"THE DIGITALIZATION OF MONEY" BY BRUNNERMEIER, JAMES AND LANDAU…….

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BRUNNERMEIER, JAMES AND LANDAU

- Departure from the traditional model of monetary exchange:

  - Unbundling of the separate roles of money, creating fiercer competition among specialized currencies.

  - Large platform ecosystems may lead to a re-bundling of money in which payment services are packaged with an array of data services, encouraging differentiation but discouraging interoperability between platforms.

BRUNNERMEIER, JAMES AND LANDAU

- Upheaval of the international monetary system:
  - Digital dollarization
  - Prevalence of systemically important platforms
  - Digital currency areas (DCA$^{©}$) that transcend national borders.
- Central bank digital currency (CBDC) ensures that public money remains a relevant unit of account.

WHERE IS THE INNOVATION?

- Digital money in circulation since at least the 50th

- Central bank digital money around since decades.

- "Peer-to-peer"? Platforms? Transnationality?

SIMILAR DISCUSSION IN THE 90TH

- *Public computer networks […] have the potential to transform the financial services sector by providing a fast, cheap way to sell financial services.*

- *Low setup costs and the transnationality of the Internet could remove significant barriers to entry in the financial services industry.*

- *Cross-border provision of services and the high mobility of network banks could challenge the ability of national and international authorities to establish and enforce banking regulations.*

Berentsen (1997): Supervision and Regulation of Network Banks.

SIMILAR DISCUSSION IN THE 90TH

- *Central Banking in a cashless society*

- *Monetary policy implication of digital money*

- *Private supply of money*

- *Cross border provision of financial services*

- *Network banks*

BITCOIN BLOCKCHAIN IS AN INNOVATION

- The Bitcoin developers have linked several technological components together such that for the first time in history, ownership of virtual property is possible without the need for a central authority

  - This is a fundamental innovation

    - Do consumers care?

    - Do regulators close an eye?

    - Do central banks tolerate?

MAIN BENEFIT OF BITCOIN BLOCKCHAIN: CENSORSHIP RESISTANT

- Immutable and consistent database.

- Resilient
  - No single point of failure.
  - No downtime.

- All users are equal.
  - Permissionless.
  - Users own their data.

WHY IS CENSORSHIP RESISTANCE IMPORTANT?

- Centralized databases are honeypots
  - Data breaches (all of them)
  - Misuse of data (Facebook)
- Central banks are honeypots
  - Attacker knows who runs the CB.
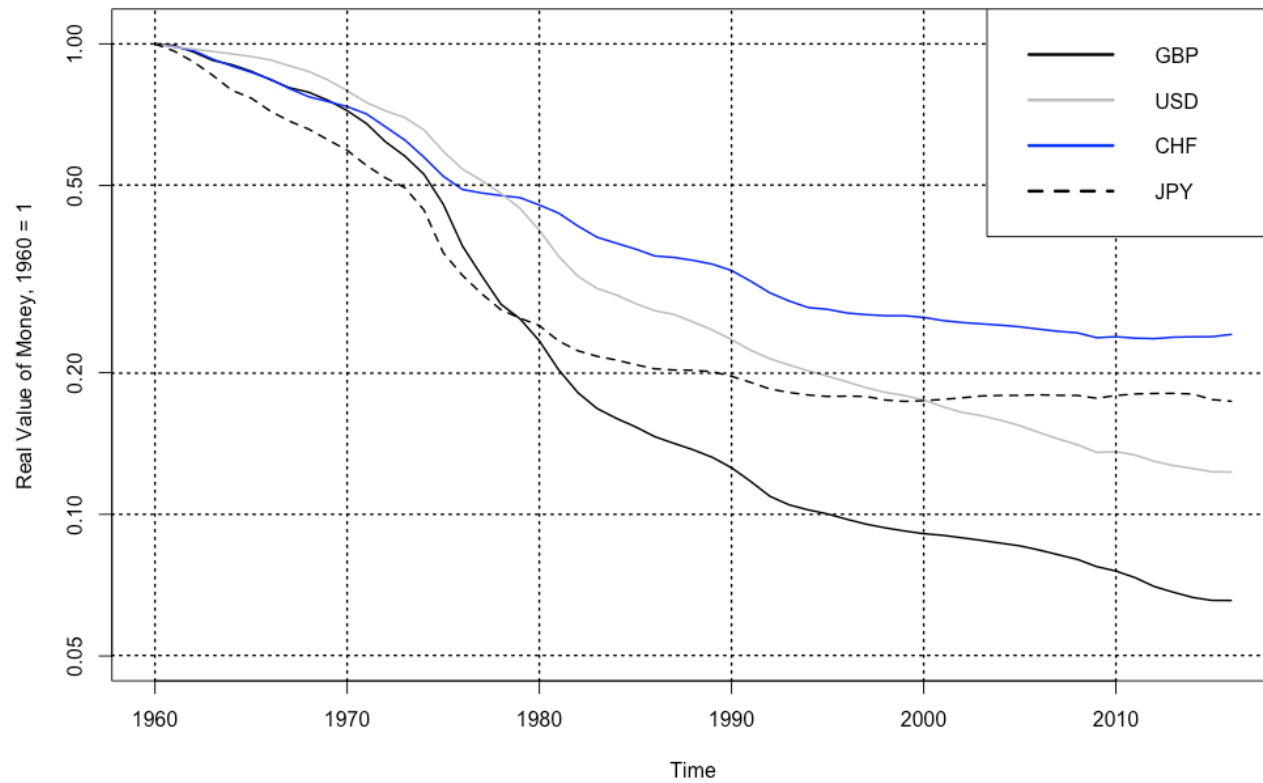 - Attacker knows where the CB's assets are.

ARGENTINA, MEXICO, TURKEY
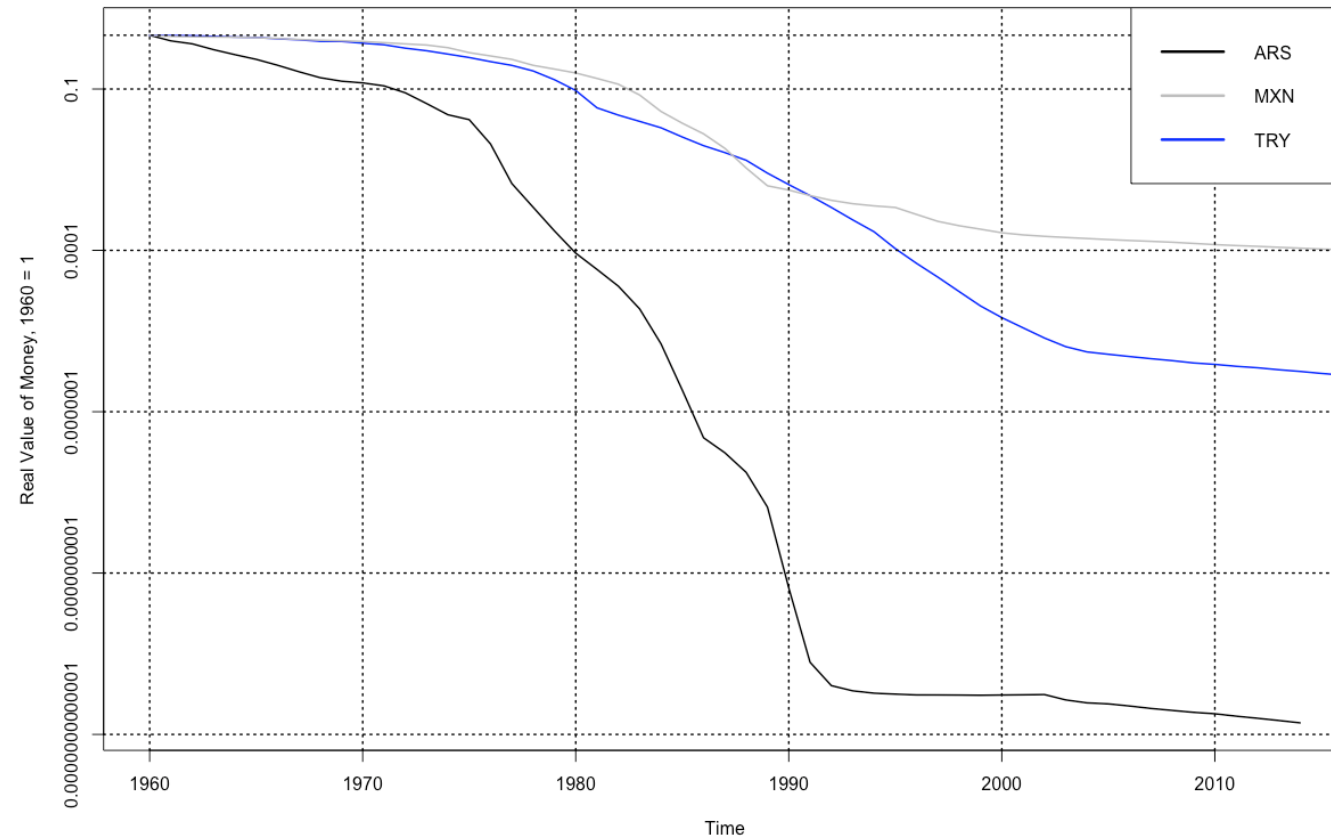
Central banks are honey pots.
They are not censorship resistant.

Quelle: FRED, Federal Reserve Bank of St. Louis
(FPCPITOTLZGTUR,FPCPITOTLZGARG,FPCPITOTLZGMEX)

USD, GBP, CHF, JPY

Quelle: FRED, Federal Reserve Bank of St. Louis
(FPCPITOTLZGCHE,FPCPITOTLZGUSA,FPCPITOTLZGJPN,CPIIUKA)

WHAT IS THE PROBLEM WITH CENTRALIZATION

- Current examples (this year)
  - Turkey, Venezuela, Argentina
  - Trump's attack on the FED
  - Erdogan's attack etc.

- History of fiat currencies is a history of failures, disasters and catastrophes.

WHAT IS THE PROBLEM WITH A DECENTRALIZED CURRENCY?

WHAT IS THE PROBLEM WITH DECENTRALIZATION?

- Price volatility

- Scalability

- Governance

PROBLEM PRICE VOLATILITY

- ## Policy pre-implemented in source code:

  - ### 21 million limit

  - ### Currently, 12.5 new bitcoins every 10 minutes.

- ## Inelastic aggregate supply meets an ever changing aggregate demand, the result is price volatility.
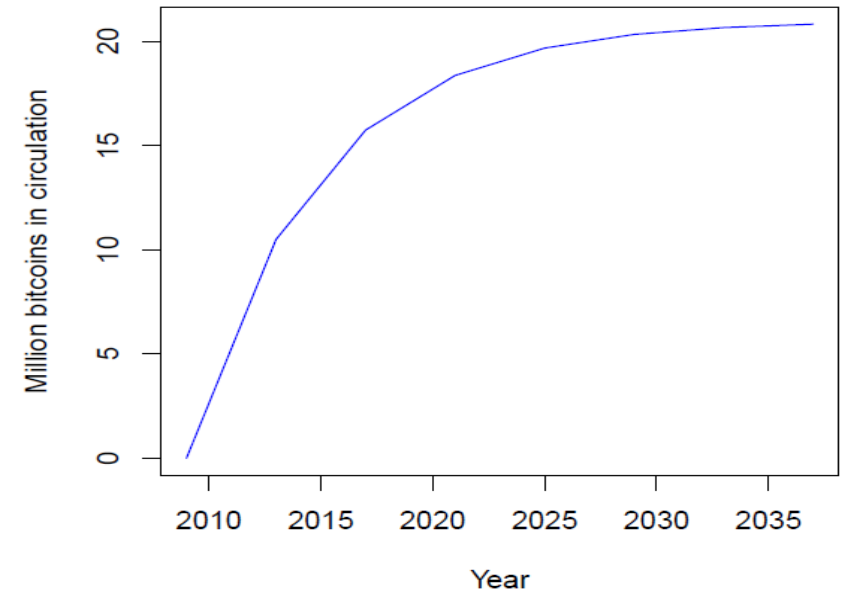
PROBLEM PRICE VOLATILITY

- Stablecoins are no remedy

  - Require some centralization

- Tether or Libra are 100% centralized

- DAI stablecoin is based on smart contracts and on-chain collateral. Requires

  - Oracles

  - Regular meetings and voting on stability fee (interest rate)

PROBLEM SCALABILITY

- ## Inefficient
  Instead of maintaining one database, the same data is transmitted, verified and stored in thousands of computers.

- ## Slow
  Reaching consensus among these databases is slow. Much slower than for a centralized database.

GOVERNANCE
JIMMY SONG, 2018: WHY BLOCKCHAIN IS HARD

- Development is hard.

- Design of incentives is tricky.

- Upgrading difficult:

  - Forced upgrades impossible.

DEVELOPMENT IS HARD

- Creating a provably consistent system is difficult.
    - "Try and error" is no option.
    - If you break consistency, blockchain becomes worthless.

- Fixing the database and restart is difficult:
    - Needs consensus among all users.

INCENTIVES ARE TRICKY

- Make sure that no one can abuse the database.

- What data should enter the blockchain and how much should it cost.

- How to reward the miners and the node operators.

UPGRADES AND MAINTENANCE

- No forced upgrades.

- Upgrades have to be backwards compatible.

- Many disagreements of how to improve the Bitcoin system.

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REVIEW

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A Short Introduction to the World of Cryptocurrencies

by Aleksander Berentsen and Fabian Schar

In this article, we give a short introduction to cryptocurrencies and blockchain technology. The focus of the introduction is on Bitcoin, but many elements are shared by other blockchain implementations and alternative cryptoassets. The article covers the original idea and motivation, the mode of operation and possible applications of cryptocurrencies, and blockchain technology. We conclude that Bitcoin has a wide range of interesting applications and that cryptoassets are well suited to become an important asset class.

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REVIEW

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The Case for Central Bank Electronic Money and the Non-case for Central Bank Cryptocurrencies

by Aleksander Berentsen and Fabian Schar

Abstract: We characterize various currencies according to their control structure, focusing on cryptocurrencies such as Bitcoin and government-issued fiat money. We then argue that there is a large unmet demand for a liquid asset that allows households and firms to save outside of the private financial sector. Central banks could offer such an asset by simply allowing households and firms to open accounts with them. Finally, we conclude that a central bank will not issue cryptocurrencies in the sense of a truly decentralized and permissionless asset that allows users to remain anonymous.

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THANK YOU FOR YOUR ATTENTION

Aleksander Berentsen | Fabian Schär

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