

# Hyperledger Capital Markets Stablecoins

By Vipin Bharathan, [dlt.nyc](https://dlt.nyc)



# Agenda

---










- The concept
- Stablecoin taxonomy
- Custodial Stablecoins
- Automated/algorithmic/autonomous stablecoins
- The Terra-Luna episode: Black Wednesday
- Systemic risk in DeFi

## The Concept

---





















- The name “Stablecoin” is a marketing term
- Value is pegged to a Price Index
- Store of Value, Medium of Exchange, Unit of Account
- The Price Index must be stable
- Stable is a relative term
- The peg mechanism is difficult to hold

# Broadmarket for crypto

# ▲	Name	Price	24h %	7d %	Market Cap ⓘ	Volume(24h) ⓘ	Circulating Supply ⓘ	Last 7 Days
☆ 1	 Bitcoin BTC	\$20,494.13	▼ 8.67%	▼ 32.65%	\$386,481,263,394	\$44,508,553,543 2,195,944 BTC	19,068,050 BTC	
☆ 2	 Ethereum ETH	\$1,056.45	▼ 11.31%	▼ 41.52%	\$125,031,024,248	\$26,925,840,592 26,096,406 ETH	121,179,515 ETH	
☆ 3	 Tether USDT	\$0.9983	▼ 0.04%	▼ 0.12%	\$70,745,417,723	\$71,309,344,151 71,435,438,276 USDT	70,870,514,674 USDT	
☆ 4	 USD Coin USDC	\$1.00	▲ 0.04%	▲ 0.03%	\$54,223,734,753	\$8,206,458,510 8,203,976,519 USDC	54,207,335,131 USDC	
☆ 5	 BNB BNB	\$204.64	▼ 8.30%	▼ 29.72%	\$32,872,927,457	\$1,679,519,775 8,342,029 BNB	163,276,975 BNB	
☆ 6	 Binance USD BUSD	\$1.00	▼ 0.13%	▲ 0.06%	\$17,371,053,491	\$6,740,772,388 6,729,750,463 BUSD	17,342,649,855 BUSD	
☆ 7	 Cardano ADA	\$0.465	▼ 6.50%	▼ 27.15%	\$15,609,637,619	\$1,734,258,805 3,770,133,790 ADA	33,934,048,406 ADA	
☆ 8	 XRP XRP	\$0.3051	▼ 2.63%	▼ 23.73%	\$14,625,219,281	\$1,616,579,969 5,343,543,064 XRP	48,343,101,197 XRP	

(all charts from coinmarketcap around  
6:00 am EDT on 06/15/2022)

# Stablecoins

#	Name	Price	24h %	7d %	Market Cap	Volume(24h)	Circulating Supply	Last 7 Days
3	 Tether USDT	\$0.9983	▼ 0.04%	▼ 0.13%	\$70,752,313,173	\$71,020,571,903 71,139,221,567 USDT	70,870,514,674 USDT	
4	 USD Coin USDC	\$1.00	▼ 0.00%	▲ 0.00%	\$54,147,040,480	\$8,122,784,421 8,119,885,688 USDC	54,127,717,325 USDC	
6	 Binance USD BUSD	\$1.00	▼ 0.05%	▲ 0.16%	\$17,432,367,874	\$6,712,185,187 6,715,853,128 BUSD	17,441,893,967 BUSD	
10	 Dai DAI	\$1.00	▲ 0.04%	▼ 0.04%	\$6,853,054,989	\$618,250,735 618,183,299 DAI	6,852,307,488 DAI	
207	 Frax FRAX	\$0.9958	▼ 0.26%	▼ 0.15%	\$1,457,331,639	\$52,527,520 52,710,569 FRAX	1,462,410,176 FRAX	
35	 TrueUSD TUSD	\$1.00	▲ 0.01%	▲ 0.06%	\$1,226,103,159	\$160,164,856 159,884,600 TUSD	1,223,957,731 TUSD	
44	 Pax Dollar USDP	\$1.00	▲ 0.07%	▲ 0.22%	\$947,589,421	\$37,309,128 37,232,489 USDP	945,642,940 USDP	
51	 Neutrino USD USDN	\$0.921	▼ 3.68%	▼ 6.85%	\$751,131,432	\$16,105,808 17,443,065 USDN	813,497,485 USDN	
212	 Liquity USD LUSD	\$1.03	▲ 1.96%	▲ 2.99%	\$743,482,975	\$9,585,920 9,276,007 LUSD	719,446,095 LUSD	
53	 USDD USDD	\$0.9701	▼ 1.05%	▼ 3.03%	\$701,821,760	\$162,299,520 167,271,495 USDD	723,321,765 USDD	

(all charts from coinmarketcap around  
6:00 am EDT on 06/15/2022)

# USTC Marketcap

TerraClassicUSD USTC

Price: \$0.007104 ▼ 15.17%

Add to Main Watchlist ☆

## TerraClassicUSD to USD Chart



## USTC to USD Converter

1 USTC TerraClassicUSD  $\leftrightarrow$  0.0071 USD United States Dollar

## Gravity Beta

See more

CoinMarketCap  
307.4K Followers

+ Follow

### Live TerraClassicUSD Chat

Guest

Bullish Bearish

\$USTC

Post

Top

Latest

Refresh

imanshabani · 4h

@imanshabani\_81f42u

\$LUNC  
#ETH go-to 100\$ soon...? 🚀🚀🚀

All \$SHIB #SHIBARMY \$BabyDoge  
\$DOGE go to fight for #decentralized list and  
swap all in #Terra\_Luna ecosystem  
#USTC\_ismoreforall ... Read All

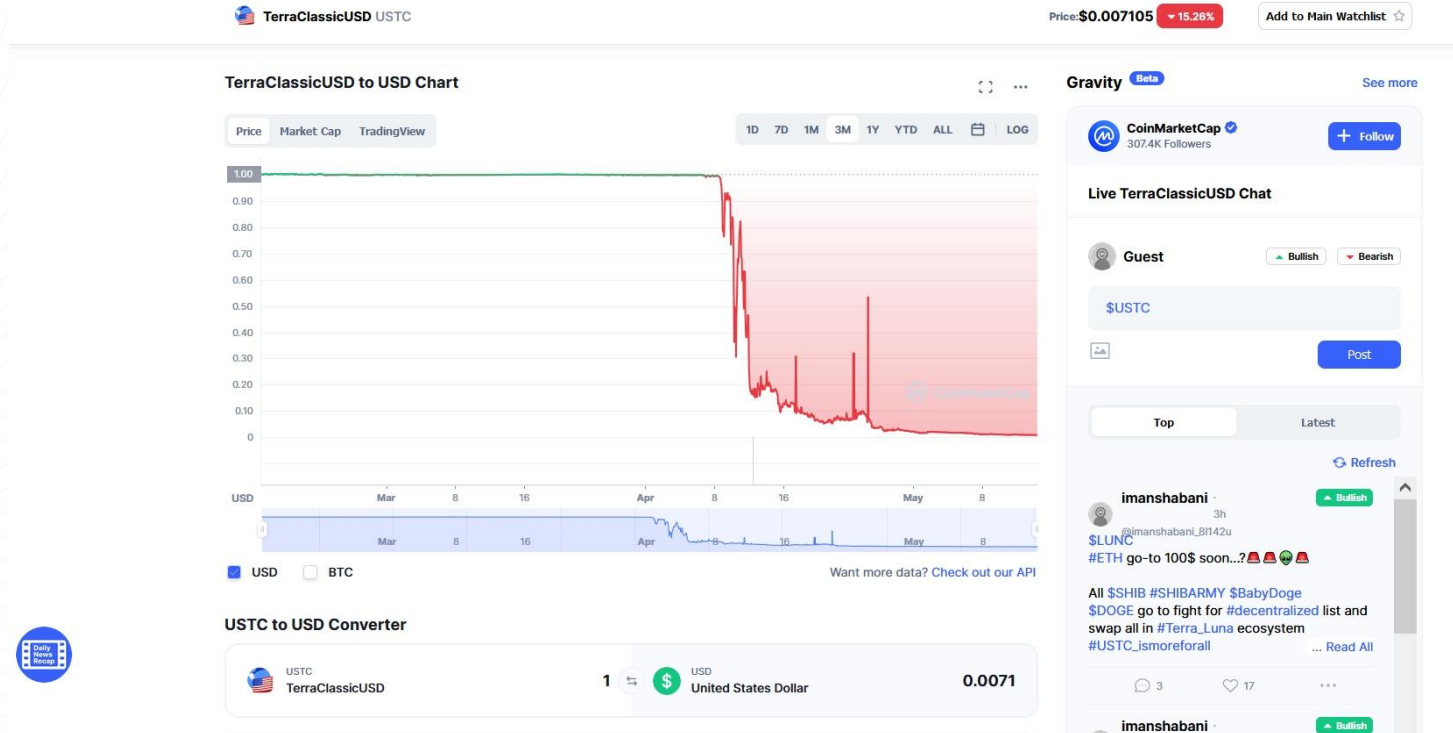
3

17

imanshabani ·

Bullish

# USTC Price



# Stablecoin Taxonomy

Peg

Mechanism

Reserve

Fiat  
Commodity

None  
Automated

Peg  $\leq 100\%$   
Liquid  $\leq 100\%$   
Onchain  $\geq 100\%$   
None



# Terra

---

Peg

**Fiat**  
Commodity

Mechanism

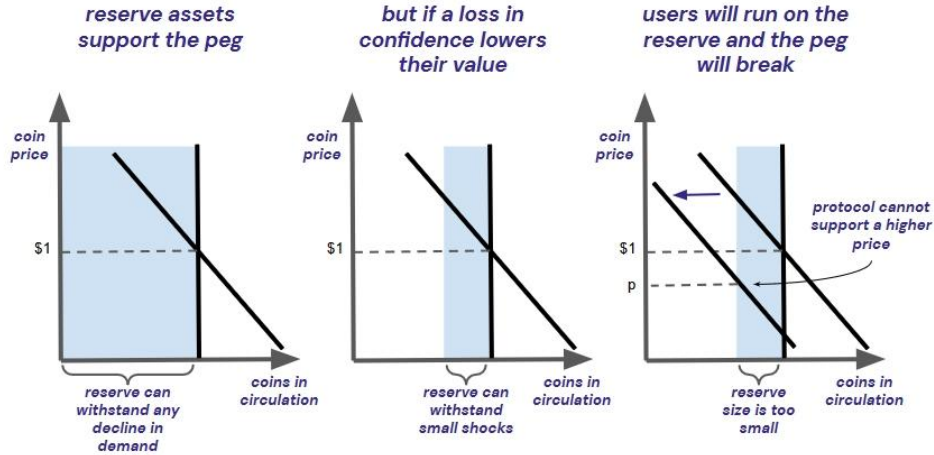
None  
**Automated**

Reserve

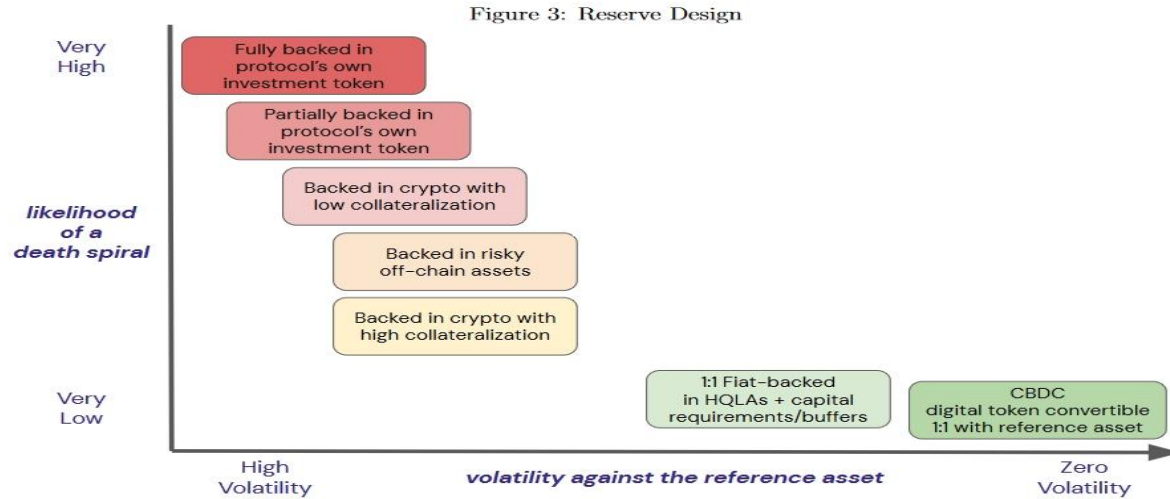
Peg 100%  
Liquid 100%  
Crypto >100%  
**None**

# Death Spiral

Value of reserve assets diminish rapidly due to a run



# Death Spiral

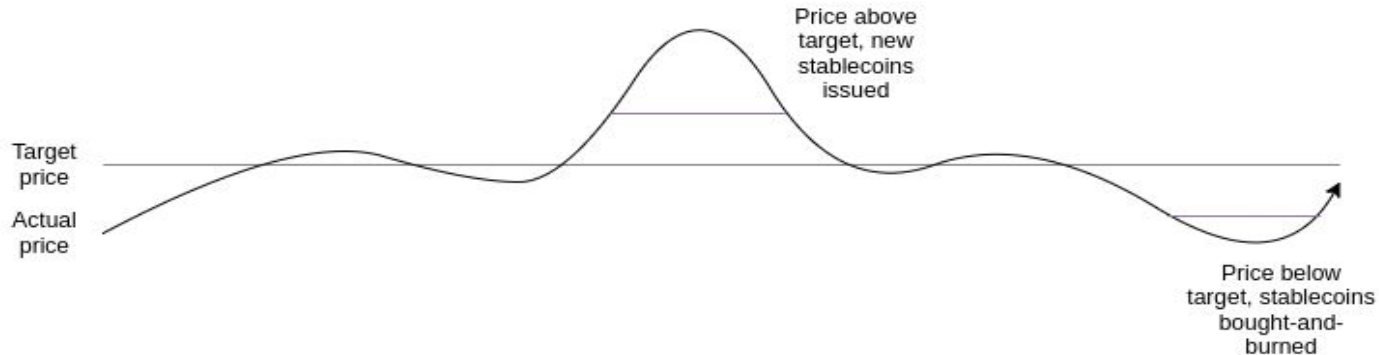


# Terra-Luna Complex

Terra = Stablecoin

Luna = Volcoin

- If the price of Terra exceeds 1 USD, the system auctions off new Terra (and uses the revenue to burn Luna) until the price returns to the target
- If the price of Terra drops below 1 USD, the system buys back and burns Terra (issuing new Luna to fund the burn) until the price returns to the target



# Black Wednesday

---

Black Wednesday occurred on 16 September 1992 when the UK Government was forced to withdraw the pound sterling from the European Exchange Rate Mechanism (ERM), after a failed attempt to keep the pound above the lower currency exchange limit mandated by the ERM. i.e 6% band with DM.  
Profit by: Selling GBP and Buying DM.

# Breaking the Peg of Terra

1. Long \$100M of \$LUNA PnL impact: \$0 Net PnL: \$0
2. Purchase \$100k of \$LUNA and immediately withdraw from exchange and swap to \$UST using the Terra seigniorage mechanism. Fee is 0.5%. Repeat 10,000 times (use a bot) so you accumulate 500M UST for ~\$502.5M. PnL impact: -\$2.5M Net PnL: -\$2.5M
3. Sell your initial \$100M \$LUNA from step 1. Since there has been \$500M of \$LUNA market bought in step 2 looking at the current order books/PA I think a reasonable estimate here is +30% or \$30M profit. PnL impact: +\$30M Net PnL: +\$27.5M
4. Deposit \$200M worth of bETH on @Anchor\_Protocol and take a loan out for 100M \$UST PnL impact: \$0 Net PnL: +\$27.5M
5. Short \$100M of \$LUNA PnL impact: \$0 Net PnL: +\$27.5M
6. In \$100k chunks use seigniorage again to convert 500M \$UST (step 2) and 100M \$UST (step 4) to \$LUNA. After each conversion dump the \$LUNA. Conversion fee 0.5% and the rate limit means this step will take a week. 600M UST sold for ~\$597M. PnL impact: -\$3M Net PnL: +\$24.5M
7. Close the \$LUNA short from step 5. Since there has been \$600M of \$LUNA market sold in step 6 I think a reasonable estimate here is -30% for \$LUNA price or \$30M profit. PnL: \$30M Net PnL: +\$54.5M
8. Payback loan from step 4 and reclaim your bETH. PnL: \$0M Net PnL: +\$54.5M
9. Repeat. After a few iterations the protocol will collapse at step 6. Many #Lunatics assume that \$LUNA can never have a value of 0. **This is only true if the future circulating supply of \$LUNA isn't  $\infty$  but above process leads to  $\infty$  \$LUNA being minted...**

## Emergent Effects

---

- Interoperability with the fiat world
- Value is pegged to a Price Index
- The Price Index must be stable
- Stable is a relative term
- The peg mechanism has elasticity (breaking the buck)

# Systemic risk

---

- Interoperability with the fiat world
- Interoperability implies contagion
- Contagion brings systemic risk
- Effects can cross system boundaries



## Proposed Stress Tests

---

- Can there be an orderly shutdown (i.e. 100% withdrawal)
- Price moves on the Peg by 20% up or down.

## References

---

1. Catalini, Christian and de Gortari, Alonso, On the Economic Design of Stablecoins (August 5, 2021). Available at SSRN: <https://ssrn.com/abstract=3899499> or <http://dx.doi.org/10.2139/ssrn.3899499>
2. [Black Wednesday](#)
3. [Two thought experiments to evaluate automated stablecoins](#), Vitalik Buterin, May 25 2022
4. FreddieRaynolds (@FreddieRaynolds) [November 25, 2021](#)