NEU BLOCKCHAIN + COINMETRICS

THE CAMBRIAN EXPLOSION OF STABLECOINS

By the **Northeastern University Blockchain Club** and **Coin Metrics**

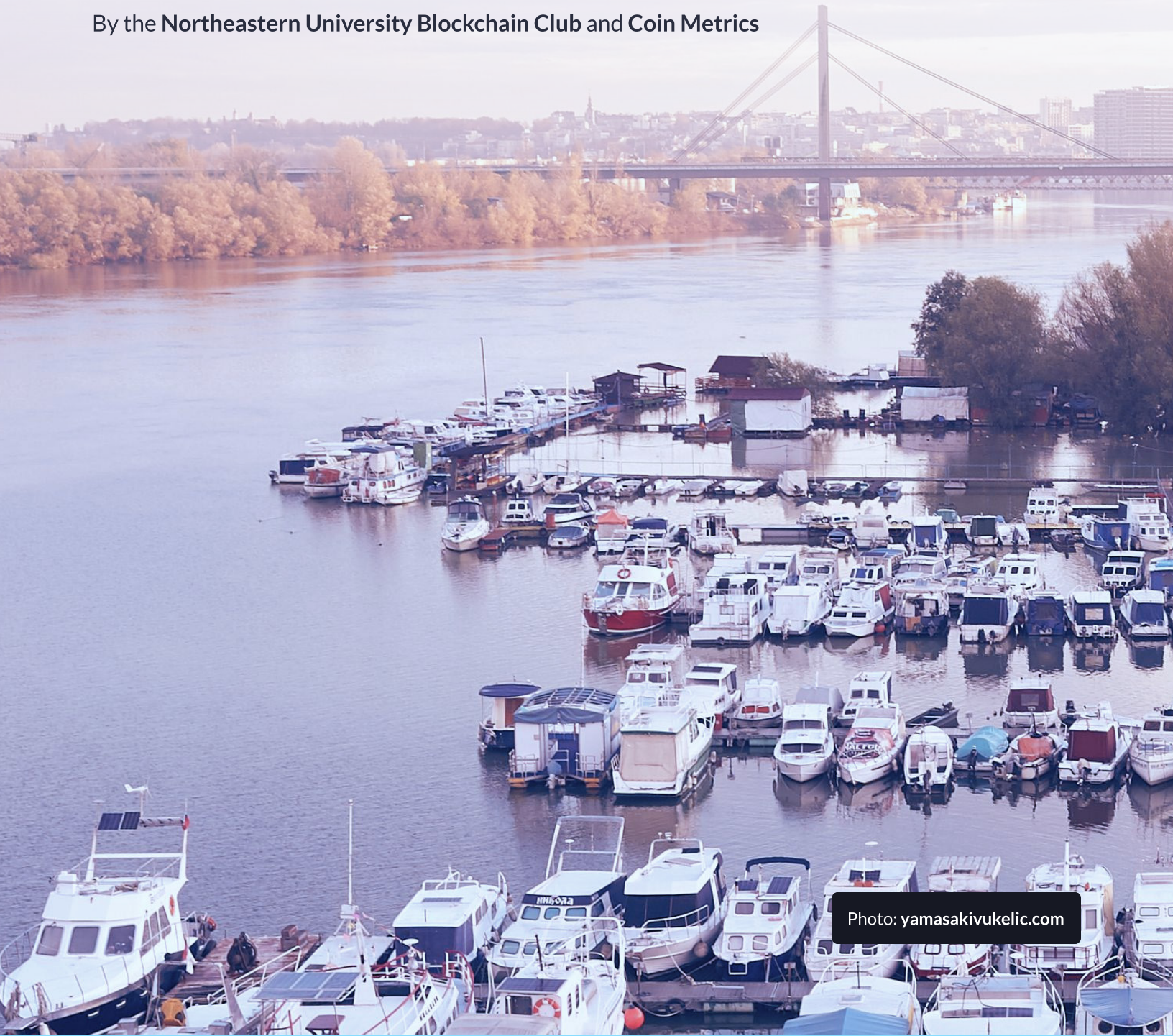

Photo: **yamasakivukelic.com**

AUTHORS

This report was written by the **Northeastern University Blockchain Club** with data and support from the **Coin Metrics** Research team.

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THE CAMBRIAN EXPLOSION OF STABLECOINS

In just two years, the total supply of stablecoins has grown twenty fold to more than $180B today. Stablecoins have emerged as a linchpin of the crypto ecosystem, providing stability in contrast to the volatility of most cryptocurrencies. The rise of stablecoins is a recent phenomena and the ecosystem is fast evolving. The design space for stablecoins has expanded dramatically, encompassing a broad range of economic mechanisms. The stakes are growing as governments increasingly evaluate digital fiat currency while private stablecoin issuers compete for market share. In this data-driven report written by the Northeastern University Blockchain Club with data and support from Coin Metrics, we break down the stablecoin landscape today, the key measures of its growth, and the possible future paths for this burgeoning sector of the crypto-economy.

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THE CAMBRIAN EXPLOSION OF STABLECOINS

1 AN INTRODUCTION TO STABLECOINS

Stablecoins have steadily been increasing in popularity and use as their total market cap is peaking at over 182 billion US dollars (The Block). Stablecoins are a class of cryptocurrencies that can be described as digital currencies that retain value while hedging against market volatility. Stablecoins are primarily used today to transfer funds, facilitate trading, and serve as collateral for borrowing and lending protocols such as MakerDAO and Aave, among other use cases. Stablecoins offer price stability as they are algorithmic, unpegged, or pegged by a reserve asset like the US dollar or gold.

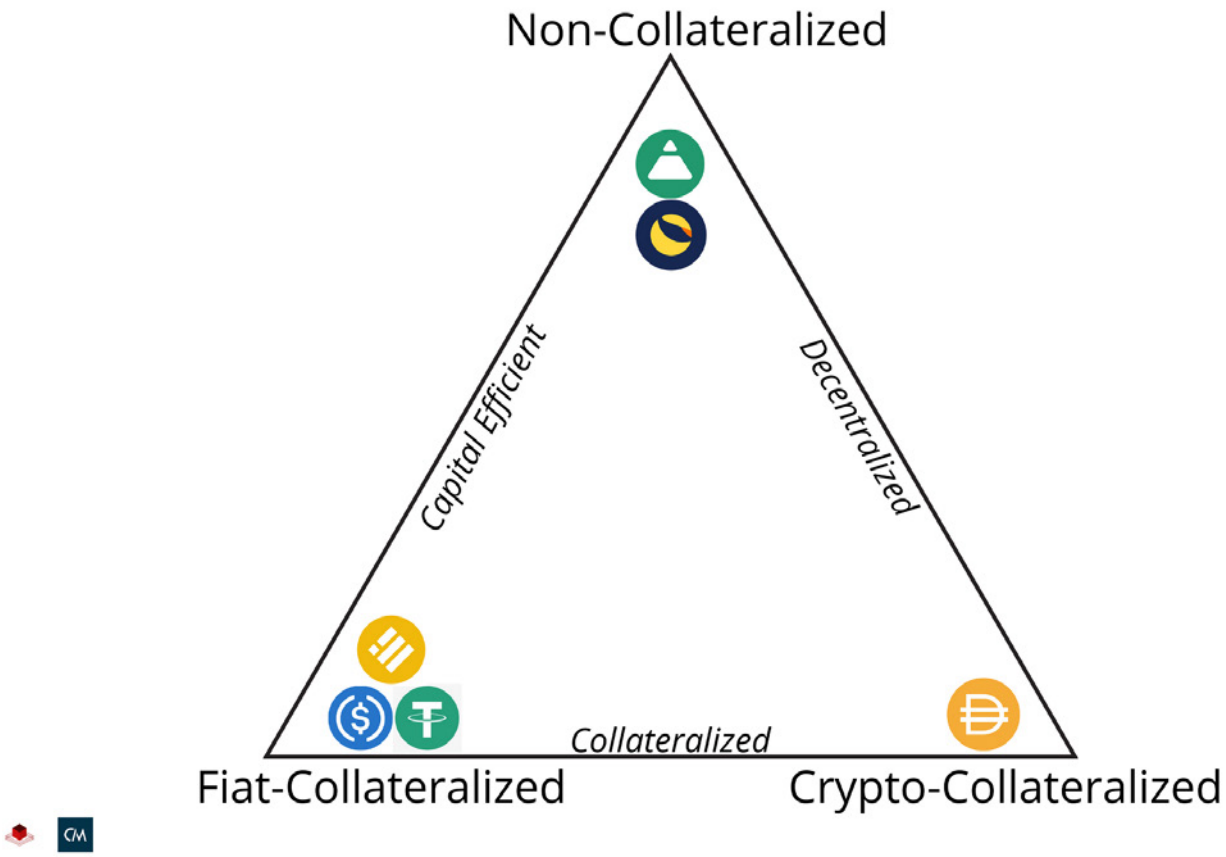
Cryptocurrencies are considered to be volatile with significant upward and downward movements in short time periods. Stablecoins solve this issue of volatility. They provide crypto users a stable asset while still benefiting from the advantages of blockchain infrastructure. Holders don't need multiple bank accounts or settlement periods spanning multiple business days to send value across the world. They just need one crypto wallet address. Stablecoins make peer-to-peer digital transactions possible without the need for third-parties. Stablecoins offer a permissionless way to exchange and store value that is not tied to banks or traditional payment rails. This means that payments are transferred and settled almost instantaneously on the blockchain networks in which they are issued.

Stablecoins enable borderless payments that are open 24/7. For example, at least $10.7 million dollars in stablecoins have been donated to Ukraine by people from across the world. This creates opportunities for anonymous donations that aren't tied to any forms of personally identifiable information (PII) while maintaining ease of exchange and settlement. The Ukraine conflict showcased the importance of global, autonomous, and resilient payment mechanisms and the future looks brighter than ever as legacy institutions look to get more involved in the space.

In the following sections we outline the evolutionary nature of stablecoins today and their varying designs, analyze the data behind their growth and adoption, and assess the risks and possible future paths for this growing part of the crypto ecosystem.

2 STABLECOIN CLASSIFICATION

Stablecoins can be grouped under three main classifications. Fiat-collateralized, crypto-collateralized and non-collateralized. The main differences between each are the type and amount of collateral needed to mint the stablecoin. Each stablecoin's respective peg mechanism also differs depending on how it is collateralized. In this section, we'll dive deep into both the collateralization and pegging methods used in each classification.



Fiat-collateralized

The first classification we will discuss are fiat-collateralized stablecoins. These stablecoins are backed by fiat currencies like the US dollar. Their reserves are usually held by a central entity that goes through audits to ensure the number of minted stablecoins is equal to the number of fiat dollars held. Fiat-backed stablecoins are generally more attractive to traditional finance participants and other corporate entities as you can buy these stablecoins directly from the issuers where users undergo KYC and AML checks. The most popular fiat-backed stablecoins at this time are USDC, USDT, and BUSD.

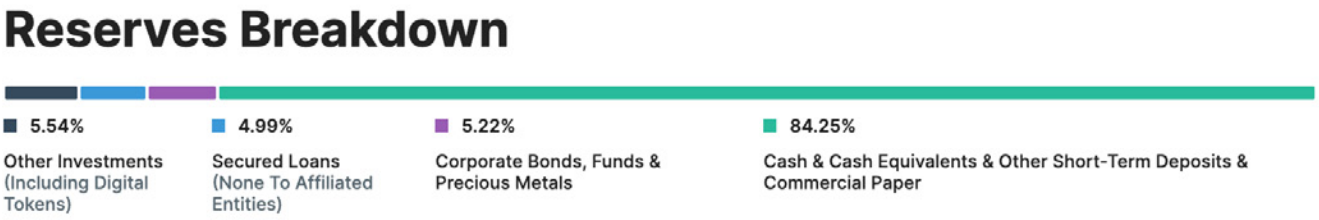
USDC

USDC is a fiat-backed stablecoin created in September 2018 by a group called Centre which includes Circle and Coinbase. USDC has been making strides in their service offerings to compete against other USD backed stablecoins like USDT and BUSD. USDC has recently crossed 50 billion coins in circulation with over 2 trillion dollars worth of on-chain transaction volume. A notable feature of USDC is its multichain use. Today, USDC is issued on 8 different chains. The use of USDC spans many verticals including gaming, crypto exchanges, fintechs, and banks. USDC is regulated by FinCEN and 46 state regulators, is governed by Centre and is also audited by Grant Thornton.

USDT (Tether)

USDT (Tether) is the largest stablecoin by total supply today. Tether was founded in 2014 by a group called Tether Limited, and has a circulating supply of 80 billion today. Contrary to USDC, Tether has had a very distinctive, and at times, questionable history. A complicated feature of fiat-collateralized stablecoins is that information about the reserves backing the tokens are not accessible on the blockchain itself (they are "off-chain"). While we can see the tokens issued on-chain, the reserve composition is not readily accessible on-chain, requiring users to trust the issuer and the soundness of the reserves.

Today, USDT is not actually backed 1:1 with USD; rather it is backed by various financial assets including secured loans, corporate bonds, cash & cash equivalents, and other investments as shown in the image below. Historically, there have been some concerns surrounding Tether and its disclosures. In 2019, the New York Attorney General (NYAG) filed a suit accusing Tether of wrongdoing. Tether subsequently settled with the NYAG last year. In October of 2021 the US CFTC called for Tether to pay $41 million for making false public claims and actions. Despite Tether's troubled history, it is heavily used in the crypto market for liquidity and is often used as a quote asset in spot and futures markets on centralized exchanges. Tether has also been a popular way to access dollar-denominated assets outside of the US, especially in countries with high inflation such as Turkey.



Source: *Tether*

BUSD

Paxos has been a major player in the fiat-backed stablecoin market as they collaborated with Binance to create BUSD. BUSD is available for use on ETH native applications and BNB chain (Binance's native chain).[1] There is a supply of 17.9 billion BUSD. The main promoter of BUSD is Binance themselves. BUSD that is issued by Paxos on ETH is regulated by the NYDFS while BUSD on BNB is not.

Fiat-backed stablecoins play a huge role for not only stablecoin adoption, but for crypto adoption in general. This is driven by the familiarity the average person gets by seeing USD and the ability to trade in their USD 1-1 to get the stablecoin version.

Crypto-collateralized

The main weakness of fiat-collateralized stablecoin is centralization. The collateral of a fiat-collateralized stablecoin is held by one independent party. An example of this would be Circle, Inc, the Boston based digital payments company that issues USDC. If USDC is issued by Circle, the collateral they receive is then kept with Signature Bank. Recently, Circle applied to become a US Federally-chartered national commercial bank through the Securities and Exchange Commission. The idea of one governing party controlling the funds of many directly contradicts the native idea of decentralization that is embedded in cryptocurrency. This motivated the development of a decentralized, cryptocurrency backed stablecoin. Here, we'll focus on the crypto-collateralized stablecoin.

MakerDAO's DAI

DAI, created in 2017 by the Ethereum decentralized finance project, MakerDAO, was the first major decentralized stablecoin to be collateralized by cryptocurrency. Maker achieves this through two core mechanisms, the Collateralized Debt Position (CDP) and the Target Rate Feedback Mechanism (TRFM): Both autonomously controlled by smart contracts on the Ethereum ecosystem. CDPs allow users to lock up crypto as collateral in a smart contract, and receive DAI in return. More specifically, when borrowing DAI, a user's deposit must always be overcollateralized and worth 150% or more of the total amount of borrowed DAI. If the collateral value dips below the 150% threshold, the collateral will be at risk of forced liquidation. When a user is ready to withdraw their collateral, they just need to pay back the total amount of DAI borrowed + Stability fees. The first version of DAI (single-collateral DAI or SAI) only supported ETH as collateral. In late 2019 MakerDAO launched

[1] Paxos has also issued the fiat-collateralized stablecoin PAX (rebranded to USDP), as well as PAX Gold, a gold-backed stablecoin.

multi-collateral DAI bringing more collateral options to mint DAI. MakerDAO has now onboarded many different collateral types, even including real-world assets.

DAI keeps its $1 peg through the TRFM: A mechanism that creates buy and sell incentives depending on the market price of DAI. If DAI is trading below its target price, the TRFM will signal the protocol to decrease collateralization levels. This incentivizes borrowers to buy more DAI to pay off their debt hence limiting supply expansion and driving the price of DAI up. On the contrary, if DAI is trading above one dollar, the protocol will increase collateralization levels. This incentivizes borrowers to mint even more DAI hence increasing supply and driving the price of DAI down. Additionally, a mechanism called the Peg Stability Module allows users to swap USDC for DAI at a 1:1 rate. This lets traders easily capture arbitrage opportunities further helping the DAI peg.

The DAI stablecoin is valuable for its decentralization and collateralization mechanisms. It allows users to mitigate volatility while staying true to the decentralized nature of crypto and avoiding institution-issued stablecoins. While fiat-collateralized stablecoins are the dominant force in the stablecoin market, there is still a need for crypto-backed stablecoins.

Non-collateralized

While crypto-backed stablecoins are good for their decentralization, they are capital inefficient. The average consumer or institutional investor would rather mint 1:1 through a centralized fiat stablecoin than have to over-collateralise by at least 150% to issue a decentralized stablecoin. For this reason, developers set out to create non-collateralized (or algorithmic) stablecoins. These coins maintain their peg without having to directly collateralize the issuance. Rather, they maintain the peg with mechanisms similar to those of the United States' Federal Reserve controlling the supply of the U.S. Dollar. This is possible in the same way that it is possible for the U.S. Dollar to part ways with the gold standard. Specifically, this section will talk about some of the largest forces in the market in this category, Terra and Fei.

Terra

Terra is a blockchain focused on serving instantaneous payments and algorithmic stablecoins. On Terra, a stablecoin could be issued for any traditional currency. For example, the U.S. Dollar (UST), Euro (EUT) and Korean Won (KRT) all have their own stablecoin issued on Terra. Terra's ecosystem consists of two main coins, Terra and Luna. Terra tokens are what are used to create the stablecoins and other synthetic tokens on the network. Luna is the governance and staking reward token. Users can stake Luna to network validators and receive more Luna through periodic rewards. Terra's peg mechanism is fairly straightforward. Depending on if Terra is trading above or below its peg, the Terra protocol will incentivize either the expansion or contraction of Terra's supply in the market.

Specifically, Terra's "Terra Station" is a native app that allows for atomic swaps between Terra and Luna. Users can access this feature to take advantage of existing arbitrage opportunities on the network. These opportunities are incentives that the protocol creates to either increase or decrease the supply of the Terra pool. This year, Terra has taken initiative to back their stablecoins with Bitcoin reserves. This came after a lot of criticism towards Terra's peg mechanism. Terra's founder, Do Kwon, announced that the network recently acquired $230 million worth of Bitcoin for its reserves. The Luna Foundation Guard's Bitcoin address now holds roughly 42K BTC worth $1.7B at the time of writing this report. Kwon has suggested that the network may acquire up to $10 billion worth of Bitcoin in the future. This would accelerate Bitcoin adoption and create a new frontier for decentralized currency.

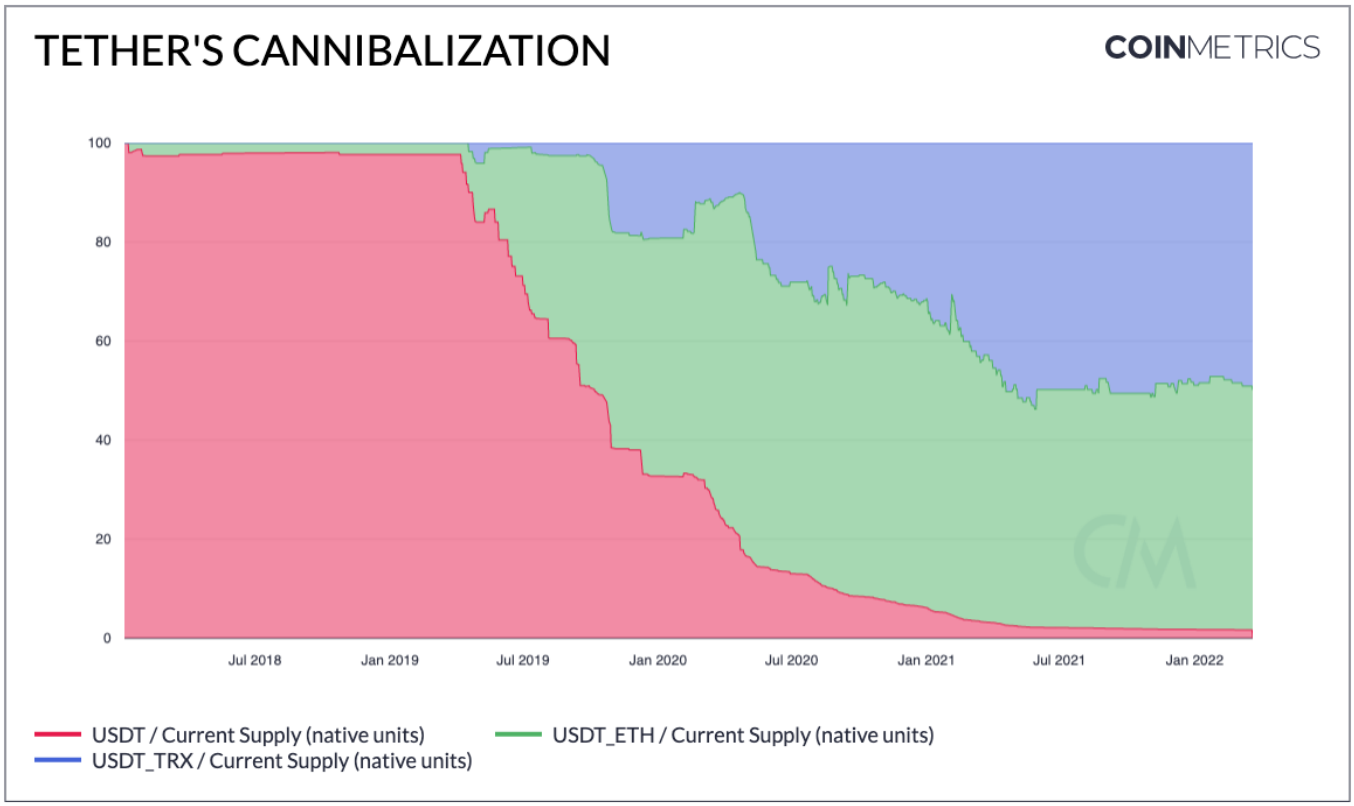
Fei

The Fei Protocol is home to the Fei token. An algorithmic stablecoin innovative for its use of Protocol Controlled Value (PCV.) Instead of receiving an IOU when minting Fei, the Fei protocol controls your collateral and uses it to maximize yield. That being said, Fei keeps a tight peg by offering 1:1 redeemability through its PCV. At any given time, a holder can redeem 1 DAI for 1 FEI from the PCV. This allows for Fei's supply to expand or contract depending on the demand for the stablecoin. In turn, the peg stays tight through arbitrage. Other features of Fei's PCV include providing liquidity on Balancer Investment Pools and offering buybacks for Fei's governance token, $TRIBE.

3 Stablecoin Usage and Adoption Trends

Looking closer to the behavior of market participants and the stablecoins they choose to use allows for patterns and hierarchies to be recognized. Some networks offer lower fees which are in turn dominated by smaller transaction sizes for example.

In some cases, such as Tether, a stablecoin can permeate across several networks to the point where the genesis blockchain becomes cannibalized by the newer networks. This was the case for Tether on the Omni network as it was quickly leapfrogged by popular rising networks Ethereum and Tron.



Source: *Coin Metrics' Network Data Charts*

Prior to 2018, Tether was only issued on Omni but after issuing an ERC20 token on Ethereum, Omni Tether's share of the market crashed from 98% of the entire Tether supply to a paltry ~1.6%.

The quick change in market share over the span of four years underscores the utility and adoption Ethereum amassed over the years, as it brought smart contract chains to the forefront of distributed ledger technology. Tether on Ethereum has witnessed explosive growth, growing from 2% of Tether's supply in 2018 to 49%. This gain of 47% in Tether's supply coincided with the introduction of Tether

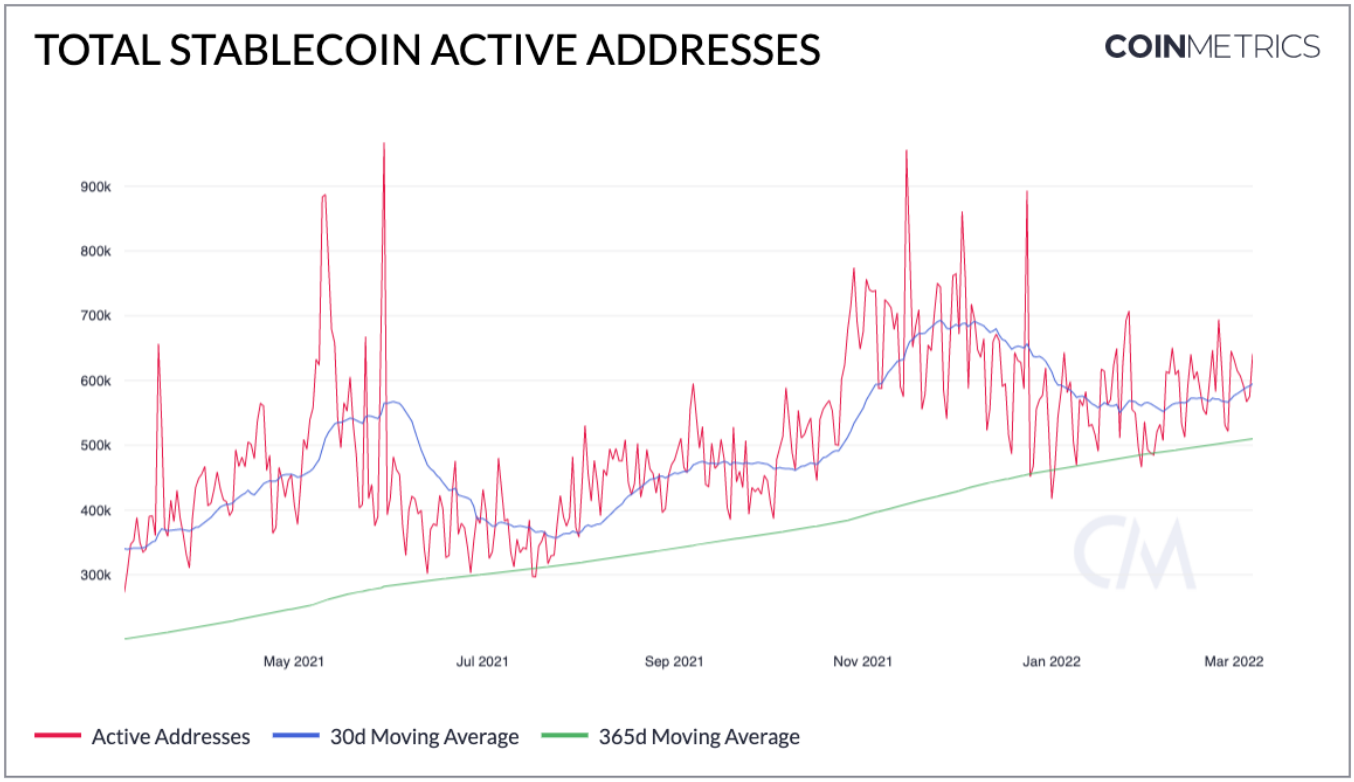
on the Tron network, where 49% of Tether's supply is currently circulating. Introducing Tron and Ethereum to the Tether ecosystem siphoned Omni's share of Tether's cross-network supply but not from each other. It will be interesting to watch which network will take over in the future as both Tron and Ethereum versions of Tether sit at 49% of the current supply. This coexistence will most likely be challenged as the market matures and new entrants step in.

Tether has expanded to multiple networks and currently operates across 9 networks. This alters the share of each network proportional to supply when factoring in the Solana, Algorand, Avalanche, EOS, Liquid, and SLP networks but Tron and Ethereum remain the dominant choices regardless. Tether on Solana has been growing fast with supply at $2B, 2.3% of Tether's aggregate supply, only 2 years since inception.

This next section will analyze Stablecoins from the aggregate and peer perspective.

Aggregate View

Active Addresses



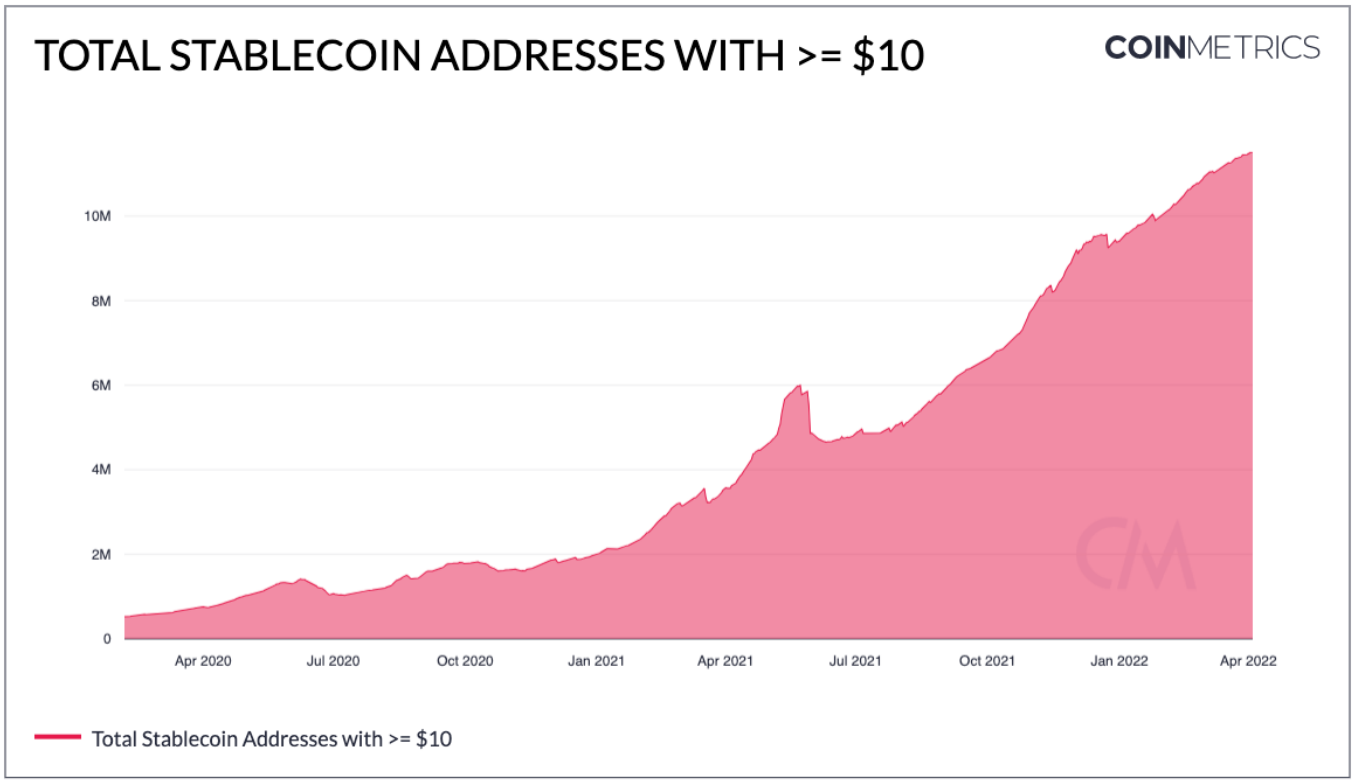
Source: *Coin Metrics' Formula Builder*[2]

Stablecoins have gained significant traction and adoption. One way to assess the degree of this adoption is to analyze active addresses. An active address is defined as a crypto wallet that sent or received a given stablecoin on that day.

Over the past year, Stablecoin active address count peaked around May 30, 2021 at 967k active addresses. This may suggest the adoption for stablecoins has peaked as well but when you look at the 365 day moving average you start to notice an uptrend while the 30 day moving average appears to be in a short term slump due to lower trading volumes. The overall long term trend from this chart suggests this is a positive trend with higher crests and lower troughs when you look at the moving averages. There is more to the picture as we analyze different aspects of the entire stablecoin market in this section.

[2] Includes USDT (ETH), USDT (Omni). USDT (Tron), USDC, DAI, USDP, GUSD, BUSD, HUSD. Note in the rare case where a wallet transacts various stablecoins in the same wallet on the same day, there can be double counting in the figure above.

Addresses with Over $10 in Stablecoins



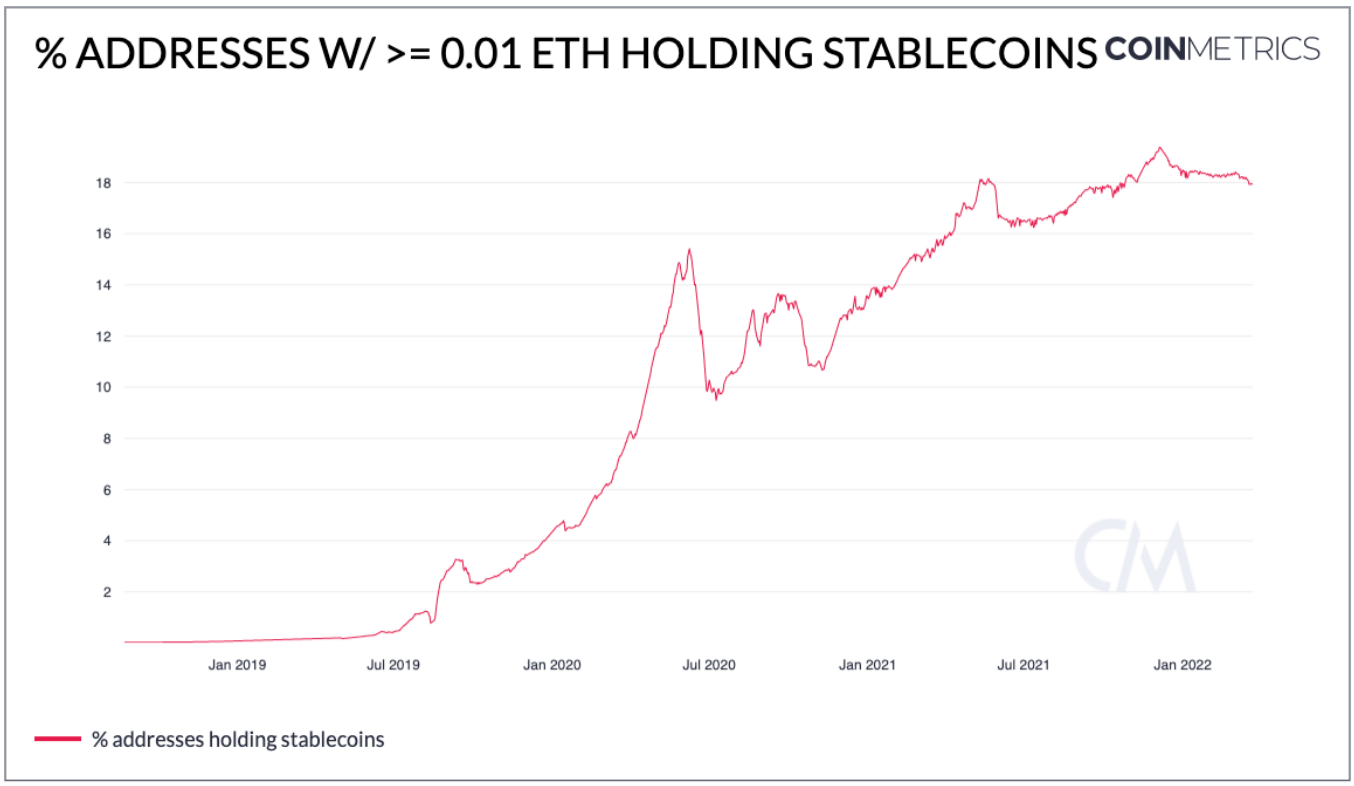
Source: *Coin Metrics' Formula Builder*[3]

Starting 2021 at 2M stablecoin addresses carrying $10 or greater, there was a parabolic rise in stablecoin ownership across crypto markets. The figure above boasts annual growth of 376%. One insight we can draw from this chart is the staggering rate of adoption Stablecoins have experienced, mainly due to increases in use cases and utility brought on by the growth of DeFi, staking, and other smart contract related transactions where yields can be generated.

Adoption Analysis: Stablecoins vs Underlying L1 Blockchains

Compared to popular layer 1 blockchains Ethereum and Tron, Stablecoin addresses have grown far more aggressively than both Tron and Ethereum. One explanation for this would be the rise in utility and use cases for Stablecoins propagated by yield farming & DeFi protocols such as Compound as well as the nascent nature of the Stablecoin industry.

[3] Includes USDT (ETH), USDT (Omni). USDT (Tron), USDC, DAI, USDP, GUSD, BUSD, HUSD. Note the same caveat above..

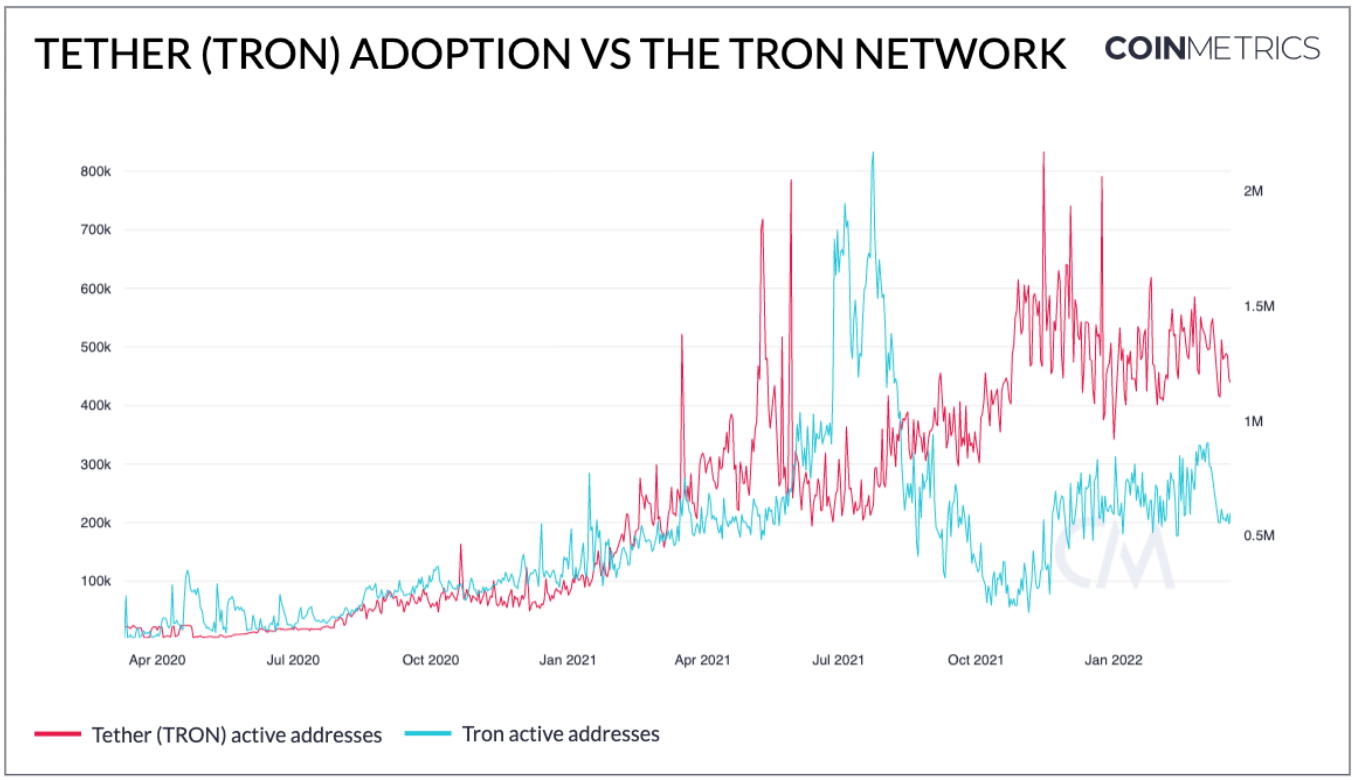


Source: *Coin Metrics' Formula Builder*[4]

The Ethereum network is the largest smart contract chain with significant stablecoin usage. To assess adoption on the network in a precise manner, this chart accounts for dust addresses holding insignificant amounts of ETH (too low to pay gas for recovery of funds) and tells us what proportion of ETH wallets hold stablecoins. What this metric shows us is that stablecoin adoption on Ethereum is growing fast. In 2020, 4% of Ethereum addresses with more than 0.01 ETH held stablecoins. Today that number is 18%, up nearly 5x in the span of two years.

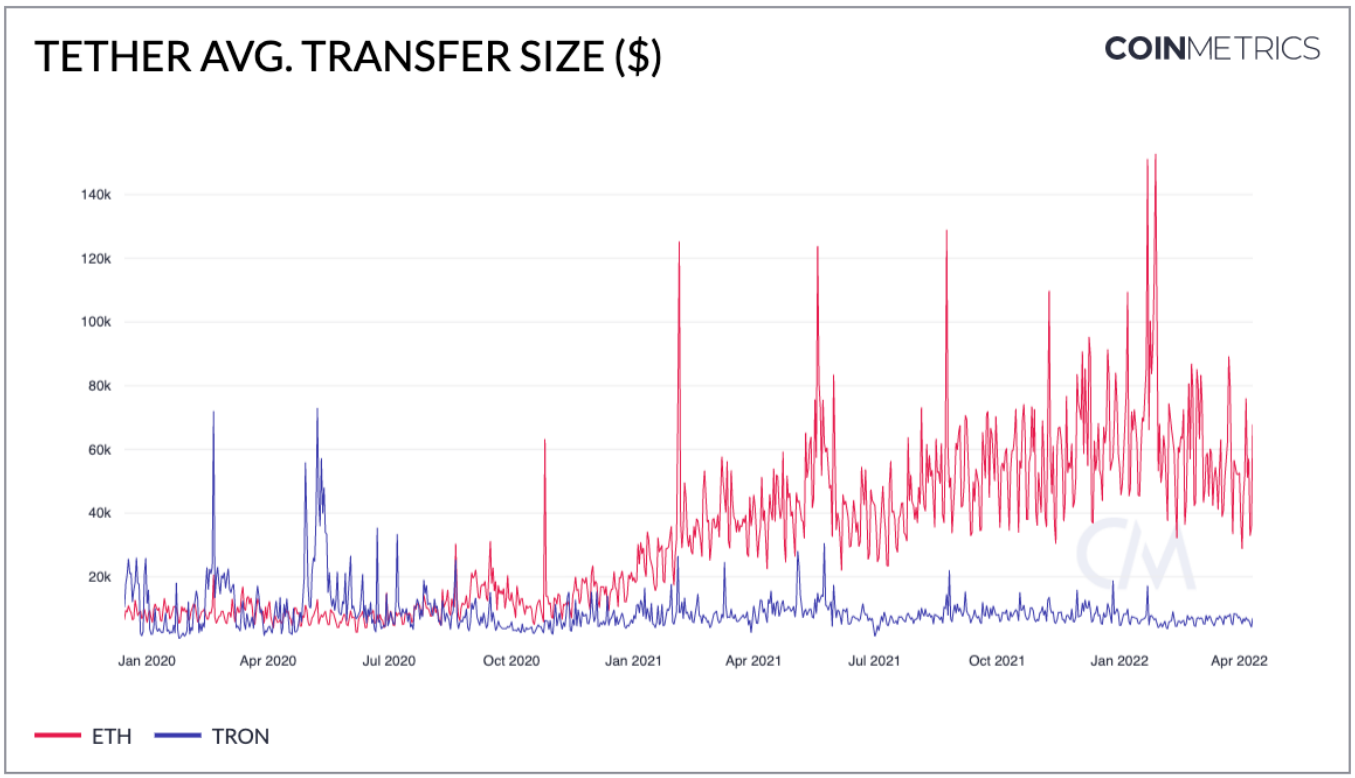
Upon a closer look, the Tron network seems to show minimal growth over the last two years and despite a sharp decline in adoption over the fall of 2021, Tether usage on Tron's network remains near all time highs and is actually higher on a moving average basis than it was when USDT adoption peaked around May.

[4] Includes USDT (ETH), USDC, DAI, USDP, GUSD, BUSD, HUSD.



Source: *Coin Metrics' Network Data Charts*

The Tron network has lower fees than Ethereum which has led to usage being fueled primarily by frugal and low balance wallets. This is best shown by assessing the mean transfer size on Tether segmented by network as shown in the chart below. The average Tether transfer size on Ethereum is about 7x that on Tron, currently at ~$52,000 on Ethereum and ~$7,000 on Tron.

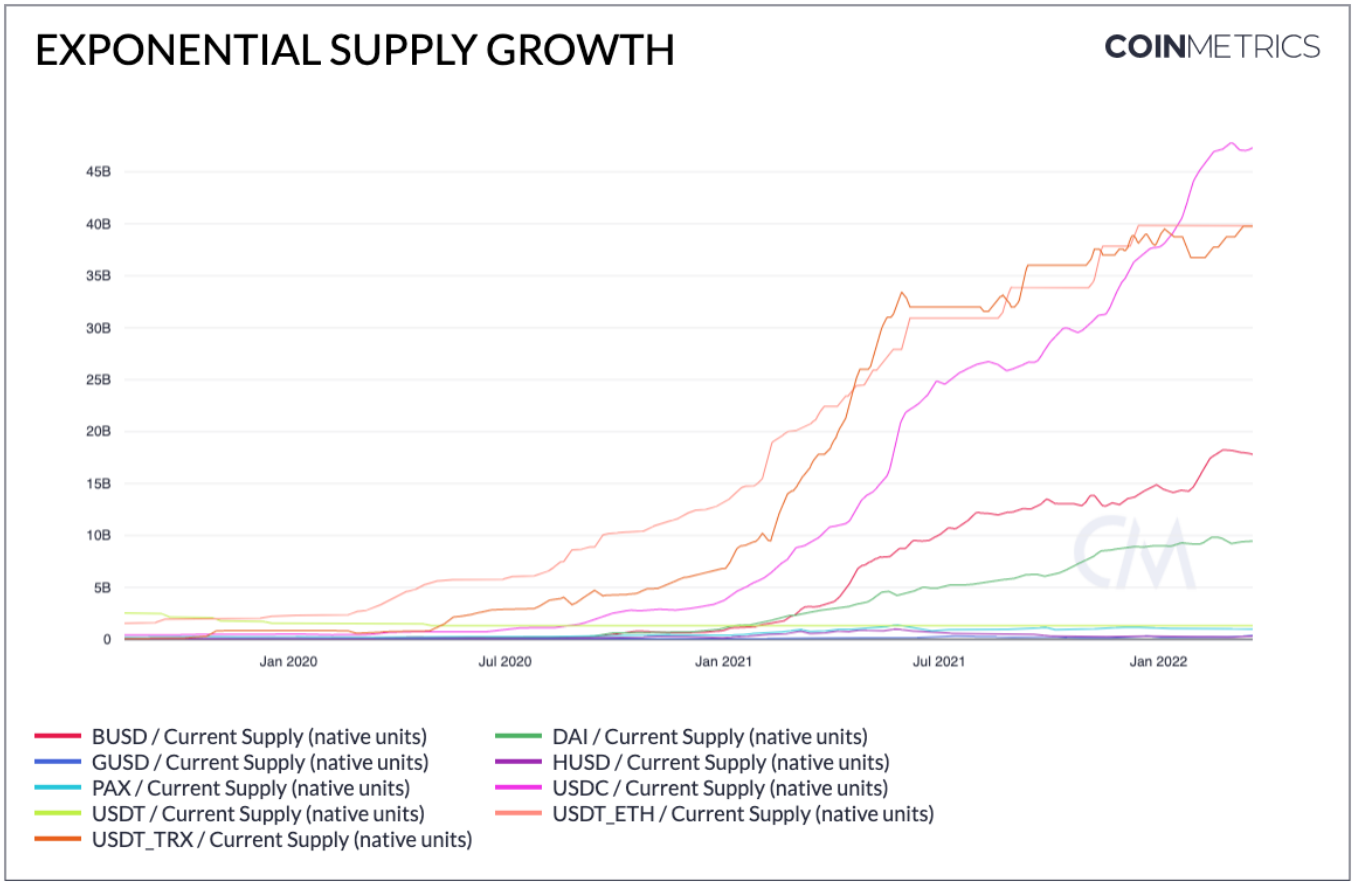


Source: *Coin Metrics' Formula Builder*

Tron boasts a zero gas fee due to its bandwidth point system. In some cases, Tron does charge users a fee to transact on the network but this is fairly small, usually a few pennies. The Ethereum network has high fees due to its significant network congestion, a symptom of strong demand.

Peer Analysis

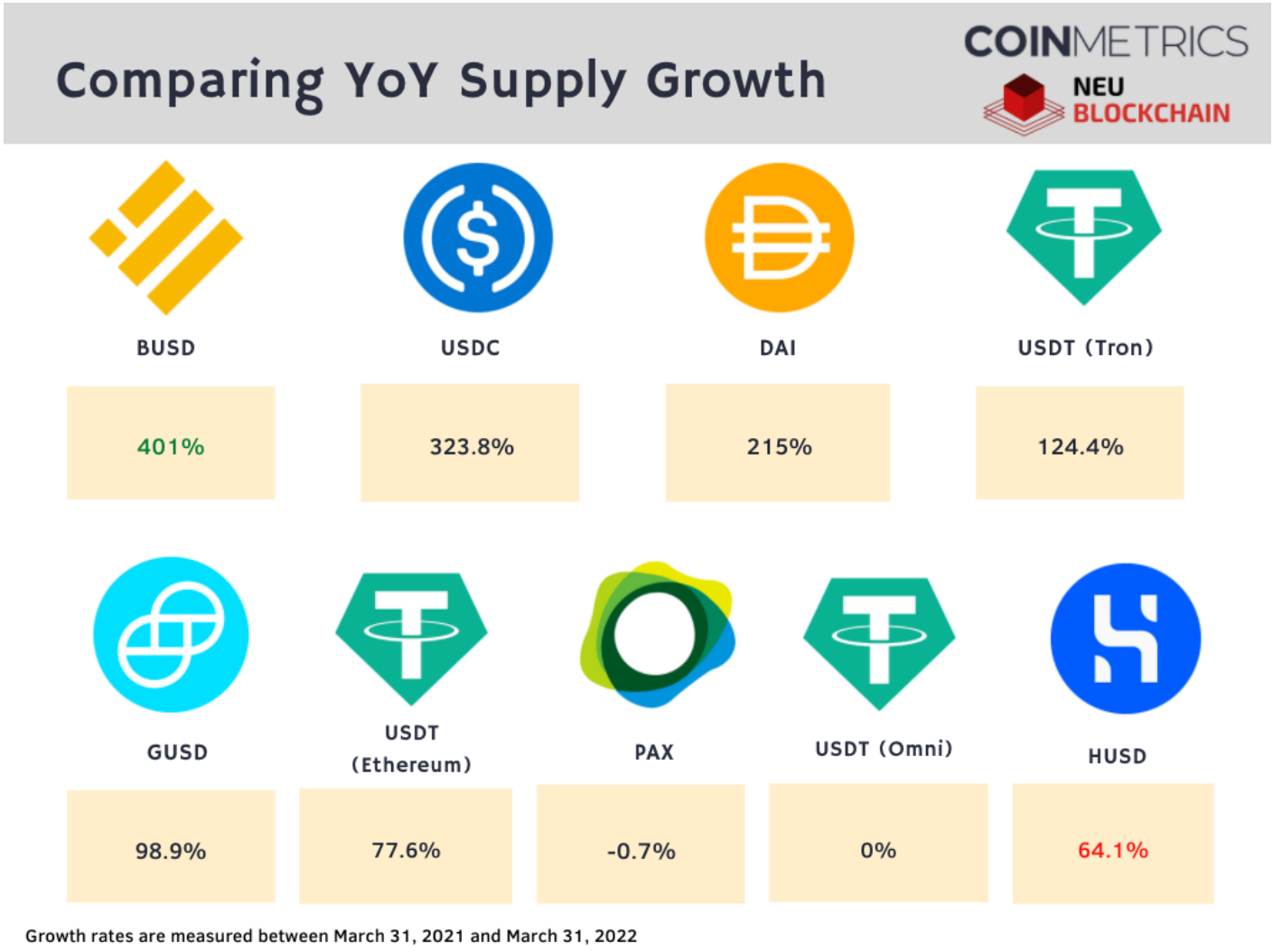
Supply Growth



Source: *Coin Metrics' Network Data Charts*

The spotlight has shined its light over the Stablecoin industry during the last two years. Leading the charge with the largest supply is Circle's USDC at $46.4B. This analysis is conducted on a network to network basis meaning Tether, which operates on multiple networks, is segmented into three assets. Aggregating Tether's supply on the Ethereum, Omni, and Tron networks would leave us with a supply of $79.9B which is 72% larger than USDC.

Supply growth is a good measure for adoption and one thing is clear from the chart above, adoption is certainly in an uptrend.



Source: *Coin Metrics' Network Data*

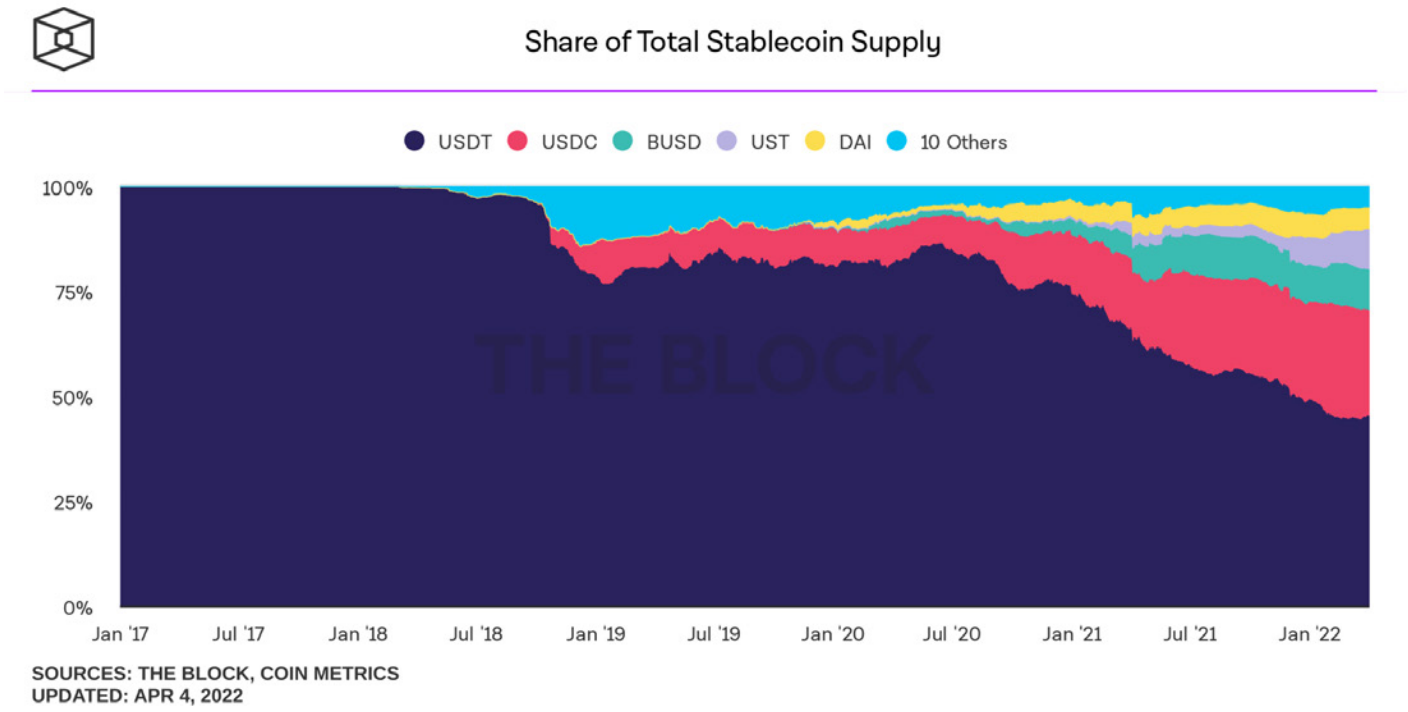
The visual above shows the year over year growth by each Stablecoin in our analysis. The highest supply growth in this cohort of Stablecoins is Binance USD (BUSD) growing at 401% in the past year alone. There was only one stablecoin that actually declined in supply over the last year, Huobi USD (HUSD).

HUSD supply fell by more than half year over year. Historically, Huobi has been a popular crypto exchange in China but China's crackdown on local exchanges has likely played a role in HUSD's decline.

Growth rates are great indicators of momentum and it appears that Tether is losing steam in terms of growth. This does not suggest Tether is in trouble but speaks volumes about whether Tether's dominance is set in stone. Only time will tell but the rise of USDC supply coupled with its high share of smart contract activity is a potential flywheel for market share in the future.

Assessing Market Share

Looking at supply from another perspective we can approximate market share across several stablecoins to determine market leaders and laggards. Upon a first glance Tether and USDC stand out, representing a large share of the market in the figure below. This could signal that USDC and Tether have a strong barrier to compete with and offer more influence on the markets as a whole. Tether and USDC were some of the first to enter the market and they both hold the highest shares of the market, at 44.8% and 24.8% respectively. As of now, this could arguably illustrate a Lindy effect emerging but future technical breakthroughs may challenge the status quo over time.

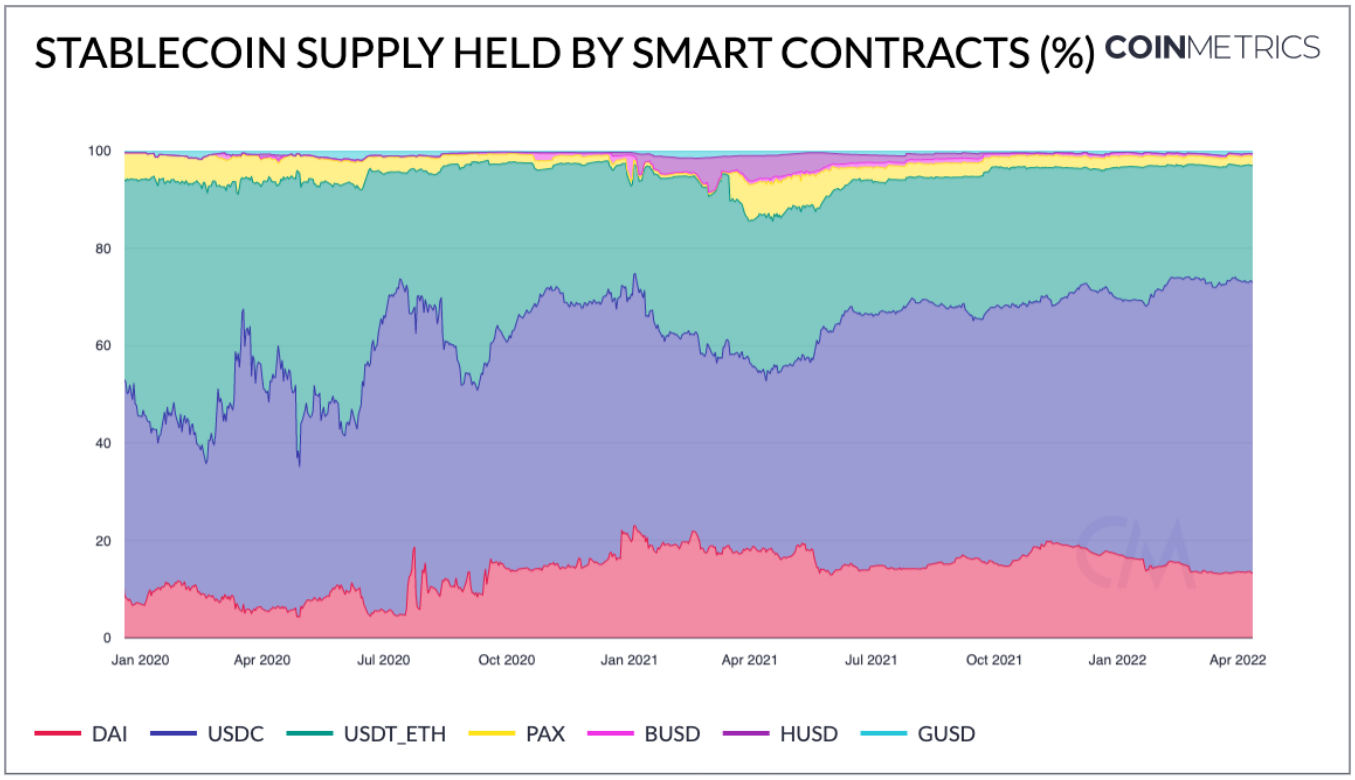


Source: *Coin Metrics and The Block*

USDT was the entire stablecoin market up until 2018, but things are much different now. The landscape has matured to the point where several providers are competing for adoption and ecosystem growth across many blockchains. USDC, BUSD, and UST have carved out a significant portion of the market over the last two years at 24.8%, 9.7%, and 10.2% market share respectively. Terra (UST) more than doubled in market share over the last year, partly due to increasing activity and partnerships in the Terra ecosystem.

Peeling back another layer, USDT has not only stagnated in growth but is actively contracting. Not taking into account the early years when it was the only stablecoin, USDT peaked in dominance around June 2020 at 86% market share which is around the same time BUSD, DAI, and USDC began to gain traction. Tether currently has 44.8% market share, nearly half of its two year peak.

USDC and its Smart Contract Symbiosis



Source: *Coin Metrics' Formula Builder*

Today, over $30B in stablecoins are held in smart contracts on Ethereum today. USDC represents 60% or about $19B of this. Many of these smart contracts are related to DeFi, and could be a liquidity pool, token bridge, lending protocol, yield aggregator, among many other forms. DAI makes up ~15% of the stablecoins held by smart contracts, reflecting DAI's use within the Ethereum DeFi ecosystem. To drill down on this observation, analyzing Uniswap's (the largest decentralized exchange on Ethereum) total value locked (TVL) and volume[5] vividly back the chart above. On Uniswap V3, Tether (USDT) has a TVL of $252m today whereas USDC's TVL is $914m which is 3x larger than Tether.

Why the large disconnect in total value locked? One explanation in this case would be volume which is closely related to liquidity. Higher volume often begets more liquidity and leads to higher activity which translates to higher volume as the cycle continues. USDC is a relatively more popular quote asset for trading on Uniswap compared to Tether. USDC volume totaled ~$8B in the week ending April 13, 2022 while only $1.6B of Tether was exchanged in that same time frame on Uniswap V3.

[5] https://info.uniswap.org/#/

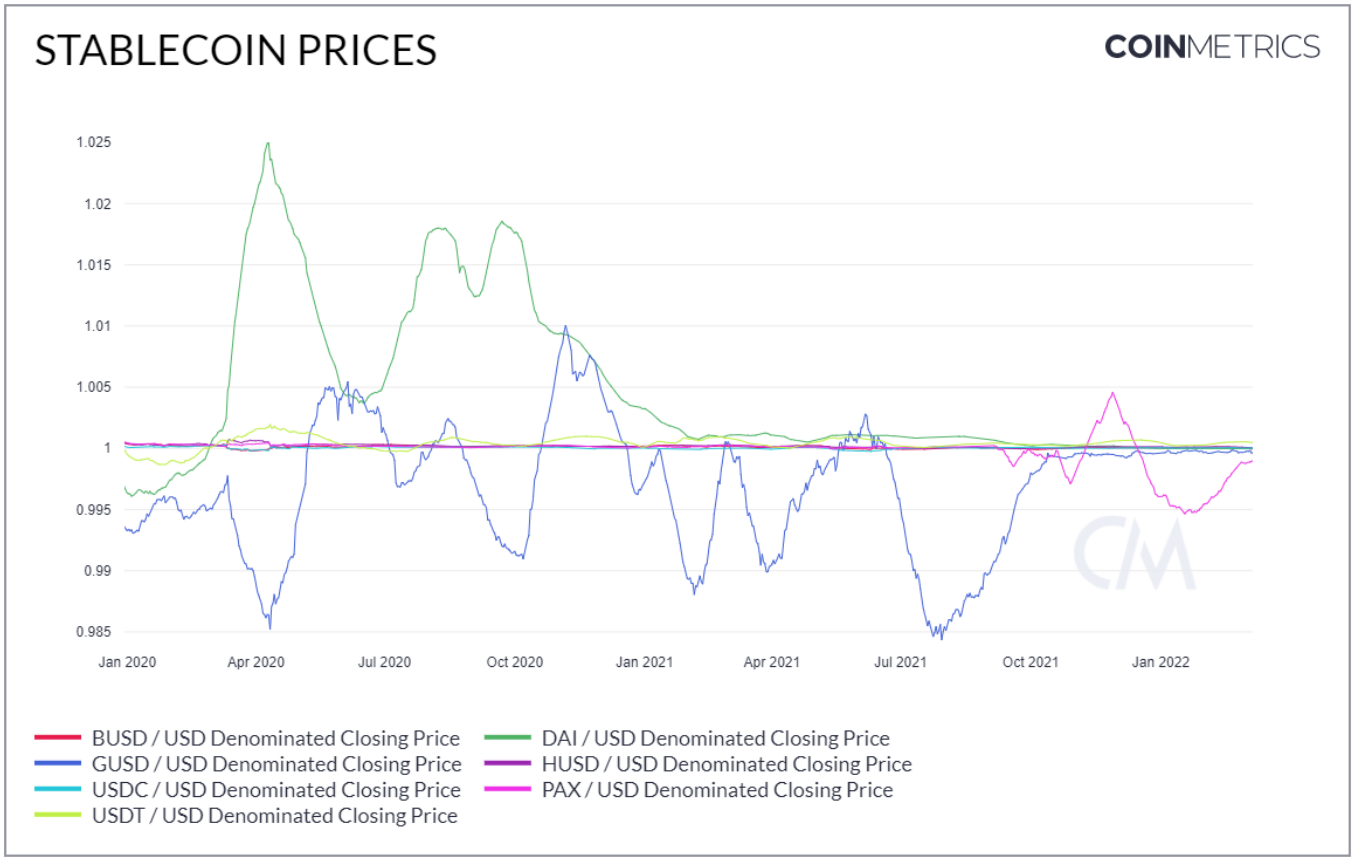
This means that compared to Tether, USDC addresses have a higher propensity to lock present funds for future economic returns as well as a higher propensity to transact in the present as well. USDC is gaining popularity in the Ethereum DeFi ecosystem and as more crypto protocols and wallets utilize smart contract functionality USDC is poised to increase in both volume and total value locked (TVL).

4 How Stable are Stablecoins?

Fiat Peg

Since the primary utility of stablecoins is to maintain their value against an anchor fiat currency, we want to know which stablecoins have done a good job of producing this price behavior and which have fluctuated away from their intended fiat counterparts.

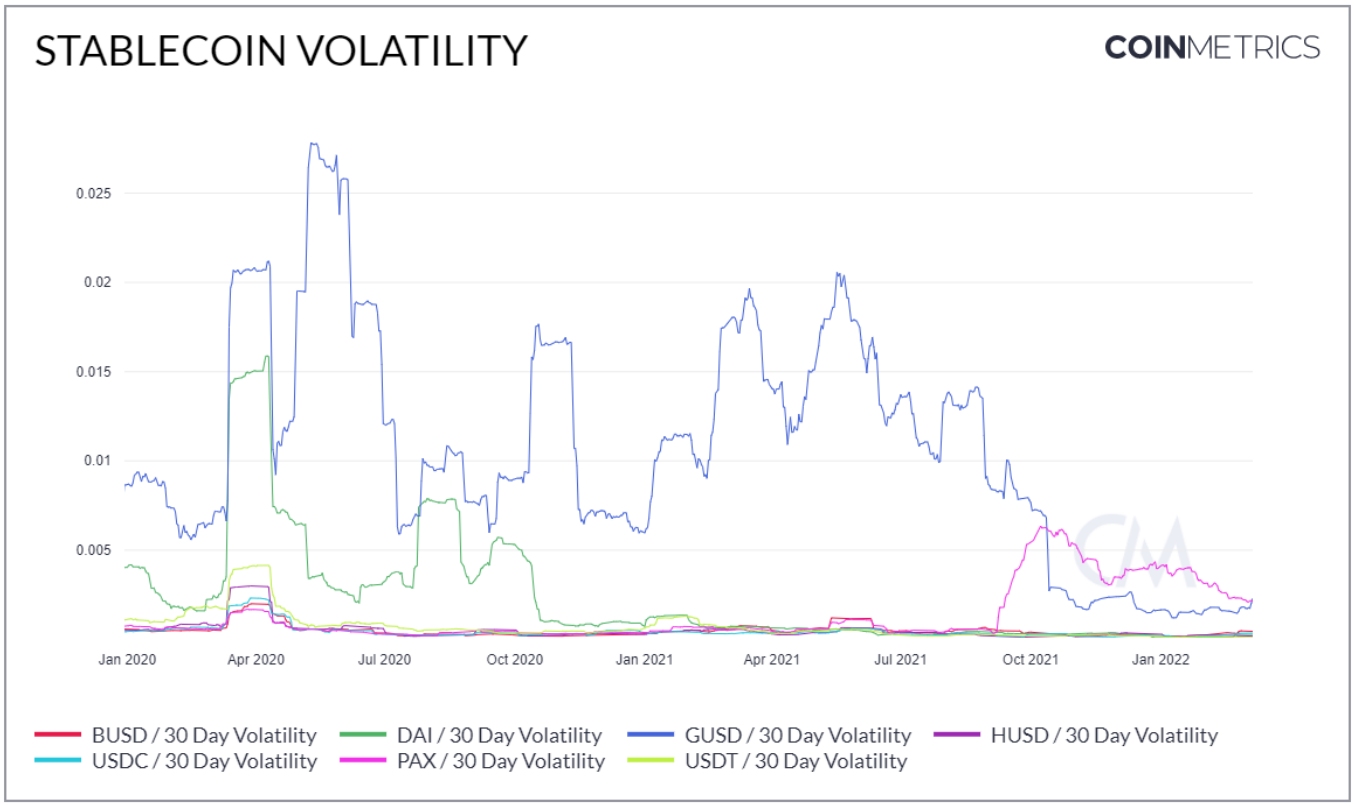
Price Fluctuation



Source: *Coin Metrics' Formula Builder*

Observing the spot Stablecoin / USD markets, we can get a sense of how each stablecoin tends to fluctuate from its intended 1:1 peg with the USD. Taking a look at the 30-day moving average, we can see that DAI & GUSD have historically traded the furthest away from the fiat peg — at times drifting as far as 2.5% and 1.5% away. Since early October 2021, all of the subject stablecoins have maintained a relatively reliable peg to USD with the exception of PAX, which drifted ~0.50% away in January 2021.

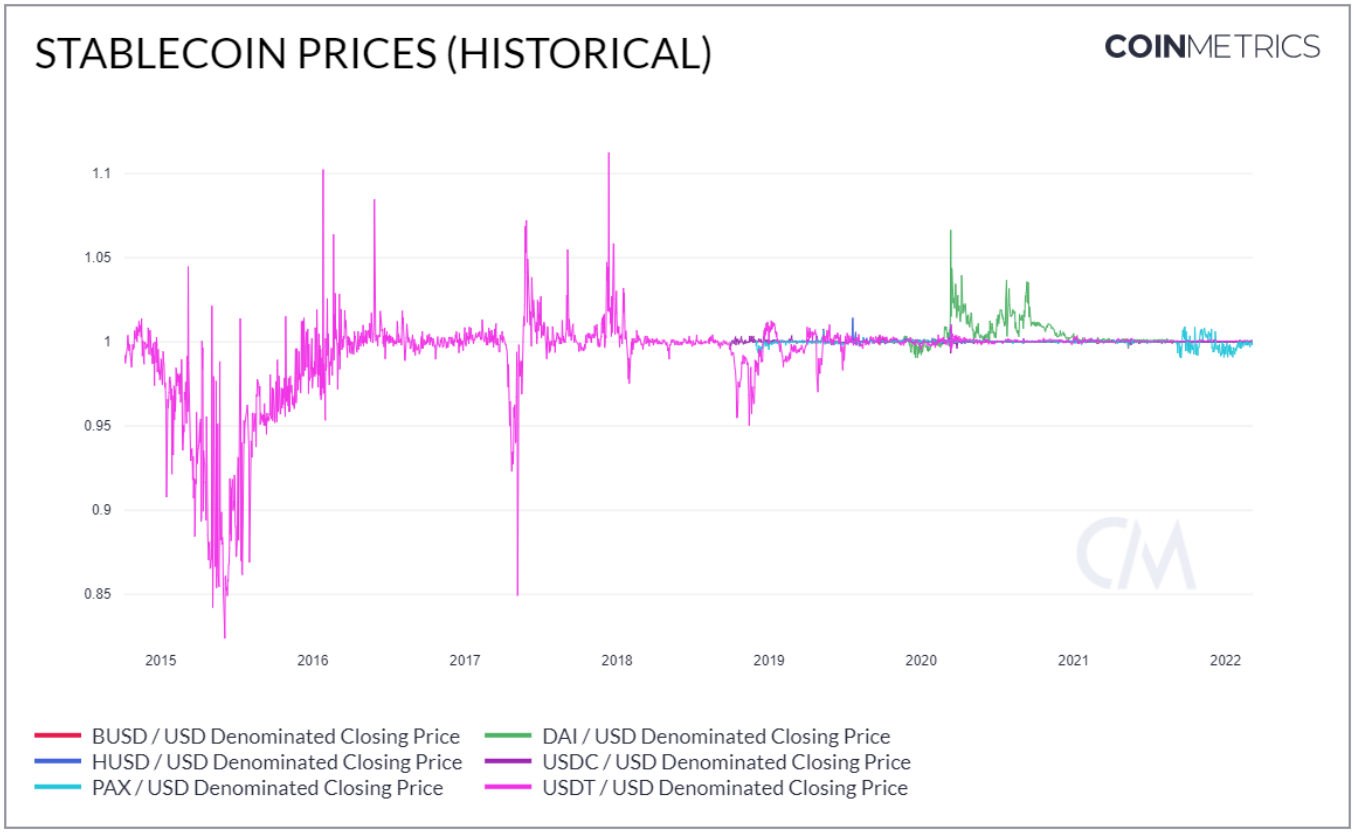
Volatility



Source: *Coin Metrics' Formula Builder*

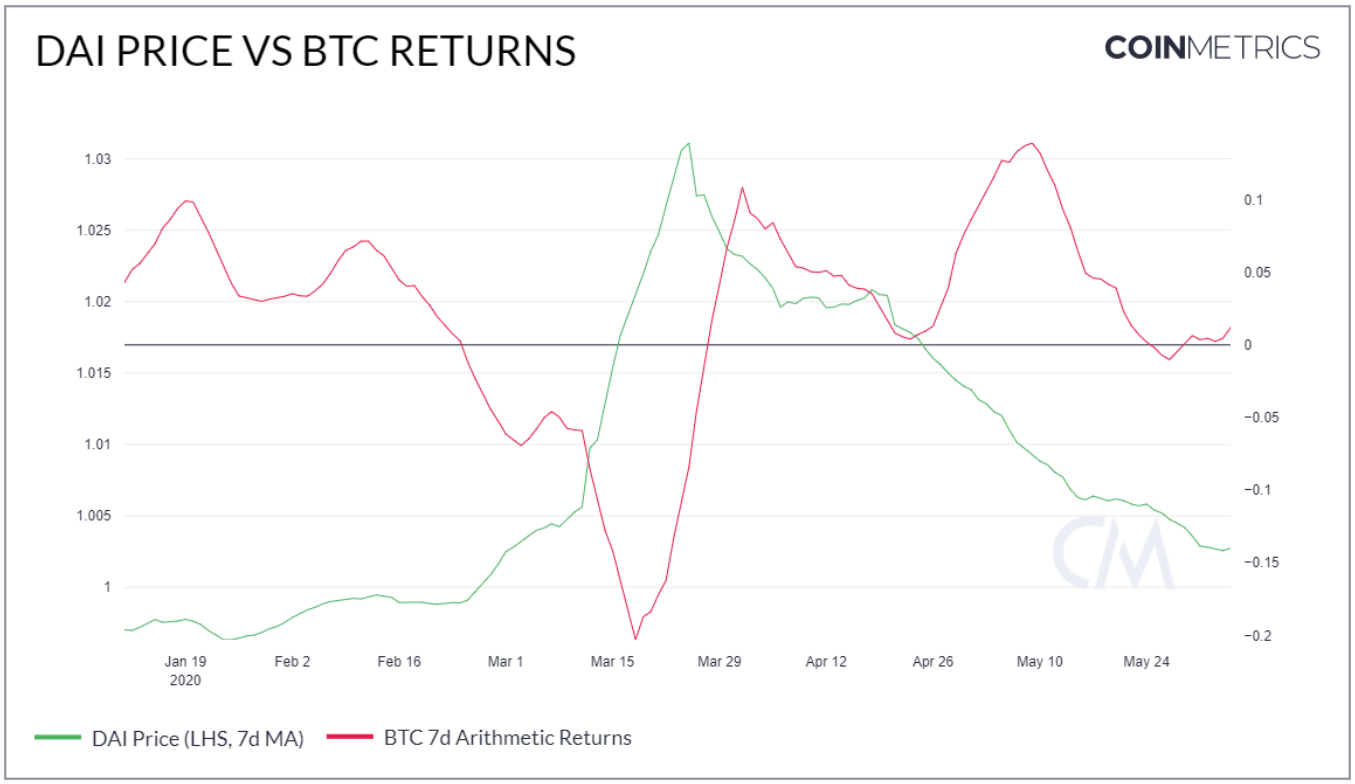
It should be noted that while 1-3% is as extreme as fluctuations tend to get since 2020, stablecoins have made extraordinary improvements to their price reliability in the past several years. From 2015-2019, USDT was the leading stablecoin in terms of volume and often saw day-to-day swings of 3-5% with isolated periods where it traded 15-18% away from the US Dollar.

It's important to note that Tether was one of the only viable stablecoin options at the time and suffered from vastly higher demand than issuance, making such volatility more understandable.



Source: *Coin Metrics' Formula Builder*

Correlation with Market Activity



Source: *Coin Metrics' Formula Builder*

Taking a look at key factors that impact a stablecoin's ability to maintain a consistent price, an important aspect to consider is the degree to which stablecoins react to market conditions leading to sudden changes in supply & demand dynamics. A prime example of this was the market volatility experienced in March 2020, leading to a sudden surge in stablecoin demand from traders seeking a "flight to safety." We can observe this phenomenon causing DAI to trade at a ~3.5% premium during this time before settling back to par value over the next few months.

5 Central Bank Digital Currencies & Regulatory Environment

CBDCs: What are they?

Many countries have started to look into establishing their own Central Bank Digital Currencies, or CBDCs, as an alternative to stablecoins. Investopedia defines CBDCs as "digital tokens, similar to cryptocurrency, issued by a central bank. They are pegged to the value of that country's fiat currency."

Due to the volatile nature of cryptocurrencies, CBDCs provide a more stable means of digital currency exchange as they're backed by a government and controlled by a central bank. However, this means that the system is not decentralized, which means CBDCs do not strictly require the use of blockchain technology and consensus mechanisms. Even if the blockchain was leveraged to facilitate transactions, it would likely be permissioned not public to ensure monetary policy is enforced by the entrusted entities of the Central Bank.

Risks associated with Stablecoins

With stablecoins as a decentralized system that is not controlled by a government or a central bank, there are uncertainties associated with maintaining their value. The President's Working Group on Financial Markets (PWG), the Federal Deposit Insurance Corporation (FDIC), and the Office of the Comptroller of the Currency (OCC) released a Report on Stablecoins on November 1, 2021 that outlined some of the potential risks associated with stablecoins. The report noted that stablecoins could potentially face the risk of failure due to market pressures, operational failures, and other risks. When stablecoins are created, or minted, in exchange for fiat currency, they are claimed as being supported by a variety of reserve assets. However, because these reserves are not subject to rigorous audits by regulators, the quality and quantity of collateral may not correspond to the benefits that the issuers claim. This creates room for various risks associated with low regulatory attention, including operational failures, fraud, or market manipulation. If investors doubt the credibility of a stablecoin issuer's claim on the ability to maintain a stable value, they could easily redeem and liquidate their assets, leaving the rest of the market more vulnerable to market volatility.

The Financial Stability Oversight Council (FSOC) has also addressed multiple concerns with DeFi tools including criminal enterprise and market manipulations, which could undermine confidence in the system when issues exist in areas such as illicit financing, national security, cybersecurity, privacy, and international monetary and payment system integrity. DeFi has introduced exciting new primitives but also requires new thought around crypto-specific risk vectors.

Can stablecoins and CBDCs co-exist?

CBDC models can be used for both retail or wholesale channels, performed either domestically or across borders. Establishing a regulated digital currency without the need for formal banks will help bridge the gap between a bank and those without access to financial services, especially in less metropolitan areas where accessibility to financial services is scarce. This makes it easy for everyone to manage their digital assets, anywhere, anytime.

In contrast, since there is no central entity controlling the entire stablecoins market, the use of smart contracts will allow automation of certain transactions, which reduces payment and settlement risks and therefore enhances the overall efficiency of transactions being made. The current landscape allows multiple privately owned projects with faster and better blockchains to join the market and solve existing issues such as lags in transaction time or high transaction fees, and eventually scale their business to achieve mass adoption.

The outcome of whether CBDCs and stablecoins will co-exist in the future is still quite uncertain but is not entirely impossible. According to Federal Reserve Chair Jerome Powell, there is room for CBDCs to "exist alongside a well-regulated, privately issued stablecoin" as they are not mutually exclusive. Eventually, some stablecoins will likely shift towards regular finance by adopting the same regulatory framework, such as complying with anti-money laundering / know your customer (AML/KYC) rules, as well as SEC or OCC regulations, to really be accepted by the mass majority. Indeed, USDC issuer Circle has disclosed that it intends to apply for a US bank charter in the near future.

The US is currently exploring a CBDC and President Biden's recent Executive Order on Digital Assets called for placing urgency on the research and development of a potential United States CBDC. One current initiative is Project Hamilton, a joint and open-source research project between MIT's Digital Currency Initiative and the Federal Reserve Bank of Boston. In February 2022, Project Hamilton researchers released a technical paper and code base outlining some potential CBDC design choices. The researchers noted that they "are confident that our designs could support interoperability with cryptocurrencies via Layer-2 payment channel networks, though specific implementation details still need to be determined."[6]

[6] Lovejoy et al, "A High Performance Payment Processing System Designed for Central Bank Digital Currencies," Feb 2022.

6 Looking Forward

As stablecoins play a crucial role in crypto markets to facilitate the exchange and store of value, having a regulatory framework will allow them the clarity to play an even more valuable role outside of the crypto ecosystem.

Global enterprises can settle commerce and international transactions in stablecoins to mitigate foreign exchange rates by sending stablecoins across operational regions, settled in real-time. These firms can also make their treasuries more productive by lending these stablecoins for an annual yield using protocols like Compound and Aave.

As previously touched on in Coin Metrics' Rise of Stablecoins report, stablecoins offer an alternative system for citizens in nations where inflation and currency debasement are rampant. Developing nations with largely unbanked populations can also participate in the global economy with minimal friction, especially in the case of remittances which make up an average 5% of a nations GDP. Reducing the indirect and direct costs to transfer value can lead to higher disposable income for citizens and acts as a secure store of value for their assets.

The benefits stablecoins offer businesses and individuals are not to be overlooked. As the world becomes more global and intertwined, reducing the friction and speeds at which we transact gains more importance. These entities gain access to global liquidity, relatively stable stores of value, and the ability to be your own banker through powerful decentralized finance protocols.

Stablecoins may have grown exponentially in the last few years but they are still relatively nascent. As the regulatory environment becomes more certain, the number of vendors that accept and transact with stablecoins is set to follow the same sentiment as regulation. There are still issues to iron out in terms of preventing depegging and cross-chain settlement to name a few.

Crypto has grown to become a multi-trillion dollar market but without stablecoins there is no volatility hedge or common ground to store value reliably with little to no delta. For the reasons discussed in this paper, stablecoins are crypto's linchpin as they provide low-risk liquidity for the entire ecosystem alongside increasing integration within the broader economy.

THE CAMBRIAN EXPLOSION OF STABLECOINS

By the **Northeastern University Blockchain Club** and **Coin Metrics**

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