Is there social added value in digital currencies?

10th Meeting of the Fintech Working Group – 29 November 2022
‘Money at a crossroad: retail CBDCs vs. privately issued crypto-assets’

Maria Demertzis
Deputy Director, Bruegel
Taxonomy of money

Source: Claeys, Demertzis and Efstathiou (2018), Policy contribution Issue n°10.
The evolution in the digital space

The technology: Distributed Ledger Technology

1\textsuperscript{st} generation: Cryptocurrencies

Addressing high price volatility and sometimes low liquidity of cryptocurrencies

2\textsuperscript{nd} generation: Stablecoins

More complex system where also financial services are offered: decentralized applications (dapps)

3\textsuperscript{rd} generation: Decentralized Finance

Central Bank Digital Currencies (CBDCs)
The evolution in the crypto space

1st generation: cryptocurrencies

2nd generation: stablecoins

- **Cryptocurrencies** – No intrinsic value, no underlying economic fundamentals, price purely determined by demand and supply → High volatility
- **Stablecoins** (pegged to fiat) – Value linked to underlying currency, with economic fundamentals

### Distribution of total market capitalisation as of Nov 2022

12 coins account for 85% of the cryptocurrencies market

- **Bitcoin (BTC)** 39%
- **Ether (ETH)** 17%
- **Tether (USDT)** 8%
- **USD Coin (USDC)** 6%
- **Binance USD (BUSD)** 3%
- **Polkadot (DOT)** 1%
- **Polygon (MATIC)** 1%
- **Dogecoin (DOGE)** 1%
- **Cardano (ADA)** 1%
- **Binance Coin (BNB)** 5%
- **XRP (XRP)** 2%
- **USD Coin (USDC)** 6%
- **Tether (USDT)** 8%
- **Others** 15%

Source: Bruegel based on CoinMarketCap. Note: Composition as of 22 Nov 2022 based on market cap.
The evolution in the crypto space

- Recent surge in use of stablecoins
- Stablecoins as enabler of decentralised finance: relatively stable and predictable transactions

Source: Bruegel based on CoinGecko.
Decentralised Finance:
- decentralized and non-custodial financial services

Examples of financial services provided:

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dexes</td>
<td>Protocols where you can swap/trade cryptocurrency (Decentralised exchanges)</td>
</tr>
<tr>
<td>Lending</td>
<td>Protocols that allow users to borrow and lend assets</td>
</tr>
<tr>
<td>Bridge</td>
<td>Protocols that bridge tokens from one network to another</td>
</tr>
<tr>
<td>CDP</td>
<td>Protocols that mint its own stablecoin using collateralized lending</td>
</tr>
<tr>
<td>Derivatives</td>
<td>Protocols for betting with leverage</td>
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The evolution in the crypto space

3rd generation: Decentralised Finance

DeFi Total Value Locked

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</tbody>
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Source: Bruegel based on DeFi Llama. Note: Total Value Locked (TVL) excluding double counting and staking, but including borrowing. TVL is a measure of the total value of all assets locked into DeFi protocols.
The resemblance with traditional financial services

• FTX was a decentralised crypto exchange (Dex) platform, equivalent to traditional stock exchanges
  • *Traditional exchanges*: match buyers and sellers
  • *Dexes*: typically hold clients’ assets for extended periods of time, to facilitate trading for customers → Users more vulnerable in case of Dex troubles

• FTX filled for bankruptcy on 11 Nov 2022
  • Investors perceived that FTX was in trouble → run on deposits (~ USD 5bn)
  • BUT only USD 900mn worth of sellable assets against USD 9bn in liabilities
The links with traditional financial services

- A lot of traditional financial institutions exposed to FTX failure
  - “Situation reminiscent of Lehman Brothers in 2008, which left billions of dollars of hedge funds’ assets trapped for years. […] And, unlike the Lehman situation, where creditors were eventually paid back more than 100 per cent of assets, it is far from clear how much will be left to recover.” FT article

- FTX bankruptcy attributed to failure of corporate controls and poor risk analysis → lack of due diligence probably induced by lack of regulation

Potential risks for financial stability, if links get deeper

Source FT article: https://www.ft.com/content/125630d9-a967-439f-bc23-efec0b4cdeca
[Image of chart showing Bitcoin price to EUR (2016-2022) with highlighted years 2017 and 2021]

**3rd generation: Decentralised Finance**

Traditional Finance

Increase in total value linked to accentuated increase in valuation relative to the EUR in 2021

<table>
<thead>
<tr>
<th>Year</th>
<th>Non-cash payments (Euro Area)</th>
<th>Bitcoin (globally)</th>
<th>Bitcoin (globally) - in bitcoins</th>
</tr>
</thead>
<tbody>
<tr>
<td>2021</td>
<td>196,951</td>
<td>41,433</td>
<td>0.10</td>
</tr>
<tr>
<td></td>
<td>114</td>
<td>0.10</td>
<td>10</td>
</tr>
<tr>
<td>2017</td>
<td>148,175</td>
<td>3,582</td>
<td>0.10</td>
</tr>
<tr>
<td></td>
<td>84</td>
<td>0.10</td>
<td>9</td>
</tr>
</tbody>
</table>

**Source chart:** CoinGecko. **Source table:** Bruegel based on ECB Payment Statistics and tradeblock.com.
# Crypto legal status and regulation

## Cryptocurrency legal status – 25 countries

<table>
<thead>
<tr>
<th>Legal status</th>
<th>nr countries</th>
<th>Countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legal</td>
<td>12</td>
<td>Australia, Brazil, Canada, France, Germany, Italy, Japan, Philippines, South Africa, UK, Ukraine, US</td>
</tr>
<tr>
<td>Partial ban</td>
<td>10</td>
<td>Argentina, India, Indonesia, Iran, Mexico, Russia, South Korea, Thailand, Turkey, Vietnam</td>
</tr>
<tr>
<td>General ban</td>
<td>3</td>
<td>China, Pakistan, Saudi Arabia</td>
</tr>
</tbody>
</table>

### What is typically forbidden:
use of crypto as means of payment, use or facilitation by financial institutions, trading.

## Type of regulation – 25 countries

<table>
<thead>
<tr>
<th>Type of regulation</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Licensing</td>
<td>0</td>
<td>25</td>
</tr>
<tr>
<td>AML/CFT</td>
<td>0</td>
<td>25</td>
</tr>
<tr>
<td>Taxation</td>
<td>0</td>
<td>25</td>
</tr>
<tr>
<td>Consumer Protection</td>
<td>0</td>
<td>25</td>
</tr>
</tbody>
</table>

Source: Bruegel based on Atlantic Council cryptocurrency regulation tracker. Notes: Coverage encompasses 25 countries (G20 + countries with highest crypto adoption rates)
The need for public digital money

"Cash is not the same thing as an electronic payment: one is central bank money and the other is private money."

Public money acts as an anchor for the monetary system. It is the reason why people can have trust in the value of the private money issued by banks.

The need for public digital money

- CBDCs as public money in electronic form, in addition to cash

A way to catch up with how people use money and pay today

Benefits of central bank money: guaranteed and backed by the Central Bank

Increase resilience (and preparedness) of the monetary system against risks for financial stability originating in the private system
Public digital money – catching up

Examples:

- **Launched: Nigeria - eNaira (Oct 2021)** – motivation: increase financial inclusion from 64% to 95%; could add 29 billion dollars to the GDP over the next 10 years.

- **Pilot: China - e-CNY** – advanced pilot stage. Motivation: improving the efficiency of the central bank payments systems, providing a back-up to the commercial retail payments system, and greater financial inclusion.


- **Research: United States** – Since President Biden’s Executive Order on ‘Ensuring Responsible Development of Digital Assets’, 9 reports have been released. The reports encourage further CBDC research, experimentation and evaluation.

CBDC progress as of May 2022

Source: Bruegel based on Atlantic Council CBDC tracker.
Oportunities and risks – Is there added value for society?

Privately issued crypto-assets

- No underlying value due to lack of fundamentals – purely supply and demand driven
- Not legal tender: Not backed or managed by any central institution. No guarantee that you will be able to exchange crypto-assets for money when you need to.
- Real identity kept anonymous, therefore real digital cash

Central Bank Digital Currencies (CBDCs)

- Underlying economic fundamentals linked to economy issuing the currency
- Legal tender: Issued by a public institution – the central bank – and therefore backed by the public sector.
- Private, but not anonymous, therefore not a full substitute to cash
Oportunities and risks – Is there added value for society?

Advanced economies

Price stability, advanced payment systems, regulatory framework to mitigate financial stability risk → Little social value-added (instead: learning process, preparedness for geopolitical risks)

NECESSARY INVESTMENT: Financial and digital literacy

Developing economies

Weak currencies, impaired accessibility to payment system, underdeveloped financial system → Social value added: Financial inclusion (large scale access and at low cost)
Thank you!

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Motivation for CBDCs in developing countries

Fostering financial inclusion is one of the main motivations for CBDCs in Africa

Percentage of participating central banks

Graph 1

A. Benefits of CBDC

B. Barriers to financial inclusion

Ranked 1st: Ranked 2nd or 3rd: Ranked 1st: Ranked 2nd or 3rd:

Central bank digital cash Better financial access
More effective monetary policy
Increased competition and efficiency
Lower cash distribution costs
Enabling P2P payments
Programmable money
Tackling AML/Avaulicce
Better privacy
High costs
Financial literacy
Lack of access points
Lack of credit contracts
Lack of credit
Lack of access to smart phones
Inefficient financial infrastructure
Lack of private sector willingness/capacity

Ranked 1st: Ranked 2nd or 3rd:

African survey EMEs survey

Each bar indicates the percentage of central banks that choose a given motivation as one of their top three benefits of CBDC/barrier to financial inclusion. Unless otherwise stated, the percentage is computed over all the central banks that participated in the surveys (19 and 24 central banks in the African and EME survey, respectively), including those that did not answer the specific question. Lack of credit contracts and procedures suitable for individuals and/or firms with erratic and/or undocumented cash flows.

Sources: BIS African and EMEs 2022 surveys on central bank digital currencies.

Source: https://www.bis.org/publ/bppdf/bispap128.pdf
The evolution in the crypto space

Market capitalisation top 5 cryptocurrencies

Bitcoin and Ether account for approx. 55% of total cryptocurrencies market (including stablecoins)

1st generation: cryptocurrencies

Source: Bruegel based on CoinGecko.
The evolution in the crypto space

Stablecoins market capitalisation

- Tether and USD Coin approx. 76% of total stablecoins.
- Around 94% of stablecoins are USD fiat-backed.

Source: Bruegel based on DeFi Llama.
Taxonomy of money

- **Money**
  - **Issuer**: Public, Private
  - **Form**: Physical, Digital
  - **Examples**
    - Coins and banknotes
    - CBDCs
    - Commodities
    - Bank deposits
    - Cryptocurrencies

- **Legal tender** – public money issued and backed by public institution
- **Legal claim** – trust that it can be converted into public money
- **Not backed by central institution**

The need for public digital money

Use of the main payment services in the euro area
(number of yearly transactions - EUR billions)

Upward trend in the use of electronic means of payment

Source: ECB payment statistics 2021, released July 2022. Note: number of transactions per year in billions.