How to build a true stable coin: lessons from Luna/TerraUSD, traditional currencies and US banking history

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Abstract

The rapid collapse of the TerraUSD stablecoin has captivated the crypto community. Stablecoin pursues price stability by using reserve assets as collateral or controlling supply via algorithmic formulas. In spite of their common claim of stability, different stablecoins use different mechanisms, and many are not "stable." In this article, we review lessons on how to build a true stable coin by drawing insights from the stabilization of traditional currencies and US banking history.

1. Background

The crypto world has been riveted by the rapid collapse of the TerraUSD stablecoin. $60 billion crypto value evaporated in two weeks due to the LUNA/ UST meltdown. TerraUSD, or UST, an algorithmic stablecoin, was pegged to the dollar not by holding reserve assets in the U.S. currency but by the logic of (purportedly) arbitrage — the day-to-day pressure on the fixed price of the cryptocurrency was meant to be absorbed by a change in the quantity of its sister coin, Luna. When Luna was valuable — it touched an all-time high of $119 just last month — it could support UST. But once UST skidded off the peg, speculators knew that arbitrageurs would buy it on the cheap in the market and swap it for Luna using Terra Station's protocol. The supply of Luna would explode and its price collapse.[1]

Programmer and entrepreneur Do Kwon founded Terraform Labs in Seoul, South Korea, in 2018 and launched its first cryptocurrency token in 2019. The Terra platform evolved into a blockchain ecosystem with a spotlight use case: the algorithmic stablecoins TerraUSD (UST) which is paired with LUNA, Terra's native coin. As of late April, the LUNA was traded at around $80. On Saturday May 7, the trading price of UST went to about 98 cents, and as of midday May 13 it is trading at about 15 cents. LUNA collapsed to below a penny.

[1] https://www.bloomberg.com/opinion/articles/2022-05-16/the-hong-kong-dollar-is-the-best-stablecoin-sorry-terra-and-luna

The crypto world has been riveted by the rapid collapse of the TerraUSD stablecoin. $60 billion crypto value evaporated in two weeks due to the LUNA/ UST meltdown. To some, LUNA/UST meltdown is an unfortunate market event, while others assert the failure is baked in the fragility of its design.

In this article, we want to review the concept of stablecoin, provide some historical perspective and discuss the prospect of stablecoin.

2. Stablecoin is a misleading name with various mechanisms and many stablecoins are not "stable" at all.

Stablecoin is a type of cryptocurrency that is pegged to fiat currencies such as USD or commodities such as gold. It pursues price stability by maintaining reserve assets as collateral or controlling supply via algorithmic formulas. It can be used in blockchain-based lending platforms for better rates or in paying for goods and services.[2,3]

Stablecoins are kept stable via four major basic mechanisms: fiat backing, crypto backing, commodity backing, and algorithm backing. There are many variations in stablecoins; the most well-known crypto stablecoins are Tether (USDT) and Dai (DAI). USD Coin (USDC), USDT and Binance USD (BUSD) are the largest centralized stablecoins which are pegged to USD, and TerraUSD (UST), Dai (DAI), FRAX, FEI are the largest decentralized stablecoins.[4]

Stablecoins are in high demand; they serve as a vital link between fiat money and cryptocurrency. However, many current stablecoins are not as stable as suggested by their name, e.g. the collapse of Terra.

To take a closer look at Terra—the Terra blockchain natively supports fully algorithmic stablecoins, most notably UST, which is pegged to the US dollar.

To mint UST to a user, the Terra platform will burn an equal amount of LUNA (e.g. burn $1 of LUNA to mint $1 of UST), and vice versa. Whenever LUNA has some value, UST can achieve 1:1 pegging with the U.S. dollar by arbitrage, as illustrated below:

Terra-UST mechanisms

An example of UST underpricing arbitrage occurs as follows. Presume UST/USD = 0.9 and LUNA/USD = 10:1

1. Buy 1 UST on an exchange with $0.9

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[2] https://101blockchains.com/types-of-stablecoins/
[3] https://www.dbresearch.de/PROD/RPS_DE-PROD/PROD0000000000522496/Stablecoins%3A_DeFi%2C_Libra_and_beyond.PDF
[4] https://www.gemini.com/cryptopedia/what-are-stablecoins-how-do-they-work#section-medium-of-exchange-and-store-of-value

2. Transfer UST to Terra

3. Redeem 0.9 UST for $1 worth of LUNA (0.1 LUNA) and pay the spread (0.5%) resulting in 0.0995 LUNA

4. Transfer LUNA back to the exchange

5. Sell the LUNA for $0.995, and profit $0.095.

Burning creates deflationary pressure on LUNA in circulation and supports the price of LUNA. To entice traders to burn Luna to create UST, creators offered a purportedly 19.5% yield (albeit the true return was much lower) on staking – crypto terminology for earning interest on a loan – through what they called the Anchor Protocol.

Anchor Analysis

Anchor was a decentralized savings protocol that was meant to offer low-volatility yields on UST deposits. The 20% APR Anchor savings rate was designed to be powered by a diversified stream of staking rewards from major proof-of-stake blockchains. Borrowers deposit collateral such as bETH, bSOL, bLUNA to earn staking rewards, which are paid out to UST lenders in addition to standard borrow fees. To incentivize borrowers, the protocol pays out bonus rewards in its native governance token ANC. If the rewards were less than the target yield, a combination of “reserves” and ANC incentives would be used to make up the difference.

Anchor cost=(Total UST deposits)*20% APY

Anchor Revenue=(Total UST borrowed)*Borrow interest +(Deposited collateral)*Staking yield[5]

3. What’s behind LUNA/UST's downfall?

Several reasons may explain the meltdown of Luna/ UST.

1) The UST peg was “under-collateralized.” The Luna Foundation Guard (LFG), a nonprofit that acts as the network’s treasury, announced its holding of 80,394 Bitcoin on May 7. That ammunition, worth almost $3 billion, was almost fully spent in just a few days. Yet, the rescue mission was ultimately unsuccessful.

2) One design decision of the network is that the rates paid to lenders are set by the protocol, not the market. It attracted new capital even in normal times by offering a near 20% yield on UST deposited into Anchor Protocol, the main DeFi lending application on the blockchain. The market rate, the staking rewards + borrow fees, was consistently below 7%- decently away from Anchor’s advertised 20% yield.

[5] https://www.theverge.com/2022/5/20/23131647/terra-luna-do-kwon-stablecoin-anchor

3) In addition to Terra-specific events, the Nasdaq suffered a major pullback, BTC prices were falling drastically, and the LUNA price was tanking as well. A lower BTC price shrunken LFG's reserves and network assets, and further worsened the under collateralization of UST.

Of course, fear, uncertainty, and doubt are the reasons that deteriorated the health of the network. The Anchor reserve was being depleted at a rate of roughly $5M per day due to the high-interest rate, and the community was already uncertain if another top-up was inbound. The instability that began on May 7, 2022, further eroded confidence from investors and triggered mass Anchor withdrawals and the opportunistic short positions against LUNA.

3.1 Stablecoin outlook

TerraUSD's Crash is not likely to kill the dream of an Algorithmic Stablecoin. "Uncollateralized algorithmic stablecoins are a way to create a faith-based currency with no hard collateral backing — creating something out of nothing, like the U.S. dollar," says Jon Wu, head of growth at crypto privacy startup Aztec Network. "... and there will always be people chasing that vision." [6]

Despite the risk of the death spiral, the crypto industry keeps going back to the algorithmic playbook. Before Terra UST, examples of such attempts include SafeCoin, NuBits, Iron Finance, and Basis Cash (Terra co-founder Do Kwon was also behind this project).

Currently fiat-backed stablecoins are expected to remain the largest players in the game: Tether's USDT and Circle's USDC are worth a combined ~$130 billion. However, an uncollateralized algorithmic stablecoin remains the "holy grail" for the crypto industry.

Terra's downfall also triggered heightened scrutiny of the entire stablecoin sector by regulators, who had already viewed tokens like Tether as a potential systemic risk. To prepare for the new algorithmic stablecoin introduction, enhanced regulations would be a great support for investors, platform builders, and users.[7]

3.2 What's next for Terra?

Terra's co-founder Do Kwon offered another proposal to revive the troubled Terra blockchain by getting rid of the failed TerraUSD stablecoin and revamping the project into a new network. Kwon wants to copy the blockchain's code to create a new network and to distribute new tokens to former Terra supporters like key app developers, those whose computers order transactions on the network, and those who still hold TerraUSD, as written by Kwon in a post on a research forum.

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[6]https://www.bloomberg.com/opinion/articles/2022-05-17/terrausd-s-crash-won-t-kill-dreams-of-an-algorithmic-stablecoin
[7]https://www.bloomberg.com/news/articles/2022-05-15/terra-ust-luna-hasn-t-killed-crypto-but-it-was-a-narrow-escape

This is Kwon's second proposal to revive the network. Many stakeholders who lost money when TerraUSD collapsed are hoping for a way out of the crisis. However, many long-time crypto experts aren't hopeful. Zhao Changpeng, chief executive officer of Binance, the world's biggest crypto exchange, and an early Terra investor, said in a tweet that forks -- the copying of the blockchain that Kwon is proposing -- "don't create value." [8,9]

Despite the drying-up activity across blockchain and reduced developer pool[10],Terra still has the potential to find creative methods in generating new revenue streams, and back its token with Terra's existing well-developed community and ecosystem resources.

4. What we can learn from the stabilization of traditional currency:

4.1 The Hong Kong dollar's peg to the U.S. currency is a beacon of stability:

The Hong Kong Monetary Authority runs a pure currency board. All of HKMA's monetary base is backed 110% by US dollar assets. Also, while fixing the exchange rate, the authority deliberately lets interest rates float freely to absorb pressures on the peg. When the local currency gets sold off, there's a capital flight from Hong Kong, which raises interest rates due to economic forces to the point that, ceteris paribus, lure buyers back.

4.2 The Stabilization of the Mark and end of German hyperinflation:

A loaf of bread in Berlin that cost around 160 Marks at the end of 1922 cost 200,000,000,000 Marks by late 1923. By November 1923, one US dollar was worth 4,210,500,000,000 German marks. The hyperinflation crisis led prominent economists and politicians to seek a means to stabilize the German currency.[11] They took a two-step approach.

Step 1: They introduced a parallel currency, the value of which was indexed to the dollar, so it was exchanged with the Mark based on the market dollar/Mark exchange rate. This was called the Rentenmark based on the claim that it would be supported with a tax on capital. Importantly, they did not declare that this currency was legal tender. The point was that to buy dollars from the central bank, economic agents must pay in

[8] https://www.bloomberg.com/news/articles/2022-05-16/do-kwon-proposes-creating-another-blockchain-from-terra-s-ashes

[9] Some will argue that the Ethereum network experienced three major hard forks, Ethereum Classic, EtherZero, and Metropolis. However, Ethereum forks reinvented the wheel, increased DAO security, improved the transaction rate speeds, guaranteed greater privacy, and created a path of PoW to PoS transition. It's unlikely for Terra to duplicate Ethereum's folking success without further efforts to reinvent the system and rebuild trust with users and investors.

[10] https://www.bloomberg.com/news/articles/2022-05-16/crypto-s-first-what-happens-when-a-big-blockchain-dies

[11] https://en.wikipedia.org/wiki/Hyperinflation_in_the_Weimar_Republic

Marks, not Rentenmarks. Rentenmarks can be exchanged only for Marks. This is a universal feature of stabilizations (also in the USSR).

Step 2: They declared an exchange rate peg. The Reichsbank promised to sell dollars for 4 billion Marks each dollar. There was an excess demand for dollars at that price. People, who were willing to wait up to 2 weeks, were mostly speculators who had borrowed Marks. Since the stabilization wasn't absolutely believed and the nominal interest rate was 20% per day, making people wait a few days for their promised dollars was a way to bankrupt them. Bankrupting all the people betting against the stabilization was a way to make it work. If the Rentenmark had been legal tender, speculators could have bet against the Mark by showing they had Rentenmarks which they could hold for months without going broke.[12] By 1924 one dollar was equivalent to 4.2 Rentenmark.

4.3 Thai baht devaluation and economic reform

The Thai economy collapsed as a result of the 1997 Asian financial crisis. Within a few months, the value of the baht floated from THB25/US$ (its lowest point) to THB56/US$.

A sharp decrease in the value of the baht abruptly increased foreign debt, undermining financial institutions. Many were sold, in part, to foreign investors while others went bankrupt. Due to low international reserves from the Bank of Thailand's currency-protection measures, the government had to accept a loan from the International Monetary Fund (IMF). Overall, Thailand received US$17.2 billion in aid. The second Leekpai government, in office from November 1997 to February 2001, tried to implement economic reforms based on IMF-guided neo-liberal capitalism. It pursued strict fiscal policies (keeping interest rates high and cutting government spending), enacting 11 laws called "bitter medicine" and critics called "the 11 nation-selling laws". The Thai government and its supporters maintained that with these measures, the Thai economy improved.[13]

5. How we can build a true stable coin:

Currency is a form of debt. The core is to build trust. The USD was pegged to gold and then built on oil trading and US military power. Nowadays, people build their trust in the USD based on the strength of the US economy and the ability of the US to pay its debt. It is still too quick to claim that the failure of LUNA/UST proves crypto projects are Ponzi schemes. Our priority should remain the development of decentralized infrastructure that allows value and ownership to flow as freely as information on the internet. As a result, we will concentrate more on what we can learn from the failure of LUNA/UST and how to create a true stable coin.

5.1 A stablecoin issuer should run a healthy sustainable business with real-world use cases, consistent revenue streams, and a positive cash flow. It should continue to

[12] https://www.businessinsider.com/the-stabilization-of-the-mark-2011-5
[13] https://en.wikipedia.org/wiki/Economy_of_Thailand#1997%E2%80%932000

conduct tests in order to improve the system, as well as to determine the appropriate amount and mix of reserve assets.

Terra's initial business strategy focused on blockchain-native payment systems. Later, its dollar-pegged UST stablecoin lured retail investors with promises of 20% annual returns through the Anchor Protocol. This is dangerous and unsustainable. Instead of attracting users through high interest, a healthy stable coin should start with a niche market and find real use cases to generate positive cash flows. Otherwise, it will quickly become a Ponzi scheme. Just as Three Arrows Capital co-founder Su Zhu reflected on his Twitter thread: "the fast-growing ecosystem should've done more to move slowly and safely" and "growth must be organic even if slower". [14]

Most importantly, a healthy stablecoin should accumulate reserves in the forms of appropriate assets. BTC is a crypto asset, but it is not an ideal reserve asset for stablecoins because it has a very high correlation with other crypto assets, especially in a bear market, and is thus causing the stablecoins prone to death spirals, as demonstrated by Terra. At the moment, stablecoin issuers' preferred options are to invest funds received in high-quality liquid assets (HQLAs) or cash. Tether, which has a market capitalization of more than $80 billion, has publicly stated that it keeps a portion of its reserves in HQLAs. Tether released its most recent quarterly report in February, revealing that as of December 31, 2021, the company held $24.1 billion in commercial paper and certificates of deposit, $4.1 billion in cash and bank deposits, $3 billion in money market funds, and $34.5 billion in treasury bills.

The HQLAs, however, may not completely eliminate run risk for a stablecoin issuer. Stablecoin liabilities settle in real-time around the clock, whereas HQLAs trade at specific market times. Stablecoins operate around the clock, 365 days a year, and settle in T+0. There could be a duration mismatch between assets and liabilities. To solve intraday run risk, the best asset-liability management practice would match liabilities that settle in minutes with assets that also settle in minutes. Indeed, the recent Terra stablecoin collapse occurred within hours.[15]

Only Fed reserves settle in minutes in the real-world banking system, and only depository institutions are eligible to hold a clearing account at the Fed, known as a master account. Issuers of stablecoins can obtain reserves through a correspondent bank. Several US community banks, for example, currently hold reserves from USDC stablecoin issuer Circle. However, the bank is still exposed to potential intraday liquidity risk if the stablecoin issuer requires a large drawdown. Traditional banks are usually unable to monitor the stablecoin issuer's financial situation in real-time.

Besides, the current weak macroeconomic environment could devalue HQLAs. Tether CTO Paolo Ardoino stated last month that the company would continue to reduce the percentage of commercial paper in its USDT backing by replacing it with US Treasury bonds. While Tether has financed over $9 billion in redemptions over the past few days, if liquidity for USDT's collateral assets dries up, the firm's ability to redeem USDT for

[14] https://twitter.com/zhusu/status/1525045033216397312?s=20&t=KxNhgQuTgOTnICf2S0kh2w
[15] https://www.risk.net/comment/7948696/how-to-stop-stablecoins-from-hoarding-precious-collateral

dollars may suffer. Many crypto investors believe that there's a risk to holding USDT over U.S. dollars amid the recent market drawdown. [16]

To meet these requirements, stablecoin issuers must also host some cash and other high-quality stablecoins to meet their intraday liquidity requirements, and they must frequently rebalance their asset composition to hedge the devaluation risks caused by market drawdown. It must be tested in various scenarios in order to continuously improve the system. To begin, tests should focus on the global macro backdrop, which has been particularly harsh on all risk assets. For example, growth stocks with negative cash flow are down 50-70 percent this year. Core crypto assets like BTC and ETH are down about 58 percent from all-time highs, while altcoins are down an average of 80 percent. Also, while new technologies like big data, blockchain, and machine learning are important, if you want to create a sustainable stablecoin, you must understand the real economic dynamics and sociological impacts behind the numbers.

5.2 Top stablecoin issuers should form an association or a DAO, similar to an interbank lending market, in which members can support one another.

The failure of LUNA puts a lot of pressure on other stablecoins. USDT briefly lost its peg last week as the market experienced a severe sell-off caused by the collapse of Terra's UST stablecoin, trading as low as $0.95. Tether's USDT market cap has dropped by more than $9 billion as a result of Terra's UST failure. Although the USDT is now firmly pegged to the US dollar, redemptions have continued. As a result, we believe that top stablecoins should form an association or DAO to support one another, similar to an interbank lending market.

The interbank lending market is one in which banks lend money to one another for a set period of time. Most interbank loans have maturities of one week or less, with the majority being over day. Loans of this type are made at the interbank rate. The interbank rate is the interest rate charged on short-term bank loans. Banks borrow and lend money in the interbank lending market to manage liquidity and meet regulatory requirements such as reserve requirements. The interest rate charged is determined by the availability of money in the market, current rates, and contract terms such as term length. There are numerous published interbank rates, including the federal funds rate (USA), LIBOR (UK), and Euribor (EU) (Eurozone). This study reveals the existence of a trillion-dollar internal capital market that was critical to dealer bank financing during the 2008 Global Financial Crisis.[17]

Curve is an excellent application in this regard. Curve was founded in 2020 with the goal of establishing an AMM exchange with low fees for traders and an efficient fiat savings account for liquidity providers. Curve allows investors to avoid more volatile crypto assets while still earning high-interest rates from lending protocols by focusing on stablecoins. One of its innovations was the development of a "3pool," which combines the liquidity of the DAI, USDT, and USDC stablecoins into a single liquidity pool that can then be paired against other stablecoins. With over $10b in stablecoin deposits, it

[16] https://cryptobriefing.com/is-tethers-usdt-pull-ust-probably-not/
[17] https://www.federalreserve.gov/econres/feds/files/2021036pap.pdf

became so liquid that it in fact rivaled or even surpassed the liquidity of centralized exchanges. [18]

However, Terra's demise demonstrates that AMM exchanges such as Curve are insufficient during the crisis. In fact, 'Curve Wars' directly causes this collapse. Terra collaborated with stablecoin project Frax and voting-DAO Redacted to control enough Convex (a project specifically created to influence CRV emissions) and CRV to have near-complete control over the emissions gauges. They would be able to make their pool the most frequent recipient of emission rewards, incentivizing groups to trade against their 4pool rather than the incumbent 3pool. The four currencies would be UST, FRAX, USDT, and USDC. This was largely expected to attract billions of dollars in demand for these stablecoins stemming from their influence over CRV and FXS token emissions. The attack on Terra happened when Terra was moving liquidity from 3pool to 4pool. Therefore, we believe there is still a need for some sort of leadership structure, such as a DAO, among top stablecoin issuers, particularly during the current economic downturn and crisis. [19]

5.3 Stablecoin issuers should embrace regulation and strive to establish a "lender of last resort" like the FED for the crypto industry to receive bailouts during times of crisis.

Although Bitcoin and Ethereum are the most popular crypto investments, stablecoins account for a significant $190 billion portion of the crypto ecosystem. Stablecoin serves as a bridge between fiat currency and cryptocurrency. Its regulation could be the first wave of regulations for the cryptocurrency markets.

There are fears that stablecoins will undermine traditional US banking systems, causing financial system problems. According to a recent report from 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), there are also concerns that some stablecoins may be used to circumvent money-laundering laws or even finance rogue states or terrorists. This has become even more prominent in policymakers' minds in the aftermath of Russia's invasion of Ukraine, with the possibility that Russia could use cryptocurrencies to avoid sanctions.

US Treasury Secretary Janet Yellen has already mentioned Terra's UST several times in her call for a stablecoin regulatory framework. Investors have even endorsed the focus on stablecoins too. Mark Cuban, tweeted last September that “stablecoins will be the first to get regulated. … It needs standards.”[20]

A shakeup of a top stablecoin like Terra could have far-reaching ramifications across the entire financial landscape. The collapse of Terra has been compared to the Lehman shock, which triggered the Global Financial Crisis. Lehman Brothers, a global financial services firm, declared bankruptcy in 2008 after suffering massive losses from its mortgage-backed securities portfolio. Wall Street had become complacent at the time,

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[18] https://www.gemini.com/cryptopedia/curve-finance-liquidity-provider-dao#section-stable-liquidity-pools
[19] https://every.to/almanack/curve-wars
[20] https://cryptobriefing.com/yellen-echoes-stablecoin-warning-citing-ust-crash/

believing that the system was simply too big to fail and would be bailed out by the government if it crashed.

Many venture capital firms may have made a similar decision to invest in Terra based on similar thinking. With big players pouring billions into the crypto ecosystem and a track record of previous projects receiving large VC bailouts, it's easy to see how firms could have thrown caution to the wind in such a euphoric environment. However, unlike in 2008, when the government bailed out most bankers in the best interests of the economy, there is no such guardian angel for the crypto industry.[21]

Regulation may be beneficial to the crypto markets because it signals the end of the Wild West era of trading and provides investors with a little more peace of mind. Otherwise, the best practice is to never invest more than 5% of your portfolio in cryptocurrency and to only invest after you have established an emergency fund and have paid off any outstanding high-interest debt.

Despite the fact that crypto is open source. Most protocols' information is transparent and auditable in real-time. Regulations will assist in ensuring that stablecoin issuers truly back the coins with the appropriate amount of reserves and that the entity is stable. Responsible stablecoin issuers should be proactive in this process and collaborate with regulators on developing relevant rules and principles. It will help with building the trust of the community. Tether discloses its collateral holdings on a regular basis. It also underwent an investigation by the New York Attorney General as further proof that it does indeed support USDT.

Whether or not stablecoin issuers must be banks, there is a need for some organizations to stand out as a "lender of last resort," such as the FED. It will not bail out every crypto project, but the existence of such an organization is significant. Some form of guarantee will boost community trust, lowering the likelihood of a bank run.

We can see this clearly by revisiting the history of American banking: Banking crises were common between the 1830s and 1850s, when there was no central bank to oversee banking and finance, and many banks were forced to suspend the convertibility of their banknotes and deposits into coins due to insufficient coin reserves. When borrowers failed to make loan payments, a large number of these banks failed or became insolvent. So, in 1913, after three-quarters of a century without a central bank and a period marked by a number of banking crises, Congress established a new central bank, the Federal Reserve System (the Fed), with a mandate to lend to solvent but illiquid banks as well as the money and capital markets in times of stress, thereby improving financial stability and reducing the frequency of banking crises.[22]

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[21] https://cryptobriefing.com/the-crypto-whales-backed-terra-before-it-imploded/

[22] https://ap.gilderlehrman.org/history-by-era/economics/essays/us-banking-system-origin-development-and-regulation

6. Conclusion

The failure of Terra/Luna does not spell the end of decentralized stablecoins. UST was an attempt to develop an algorithmic stable coin for use in a digital world. It was a big idea that didn't work out. It is similar to many previous failed digital currencies. If Terra's demise is indeed the crypto industry's Lehman moment, it will be remembered as a harsh but necessary lesson that strengthened and resilient the space. It will cause investors to rethink their current approach to cryptocurrency investment. Even funds that firmly believe in blockchain technology will likely begin to reconsider future allocations, regardless of whether Terra burns them.

Existing stablecoins like USDTs are not ideal. They exist solely because there are no other better options. We developed a model for a new stablecoin based on the discussion above, which we will publish in a future research report.