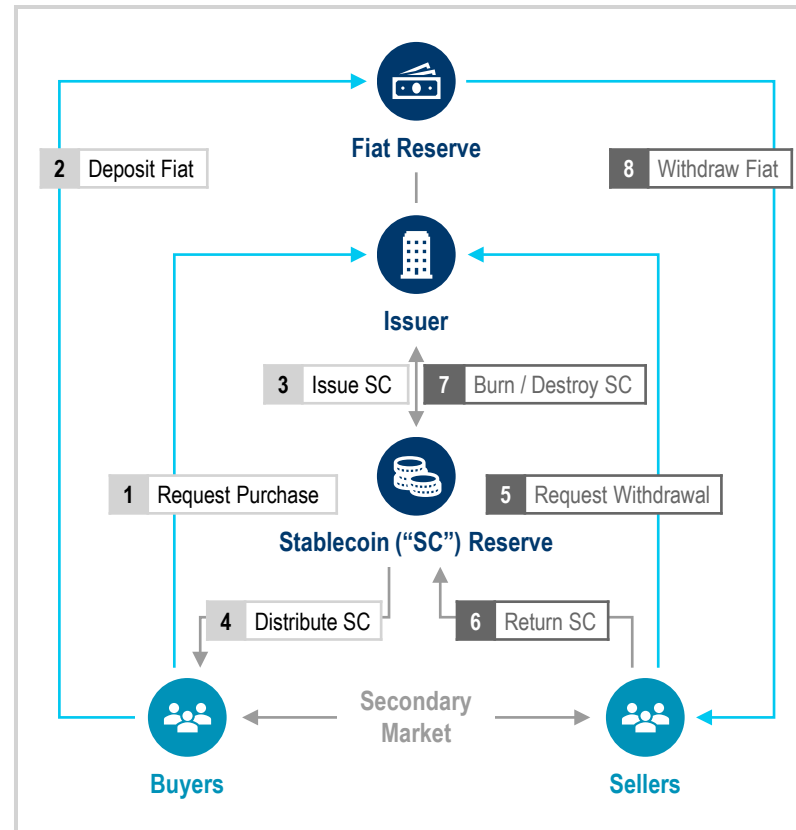
To purchase fiat-backed stablecoins, buyers request the purchase and deposit fiat off-chain before receiving the newly-issued coins on-chain. These stablecoins can be traded on the secondary market. Sellers follow a similar route to return fiat-backed stablecoins and withdraw fiat.

One example of fiat-backed stablecoins is Tether USDT, whose reserve is over-collateralised by 6%, with only ~0.1% of the cash-equivalent reserve composed of cash and bank deposits.

Fiat-referenced stablecoins are backed by the reference fiat currency holdings / investments, which are typically comprised of cash-equivalent assets

Mechanism

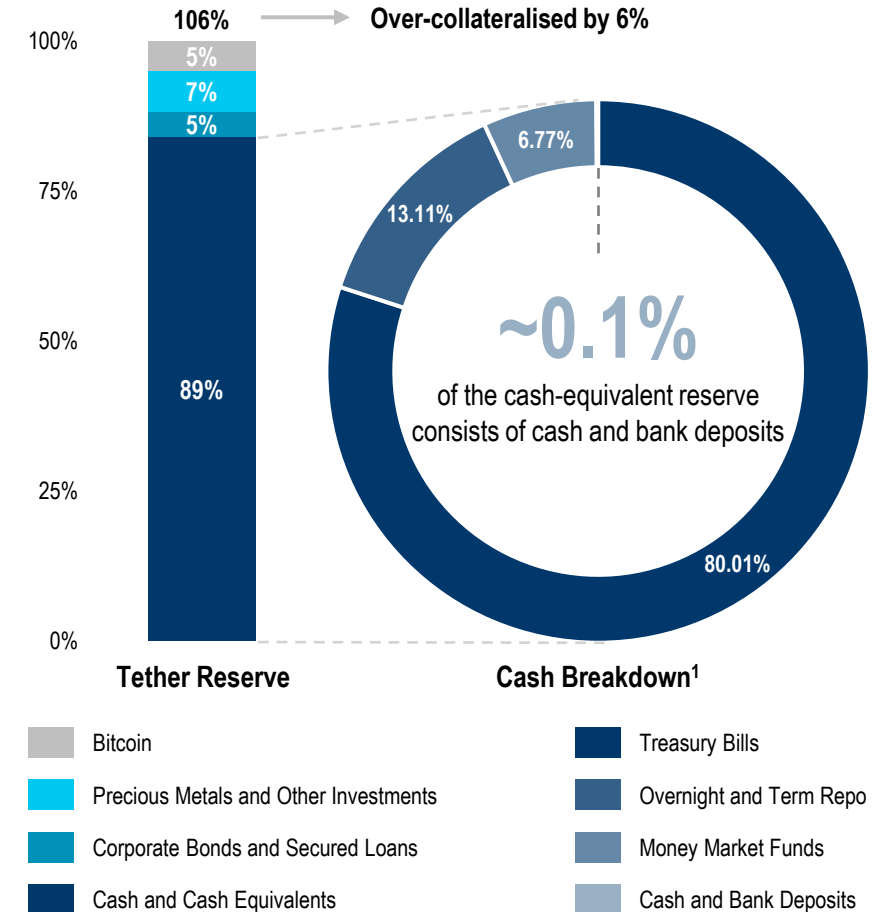
Illustrative



Purchase # Withdrawal → On-chain → Off-chain

Tether USDT Reserve

% of Circulating Stablecoin, March 31, 2024



STABLECOIN TYPES (3/5)

– CRYPTO-BACKED (1/2)

KEY TAKEAWAYS

Crypto-backed stablecoins can over-collateralise to ensure higher stability.

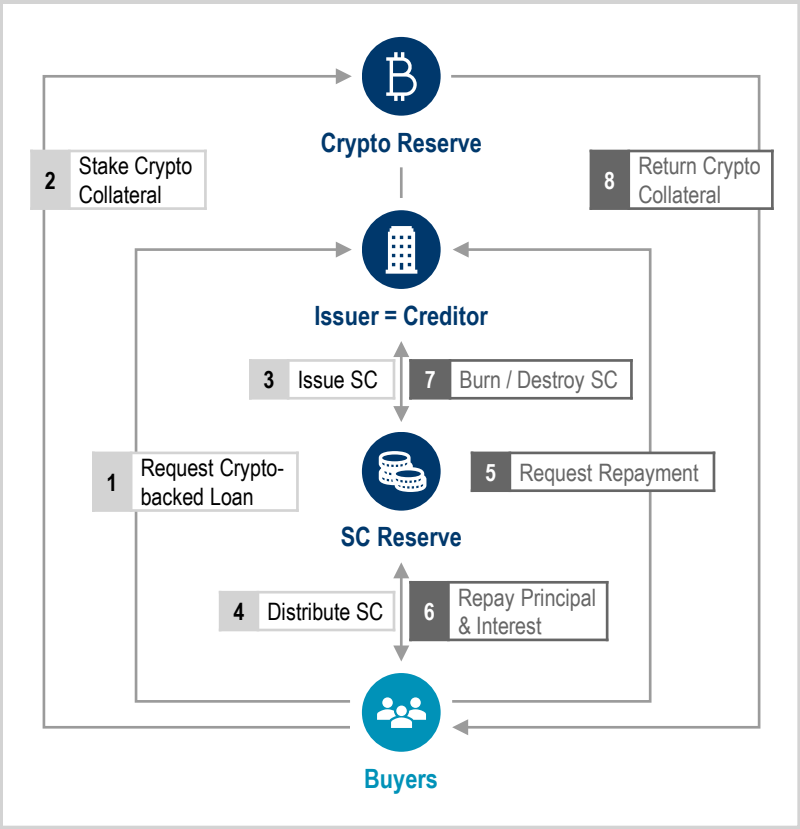
Instead of “buying” stablecoins, buyers receive stablecoins as crypto-backed loans from the issuer and stake cryptoassets as the collateral in the reserve. To redeem the stablecoin, buyers repay the principal asset with relevant interests to receive the collateral. As no fiat is involved in the collateralisation, the whole process is completely on-chain.

One example of a crypto-backed stablecoin that is over-collateralised is MakerDAO’s DAI. Issuers may sell the collateral assets to preserve the value of reserves, depending on price fluctuations.

Crypto-backed (over-collateralised) stablecoins use crypto collateral from buyers to issue stablecoins at a discount, maintaining a sizeable margin to fend off market volatility

Mechanism

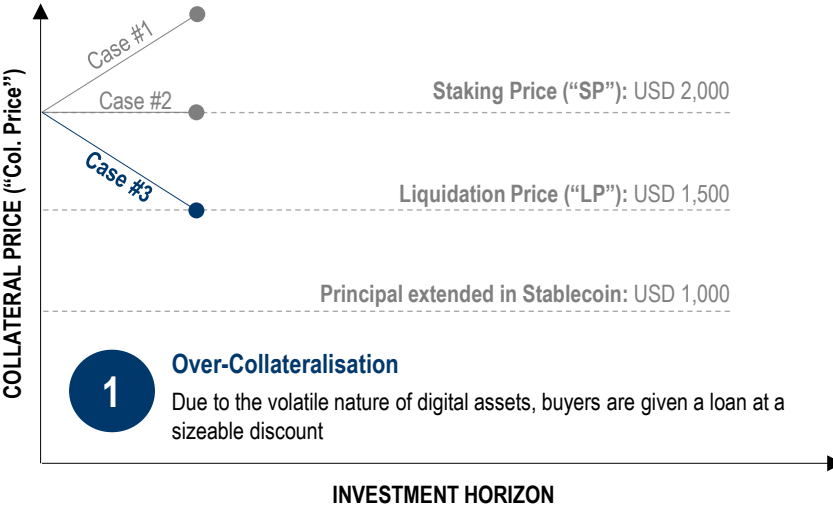
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Credit Extension # Repayment → On-chain

MakerDAO’s DAI

Mechanism



- 1 Over-Collateralisation**
Due to the volatile nature of digital assets, buyers are given a loan at a sizeable discount
- 2 Price Fluctuation**
Depending on the price fluctuation of the collateral, the issuer may liquidate the collateral assets to maintain reserve value

Case	Col. Price	Description	Issuer Profit	Buyer Profit & Loss ¹
1	USD 2,100	Col. Price > SP	Interest	(Interest)
2	USD 2,000	LP ≤ Col. Price ≤ SP	Interest	(Interest)
3	USD 1,500	Col. Price < LP	USD 500 + Interest	(USD 500 + Interest)

¹Figures in parenthesis indicate losses
Source: MakerDAO, Quinlan & Associates analysis

STABLECOIN TYPES (4/5)

– CRYPTO-BACKED (2/2)

KEY TAKEAWAYS

Another type of crypto-backed stablecoin hedges price volatility risks with financial instruments.

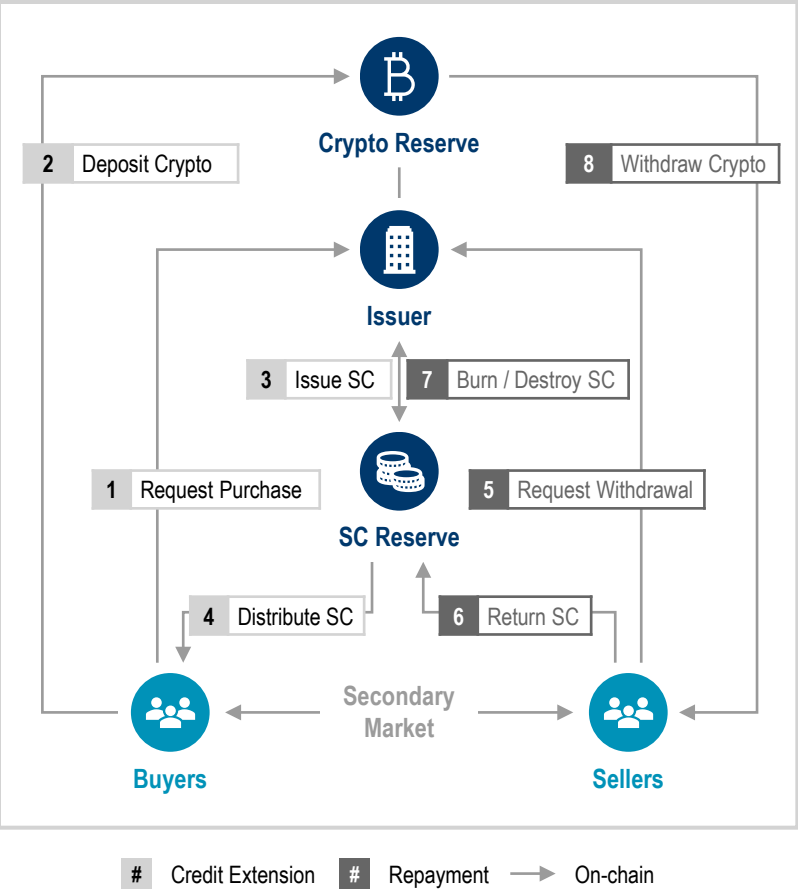
The issuance and redemption process is largely similar to that of fiat-backed stablecoins, except that all transactions are done on-chain.

One notable example is Ethena Lab's USDe. As the value of collateral changes, buyers may receive a different amount of collateral than what they initially deposited for issuance.

Crypto-backed (risk-hedged) stablecoins hedge their reserve's crypto exposure to back the stablecoin issuance, defending their value against market volatility

Mechanism

Illustrative



Ethena Lab's USDe

Mechanism



- 2 Delta Hedging**
Ethena utilises financial instruments, such as shorting the future derivatives of its reserve, to peg the value of its reserves to fiat
- 3 Redemption**
As USDe is one-to-one pegged to USD, buyers may receive a different amount of collateral depending on ETH price fluctuations

Case	Col. Price	Description	Redemption	Collateral Returned	Buyer P&L ¹
1	USD 2,500	Col. Price > SP	2000 USDe	0.8 ETH	(0.2 ETH)
2	USD 2,000	Col. Price = SP	2000 USDe	1 ETH	0 ETH
3	USD 1,500	Col. Price < SP	2000 USDe	1.33 ETH	0.33 ETH

¹Figures in parenthesis indicate losses
Source: Ethena Labs, Quinlan & Associates analysis

STABLECOIN TYPES (5/5) – ALGORITHMIC

KEY TAKEAWAYS

Algorithmic stablecoins strive to maintain their value by adjusting the supply of the stablecoin using algorithms.

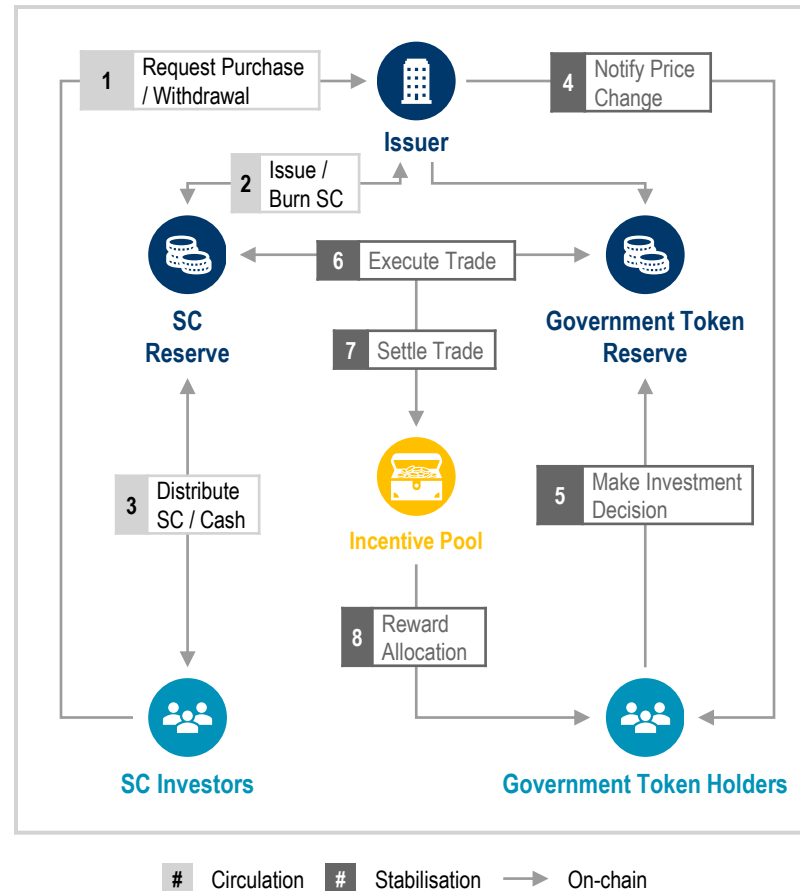
Many algorithmic stablecoins implement incentive mechanisms that encourage users to participate in maintaining the peg, such as rewards for providing liquidity or participating in governance.

TerraUSD is a prominent example of an algorithmic stablecoin that, despite gaining popularity in early 2022, lost its peg to the US dollar. This loss of stability led to a decline in market confidence and caused a liquidity crisis, ultimately resulting in its collapse.

Algorithmic stablecoins aim to provide price stability by issuing and burning stablecoins with algorithms rather than the market and are prone to de-pegging

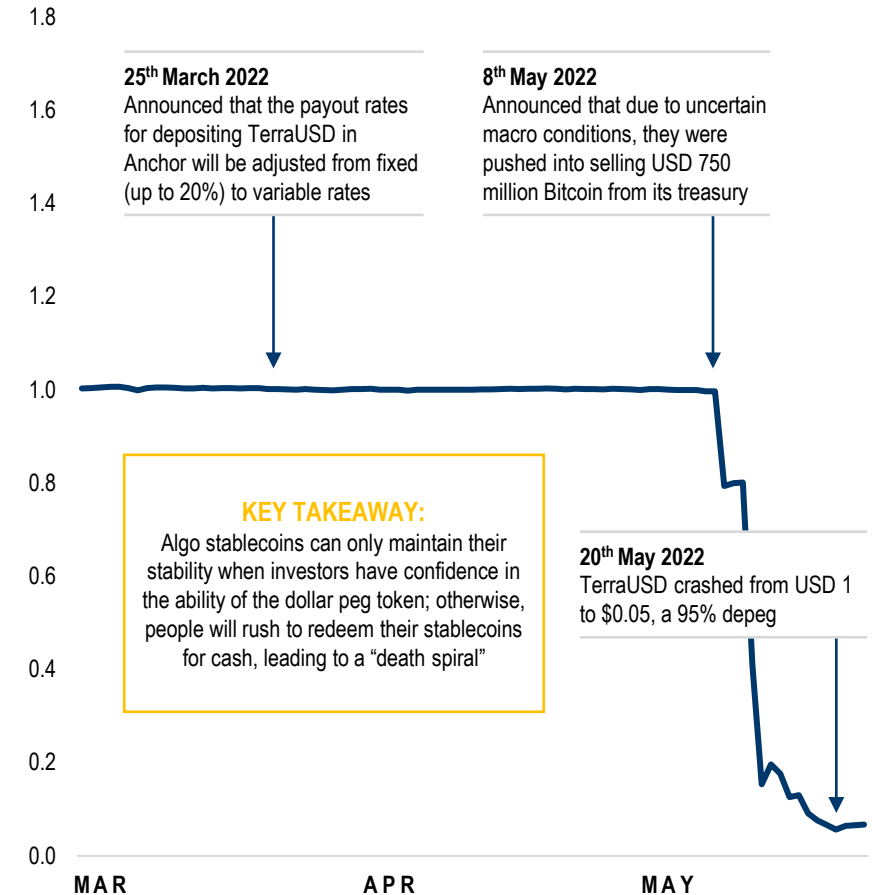
Mechanism

Illustrative



TerraUSD's De-Peg From USD

USD, March – May 2022





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