

Digital currencies and peer-to-peer technologies in financial services: Implications for central banks

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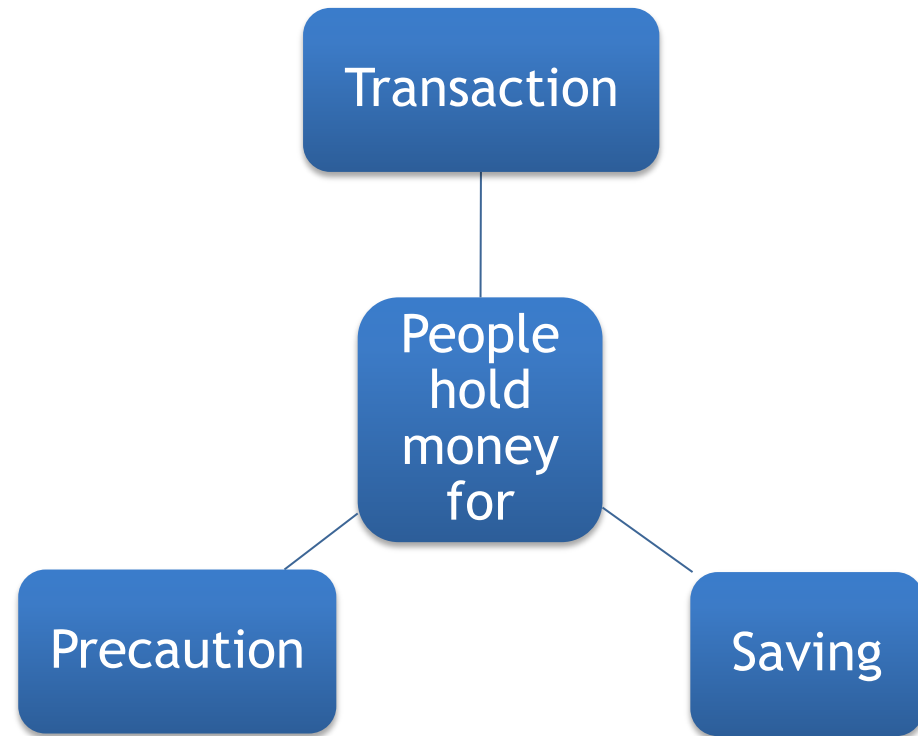
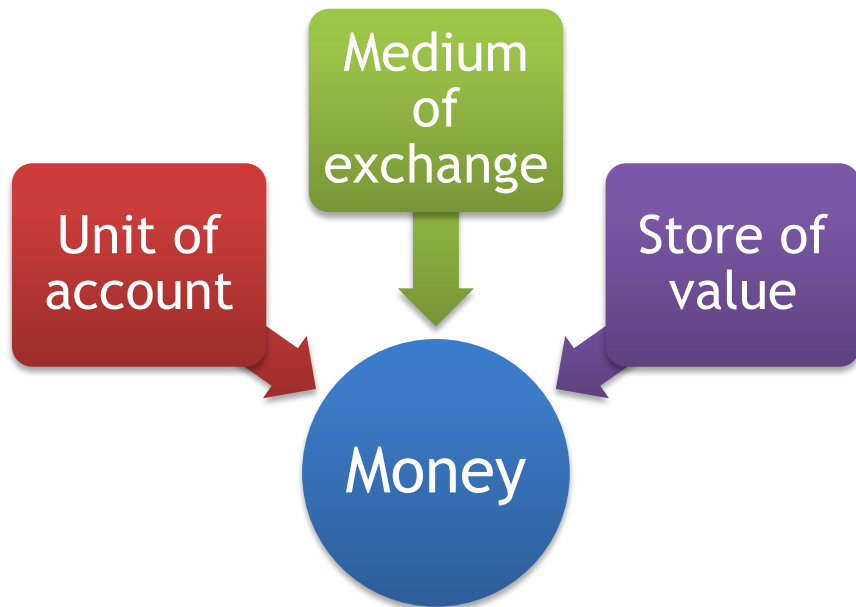
Outline of the presentation

- Why should the central bank care about digital currencies and the underlying technology?
- What roles should the central bank play?

Why should the central bank care about digital currencies and the underlying technology?



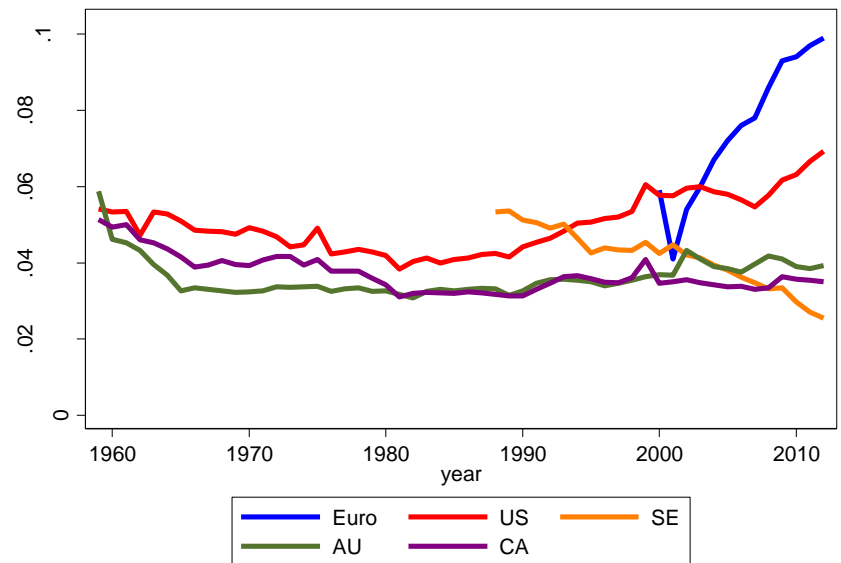
What is money? Why do people hold money?



Cash or bank notes

- Cash is money
 - Non-exclusive: everyone can hold and use cash
 - Decentralized: No trusted 3rd party to charge fees or give rewards
 - No one can prevent two parties from transferring cash among themselves in any amount
 - Private/anonymous
- Today, bank notes are typically issued by the central bank

■ Bank notes/GDP ratios in several industrialized countries



E-payments

- Bank deposits are (inside) money
- Electronic payments allow users to access funds in their deposit or credit accounts in financial institutions to initiate payments; (e.g. debit and credit cards, internet/mobile banking)

- Bank deposits are protected by deposit insurance, banks are prudentially regulated, and interbank payments are subject to oversight

- Trusted 3rd party that determines who can participate, how transactions take place and what fees to pay

Main issues

- Access (financial inclusion), protection of user interest (e.g. fees and privacy), and security.

E-payments are replacing cash

E-money

Monetary value stored on an electronic device such as a chip card or a mobile phone or a hard drive in personal computers or servers that is prepaid, liability of the issuer, and multi-purpose. Usually denominated in national currency.

- Trusted 3rd party that determines who can participate, how transactions take place and what fees to pay
- Many e-money schemes are issued and run by non-banks
- Adoption is high

Main issues

- Safety of funds and user protection
- Fees



Digital/virtual currencies/cryptocurrencies

- Decentralized peer-to-peer payment systems that use cryptography for sending and storing information

Main properties

- May not have an issuer and the amount supplied is usually predetermined (e.g. fixed in Bitcoin)
- Has its own unit of account
- Transaction histories (including new money supply) are kept in a distributed ledger called the blockchain that everyone can download a copy and inspect
- New transactions are added to the blockchain through a communal consensus mechanism (e.g. proof of work)

Digital/virtual currencies: Benefits and issues

Main benefits

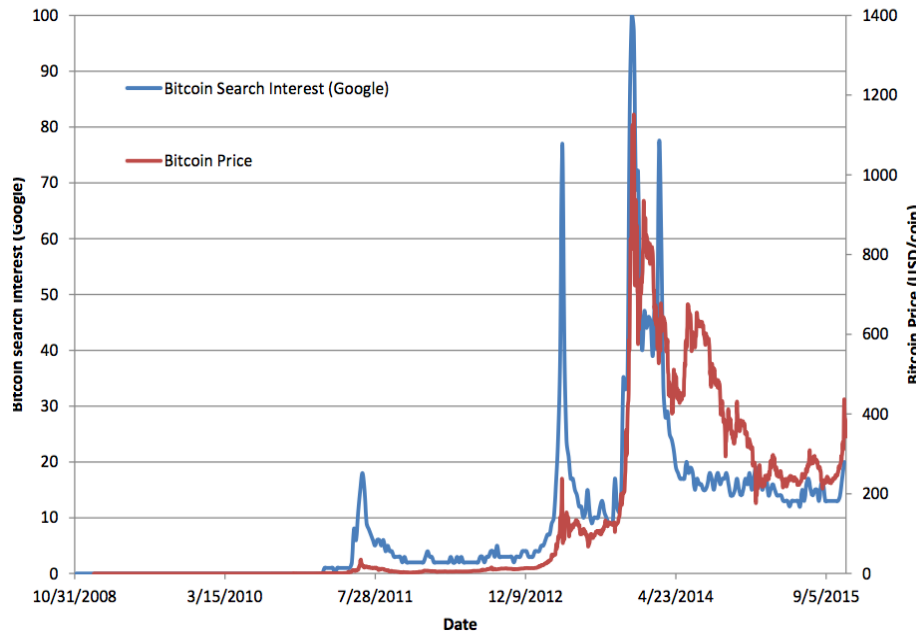
- Decentralized: No need for a trusted 3rd party and fees can be charged (potentially cheaper)
- Non-exclusive/permissionless: Access to everyone who has access to the Internet, just like cash, but funds can be sent anywhere quickly
- No limit on who you want to send bitcoins to and receive from
- No personal information is needed to use Bitcoins

Main issues

- Will Bitcoin and other cryptocurrencies facilitate money laundering and be the money of choice for criminal activities?
 - Regulatory developments around Bitcoin, e.g. Canada

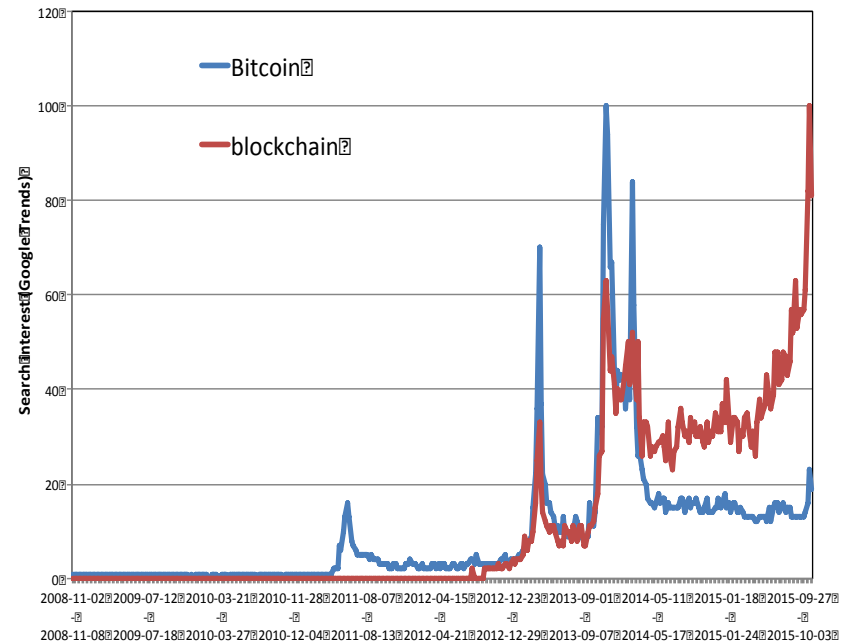
Bitcoin and blockchain

- Adoption of Bitcoin has been slow amid high fluctuation in prices
- Interest on Bitcoin seems to subside while interest in the blockchain is taking off



Source: blockchain.info and Google Trends.

Bitcoin prices and Google Search of “Bitcoin”

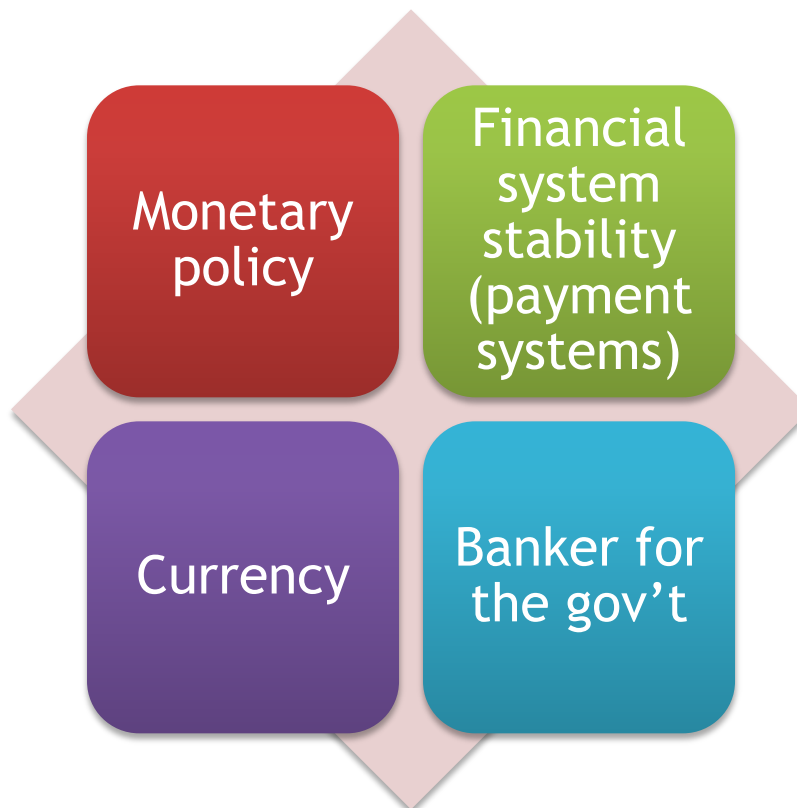


Google Search of “Bitcoin” and “blockchain”

What roles should the central bank play regarding digital currencies?



Typical functions of a central bank



What are the implications of developments in digital currencies and the underlying technology for the central bank's function?

Digital currencies: How may they affect central bank functions?

- If digital currencies such as Bitcoin became widely adopted in the economy, what are the implications for the central bank?
 - How will the payment system be affected?
 - Will the central bank's ability to conduct monetary policy be impaired?
 - Who can act as the lender of last resort if there is a banking system that is based on Bitcoin?

- Work by CPMI and FSB

Public policy objectives for payments systems and potential roles for the central bank



Public policy objectives

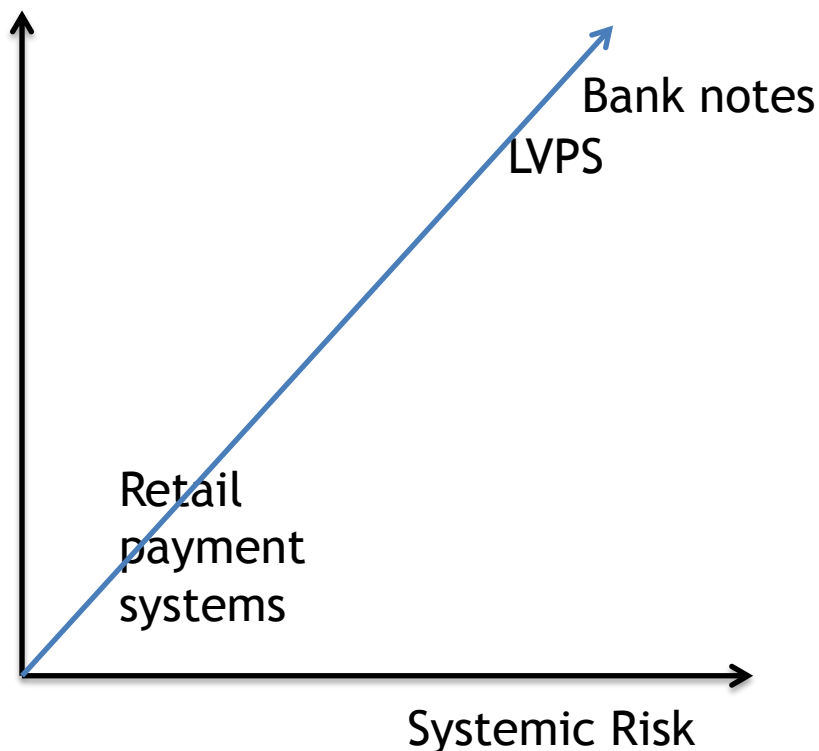


Potential roles for the central bank

Central bank intervention

Risk is often the main consideration for central bank intervention

Oversight/
intervention



In some cases, direct provision by the central bank may be warranted

Central bank issuance of digital currency (possible arguments)

- Improve efficiency of retail payments
- An alternative and a more efficient way of providing bank notes
- For high inflation countries: a way to bring monetary stability
- For low inflation countries: a way to avoid the zero lower bound
- Pre-empt the possible impacts of private digital currencies

Concluding remarks

- Central banks should
 - Monitor developments in digital currencies and its underlying technology
 - Conduct research to understand the implications for the economy, financial system and the central bank
 - Identify potential risks and assess whether the current regulatory framework is sufficient to manage and control the risks
 - Examine their roles as overseers and potential issuers

Thank you

