

Stablecoins & CBDCs: A Visual Introduction

Standalone Mini-Lecture

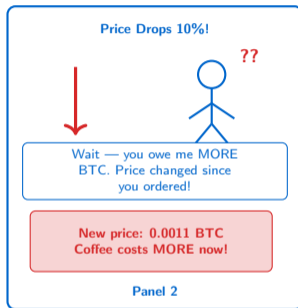
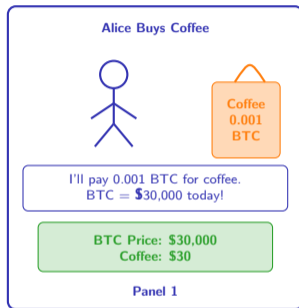
"In the world of crypto, stability is the hardest trick to pull off"

Prof. Dr. Joerg Osterrieder

University Lecture Series

February 24, 2026

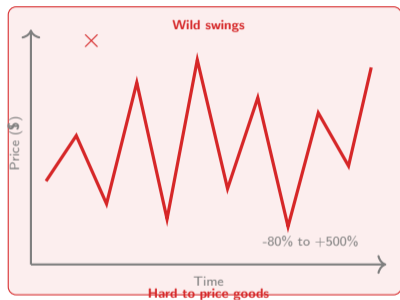
The Price Stability Problem



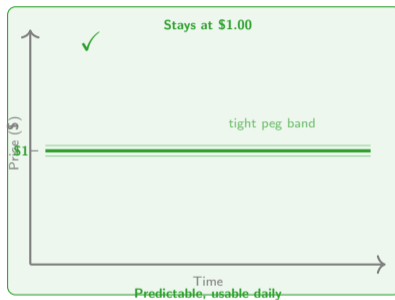
Stablecoins solve the volatility problem: 1 USDC always equals \$1 regardless of crypto market swings.

What is a Stablecoin?

Volatile Crypto (BTC / ETH)

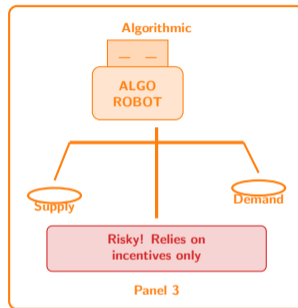
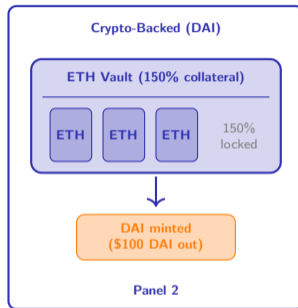
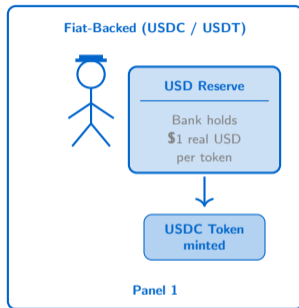


Stablecoins (USDC / USDT / DAI)



A stablecoin maintains a fixed value (peg) — usually \$1 — by design, making it usable for real payments.

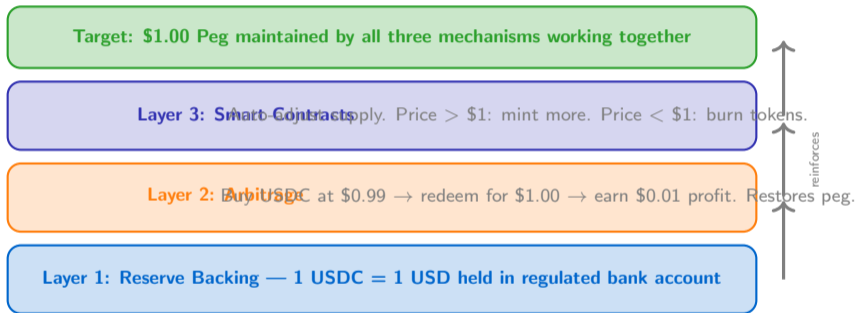
Types of Stablecoins



Three archetypes: fiat-backed (safest), crypto-backed (decentralized), algorithmic (highest risk).

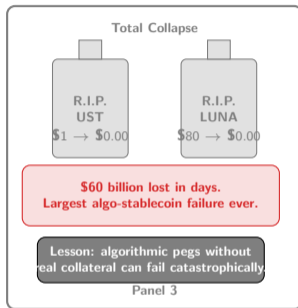
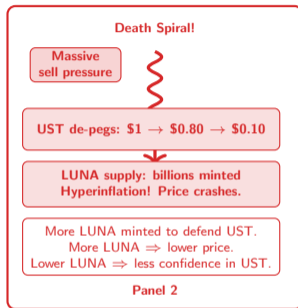
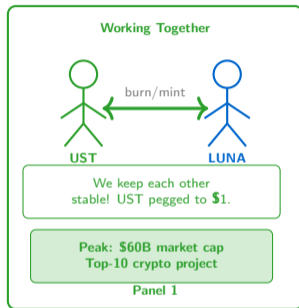
How Stablecoins Maintain Their Peg

Fiat-backed coins rely mainly on Layer 1. Crypto-backed (DAI) use Layers 2–3. Algorithmic coins use Layer 3 only — most dangerous.



Peg stability requires at least one reliable mechanism; relying solely on algorithmic incentives has repeatedly failed.

The Terra/LUNA Disaster (May 2022)



Terra/LUNA (May 2022): \$60B wiped out in days. The death spiral showed that algorithmic pegs without real backing are fragile.

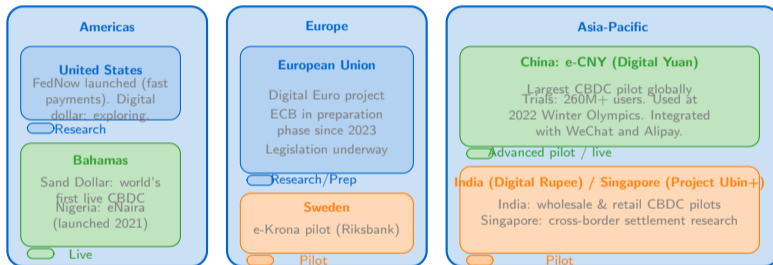
What is a CBDC?

Central Bank Digital Currency (CBDC): government-issued digital money				
	Physical Cash	Bank Deposit	Stablecoin	CBDC
Form	Physical notes and coins	Digital ledger at bank	Digital token on blockchain	Digital token govt-issued
Privacy	Anonymous	Tracked by bank	Pseudonymous	Fully tracked
Issuer	Central Bank	Commercial Bank	Private company	Central Bank
Interest	No interest	Yes (savings)	DeFi yields	Possible
Programmable	No	Limited	Yes (DeFi)	Yes (by design)

A CBDC combines the legal tender status of cash with the programmability of crypto — issued directly by the central bank.

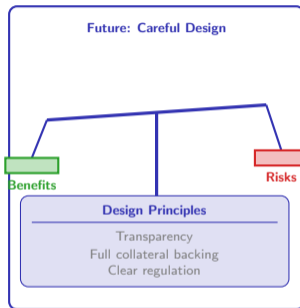
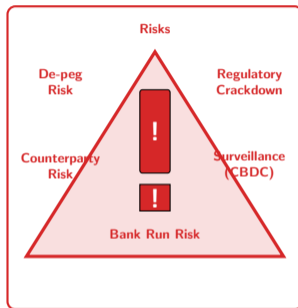
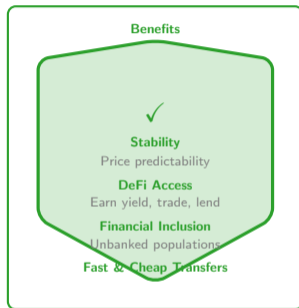
CBDCs Around the World

Live / Launched Pilot / Testing Research No announced plans



Over 130 countries are exploring CBDCs. China leads with the most advanced large-scale pilot; EU and US are in early stages.

Risks and Benefits of Stablecoins & CBDCs



The benefits of stablecoins are real, but so are the risks. Good design, collateral, and regulation determine survival.

1

Stablecoins bridge crypto volatility to real-world value by maintaining a price peg.

2

Fiat-backed stablecoins (USDC, USDT) dominate; most algorithmic attempts have failed.

3

Terra/LUNA taught the industry: algorithmic pegs without real collateral create death spirals.

4

CBDCs are the government answer: digital legal tender issued directly by central banks.

5

Regulation will shape which stablecoins survive: transparency and collateral are key.

Next: DeFi protocols — how stablecoins power decentralized finance

Stablecoins are the on-ramp to crypto's financial system. Understanding their mechanics and risks is essential for any practitioner.