Are Digital Currencies the Future?

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Research Interests

Research and general interest articles available on my academic webpage: `https://ganeshvnatraj.netlify.app/`

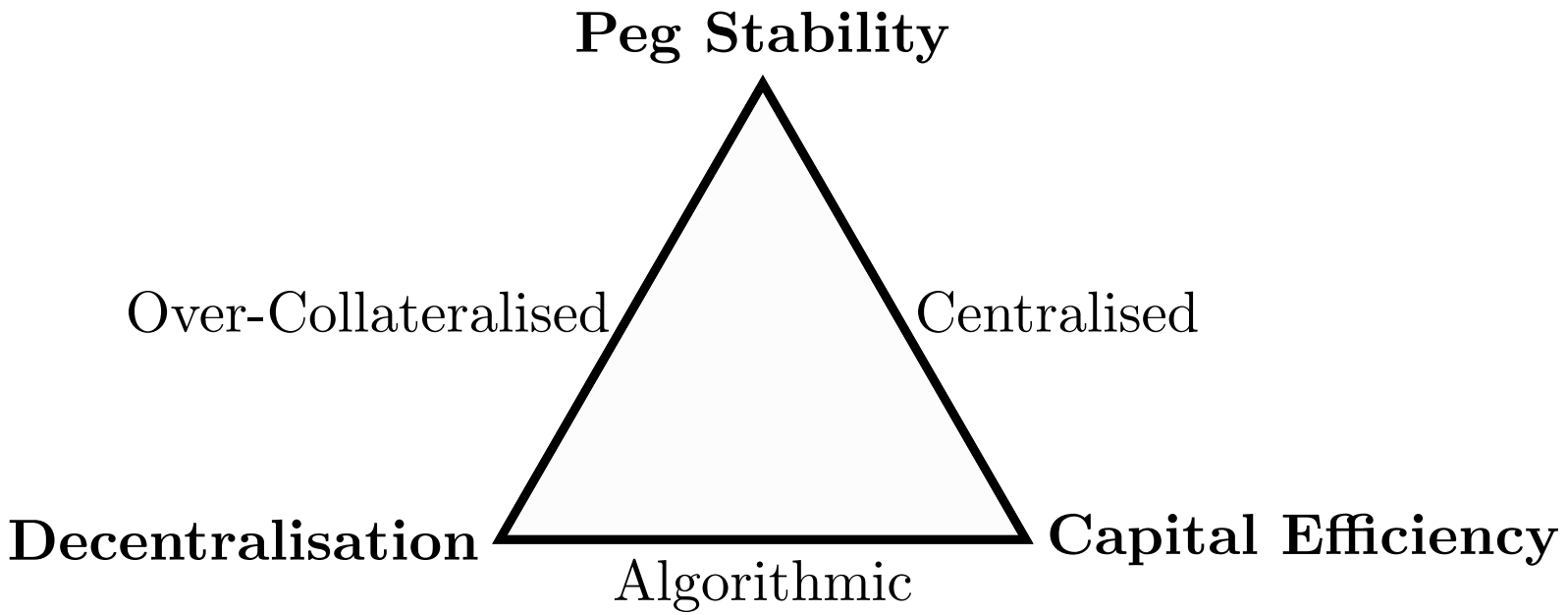
1. **Stablecoins**
   - Arbitrage design: what keeps stablecoin stable?
   - Risks and Regulations?
2. **Macroeconomics of digital currencies**
   - Macroeconomic costs and benefits of digital currencies?
   - Financial stability implications?

Stablecoin systems and properties

- Stablecoins operate on the blockchain and are pegged at parity to the US dollar.
- Two systems of collateral: **National-Currency backed** or **Cryptocurrency backed**, with the former predominating.
- **Vehicle currency**: They serve as vehicle currencies for trading crypto assets generally due to a reduction in intermediation costs by operating on the blockchain
- **Use in DeFi applications**: Stablecoins used as vehicle on Uniswap (DEX) and DeFI lending protocols to earn high savings rates (eg. Compound)
- **Alternative payments**: Remittance and cross-border payments. Residents in developing countries may use stablecoins to evade capital controls/high inflation.

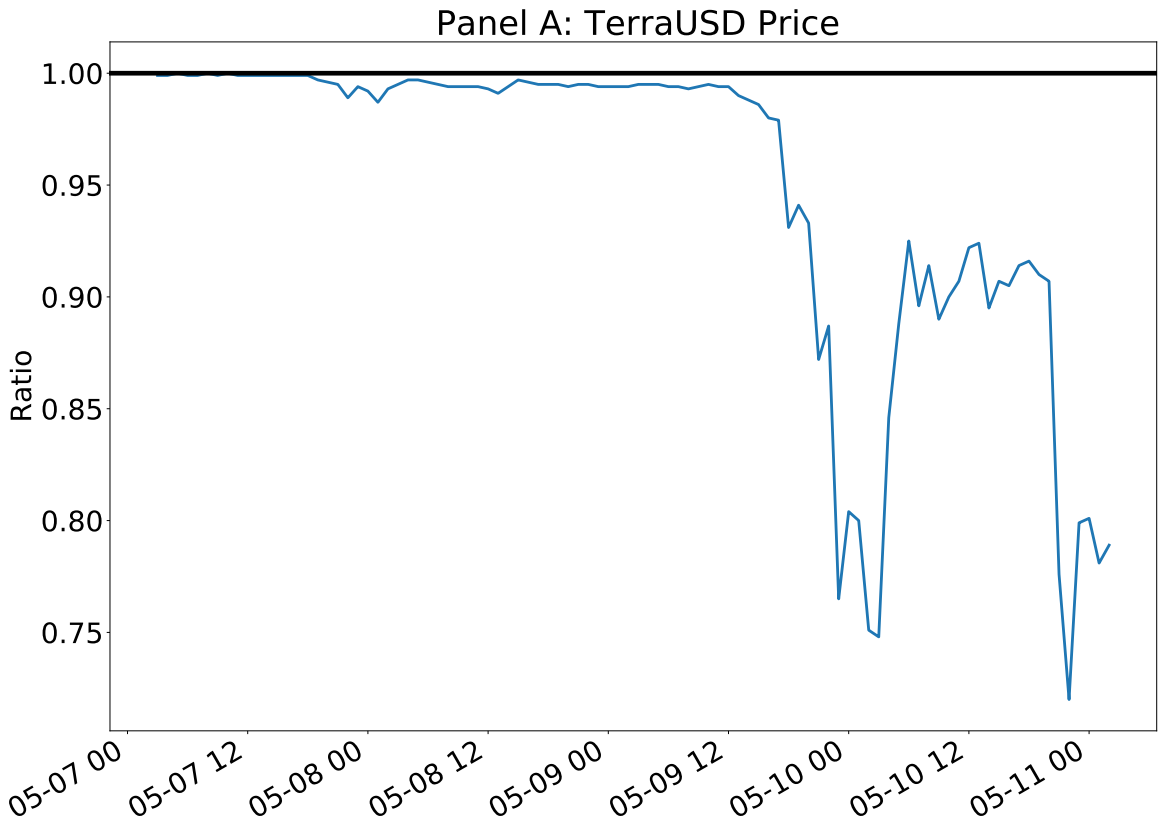
Stablecoin Trilemma

Stablecoin designs typically meet two of the following three objectives.



Case Study: Algorithmic Stablecoin TerraUSD collapse

- Algorithmic stablecoins typically have zero collateral.
- Vulnerable to speculative attacks and can trade at large discounts.



Policy Challenges

Stablecoin risks

- Custodial Risk: Centralised issuer absconding with funds.
- Run-risk: Redemptions exceed liquid cash reserves.
- Systemic risk Stablecoins used in crypto derivatives increase risk exposures of financial intermediaries.
- Payments risk: Stablecoin devaluations can trigger insolvency of firms and consumers with savings/payments.

Regulation

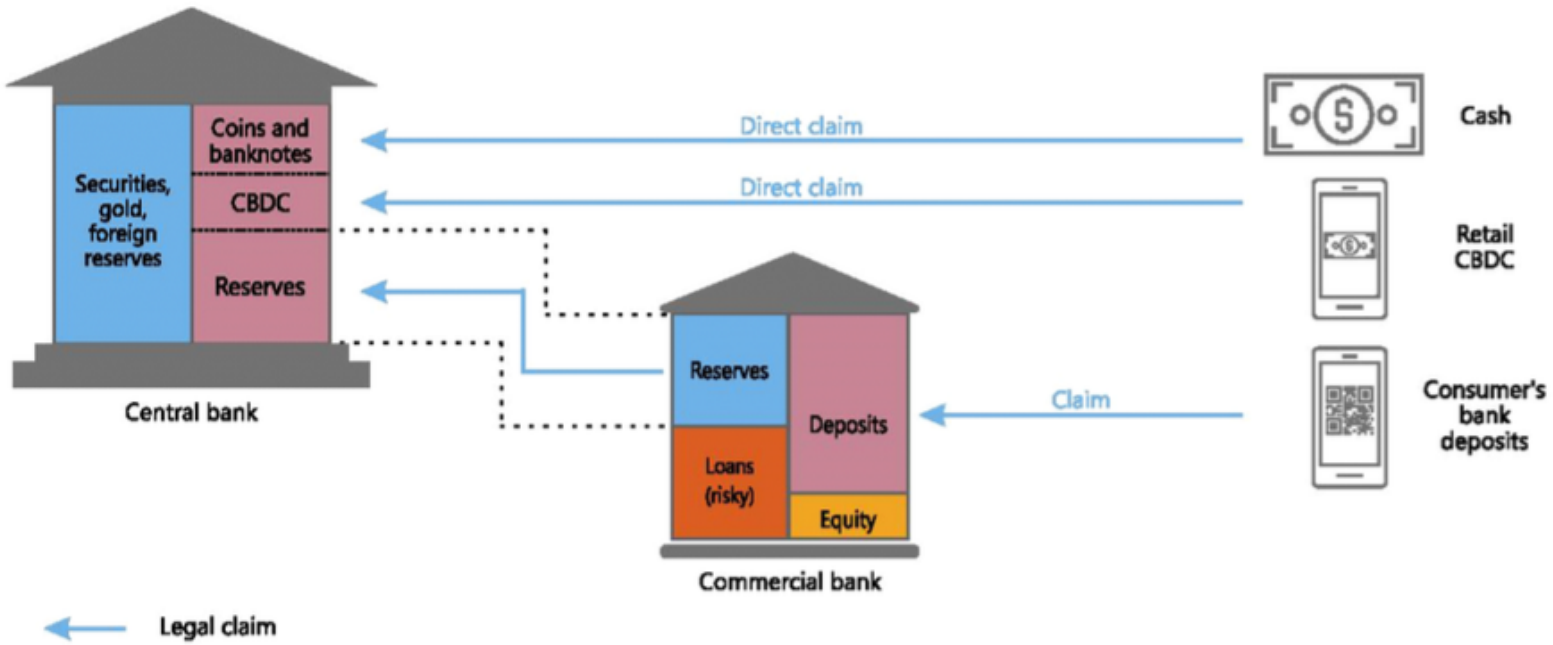
- Capital requirements and audits to ensure full collateralisation.
- Insurance through a deposit guarantee scheme.
- Liquidity support by the central bank to enable the bank to meet redemptions.
- Macroprudential regulation to limit risk exposures of banking sector, households and firms in crypto.

Central Bank Digital Currency

- Central bank digital currencies are digital tokens, similar to a cryptocurrency, issued by a central bank.
- They are pegged to the value of that country's fiat currency–a public stablecoin.
- CBDC Features
  1. Retail or Wholesale
  2. Token-based or account based (usually the former)
  3. Interest rate (adjustable or fixed)
  4. Private or Public Blockchain
- Pilot projects: Sweden's E-Krona and China's Digital Currency Electronic Payment (DCEP).

CBDC vs Cash vs Deposit

- Retail CBDC is a direct claim on the central bank, similar to cash with an adjustable interest rate.



Source: BIS Report

Policy Challenges

1. **Retail or Wholesale**: Retail is more useful to address financial inclusion for the unbanked in emerging markets. Wholesale can reduce transaction costs in advanced economies (replace Visa/Mastercard).
2. **Blockchain or no Blockchain**: A CBDC does not have to use a blockchain. Issues regarding security, permissioning of blockchain and trust/privacy.
3. **Cross-border flows**: Eliminate correspondent banking. Issues in interoperability of digital currencies across borders. Does a digital dollar on Federal Reserve's blockchain transfer to a BoE blockchain for USD/GBP trades?

Thank You!