

NAVIGATING THE NEEDS OF CBDC: EXPLORING THE OBJECTIVE AND DESIGN OF CBDC IN THE INDONESIAN CONTEXT

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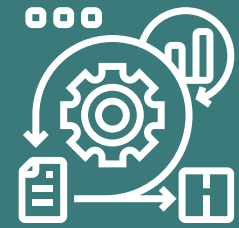
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Background



Digitalization

The digital economy in Indonesia is experiencing significant growth, fueled by innovations, widespread internet access, and demographic advantages. In the cryptocurrency realm, the transaction values in 2021 reached US\$ 60.2 (increased by 12-fold yoy), positioning Indonesia as the 20th global player



Digital Rupiah

In 2022, the Bank of Indonesia introduced the Garuda Project, a white paper addressing CBDC (Digital Rupiah). The CBDC aims to preserve the stability of financial and monetary systems by addressing potential threats of cryptocurrencies (mentioned 21 times in the document)



Existing Instruments

At present, the use of cryptocurrencies as a legitimate form of payment is prohibited. Furthermore, there has been swift progress in the development of digital payment systems to enhance financial inclusion.

Research Questions



- To what extent can CBDC effectively attain its objectives, considering its design and the prevailing financial and economic conditions in Indonesia?
- What complementary policies are required to reach these goals? Are there more efficient alternative policies?
- What are the potential benefits and risks brought about by CBDC?



What is Digital Rupiah

Design of Digital Rupiah



ARCHITECTURE

Wholesale and Retail
CBDC



INFRASTRUCTURE

Permissioned DLT for
W-CBDC
Centralised ledger for
R-CBDC



ACCESS

Integrated,
Interoperability, &
interconnected with
existing payment
(including securities &
foreign exchange)



REMUNERATION

Non-interest bearing

Objectives of Digital Rupiah

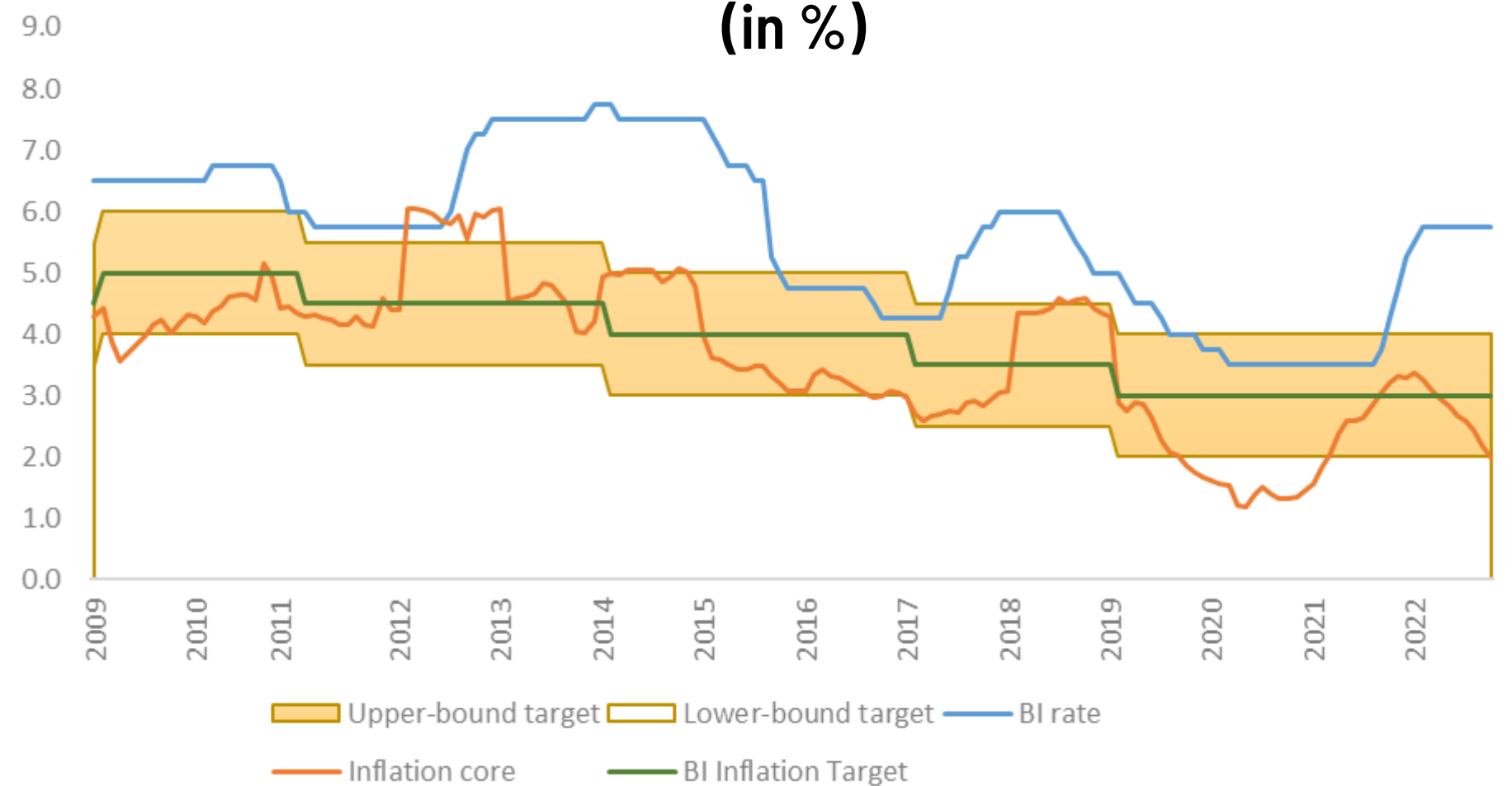
- Legitimate digital payment tool
- Instrument to maintain monetary and financial stability in digital era
- Means to foster financial inclusion and innovation

CBDC for monetary and financial stability



- CBDC can enhance the effectiveness of monetary policy transmission through the incorporation of interest-bearing instruments. It also can mitigate the challenge of the effective lower bound (Bordo and Levin, 2017)
- Setting interest rates within CBDC directly influences the public, supporting the central bank's key objectives of maintaining monetary and price stability—something that was not feasible with traditional physical currency concepts.
- Constraints in non interest-bearing designs, CBDC will only function as a digital version of traditional physical currency.

BI rate, inflation target, and core inflation
(in %)



Source: CEIC

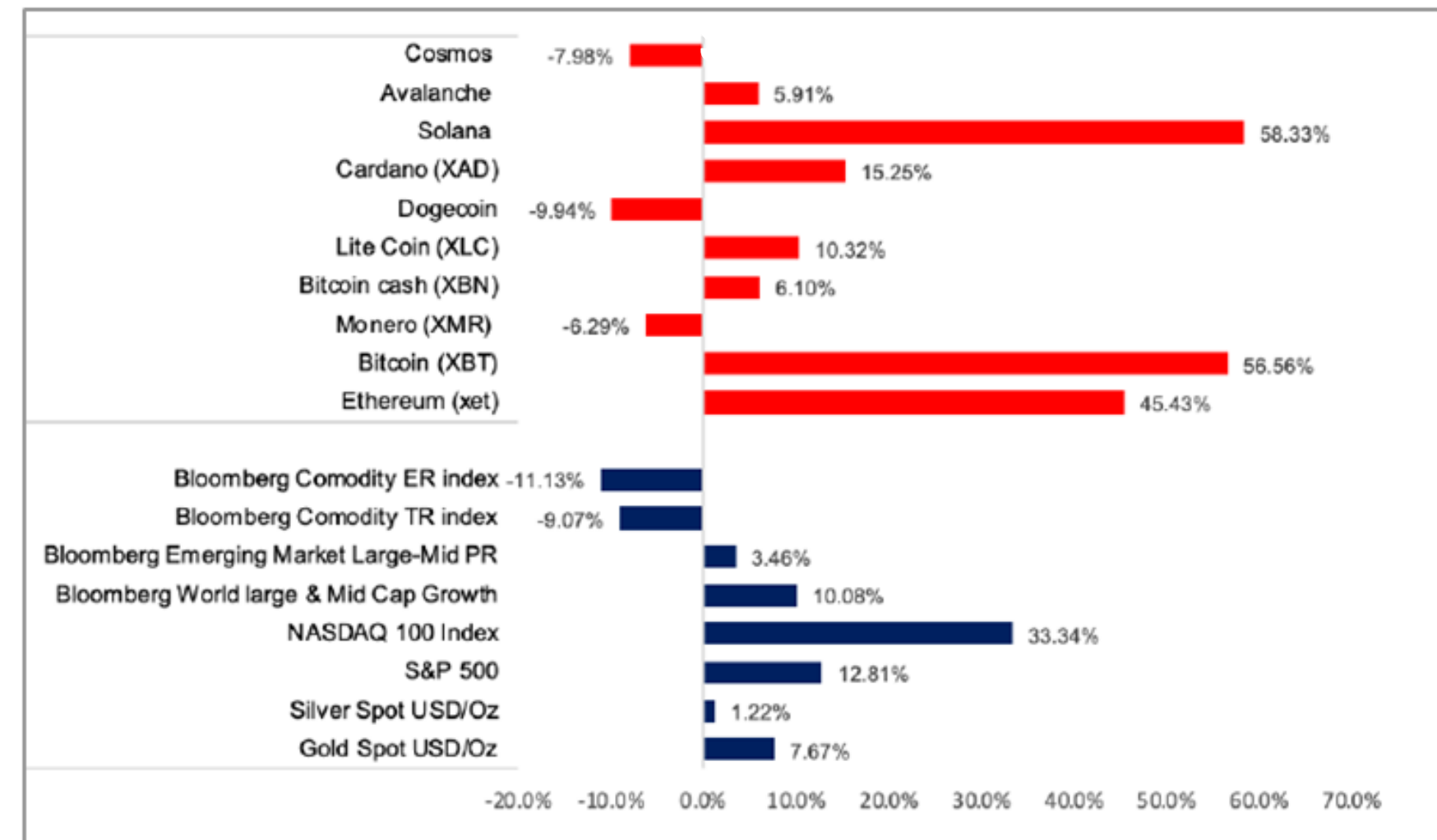


CBDC for monetary and financial stability



- In 2021, the Central Bank explicitly prohibited the use of cryptocurrency or virtual currency as a medium of exchange – a more efficient policy? Counterfactual needed.
- In a different scenario, where CBDC is implemented without a cryptocurrency ban, the bank's ability to maintain its objective depends on the value of CBDC and risk profile.
- The value of non-interest-bearing CBDC would be far lower than crypto assets, which offer super returns.
- Proxy of risk profiles: money in circulation for gambling activities reached Rp 200 trillion (2.4% of M2). There is a potential for crypto assets to disrupt monetary and financial stability, although the impact would be limited.

Return on crypto & other assets (Jan-June 2023 ytd)



Source: Bloomberg, IFG (2023)

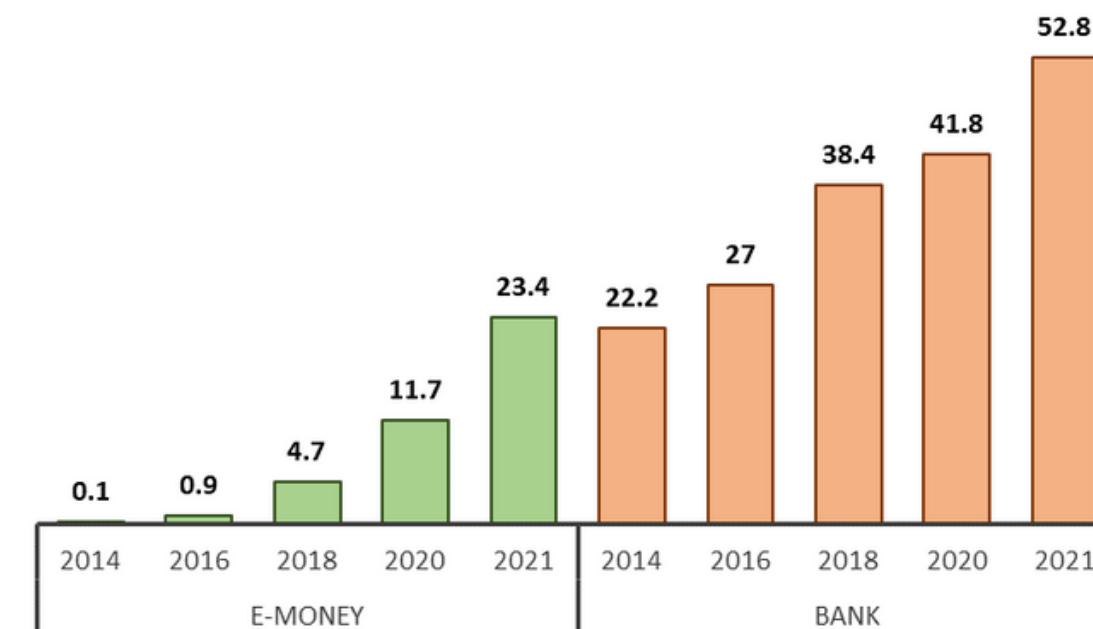
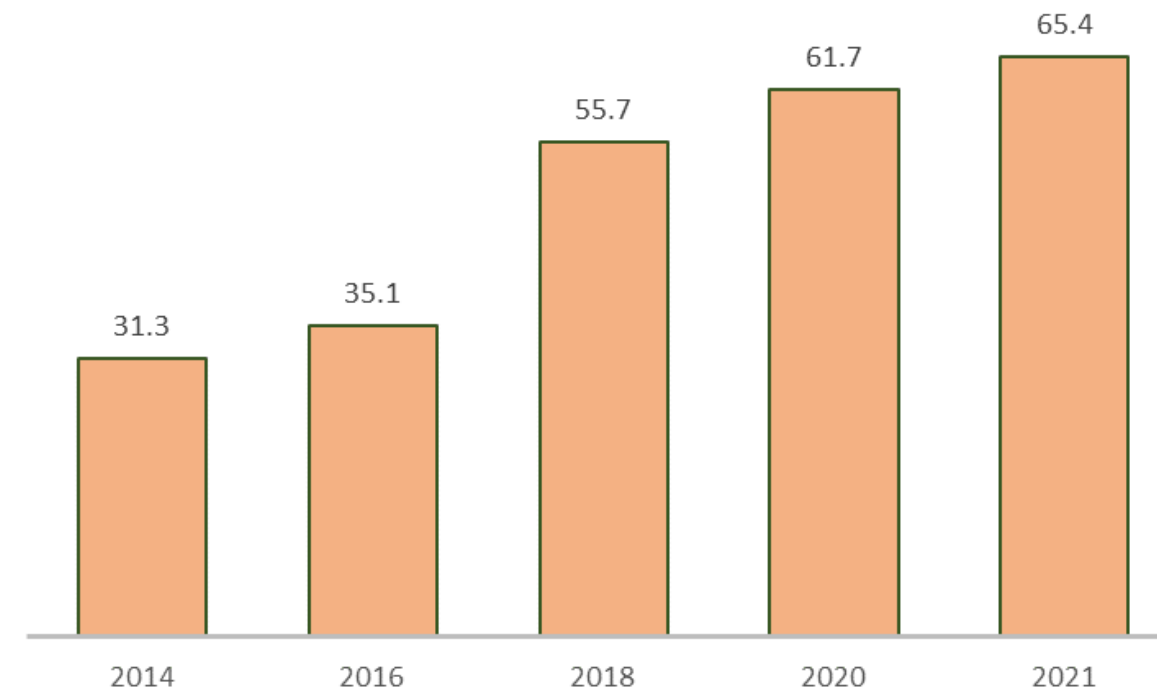


CBDC for financial inclusion



- The level of financial inclusion in Indonesia has indeed shown a quite significant improvement from year to year.
- The innovative strides in digital technology, driven by the swift penetration of the internet, have accelerated the adoption of electronic money (24.4 million SMEs have already adopted the QR-based payment system)
- In 2023, there has been a significant 12% rise in the value of e-money transactions compared to the previous year. E-money transactions have surpassed credit card transactions since 2021.

Financial account ownership (in%)



Source: Bank of Indonesia, CMEA



CBDC for financial inclusion

There remains a substantial opportunity for advancing financial inclusion, but the issues is more structural.

- **Economic inequality**

- Disparities in financial inclusion exist among individuals residing in urban and rural areas, as well as among different income levels.
- Uneven internet access. 12 thousand villages facing internet coverage gaps or blank spots

- **Smartphone ownership**

- No more than 50% of the unbanked population own a smartphone

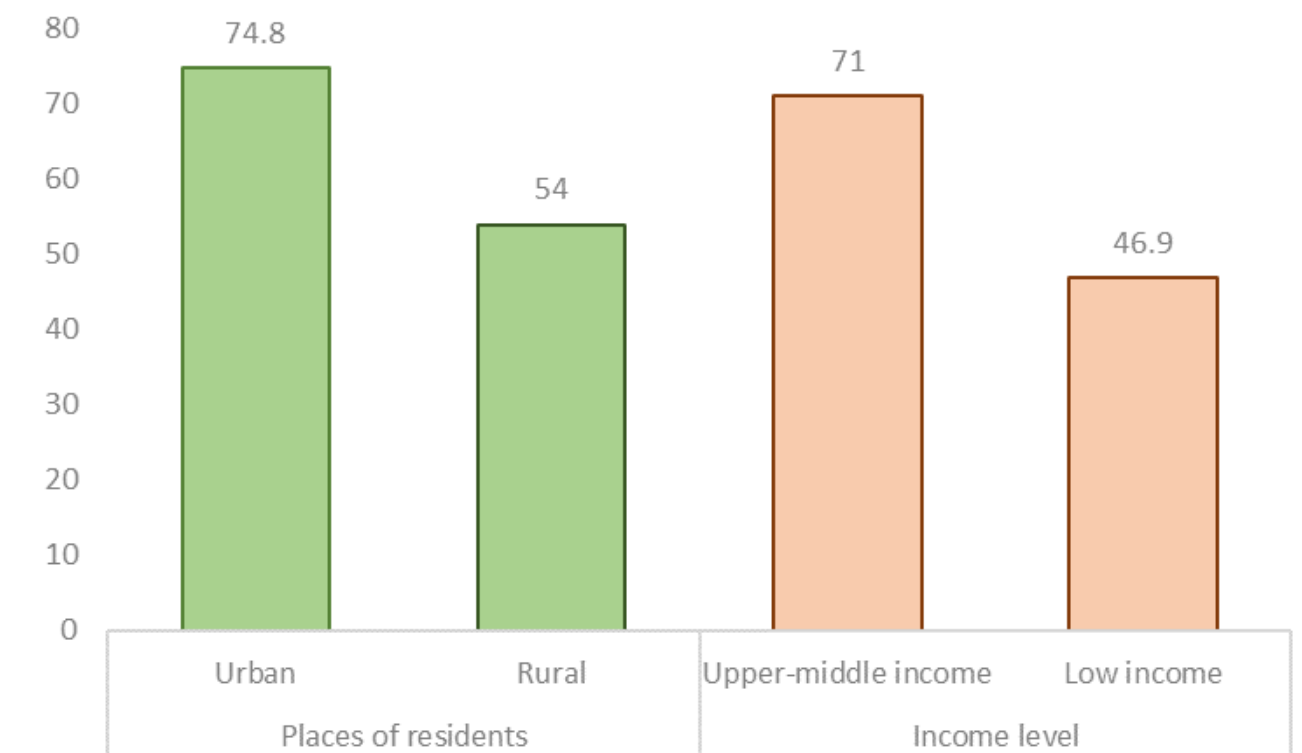
- **National id card**

- Ten percent of the unbanked population do not have a national id card

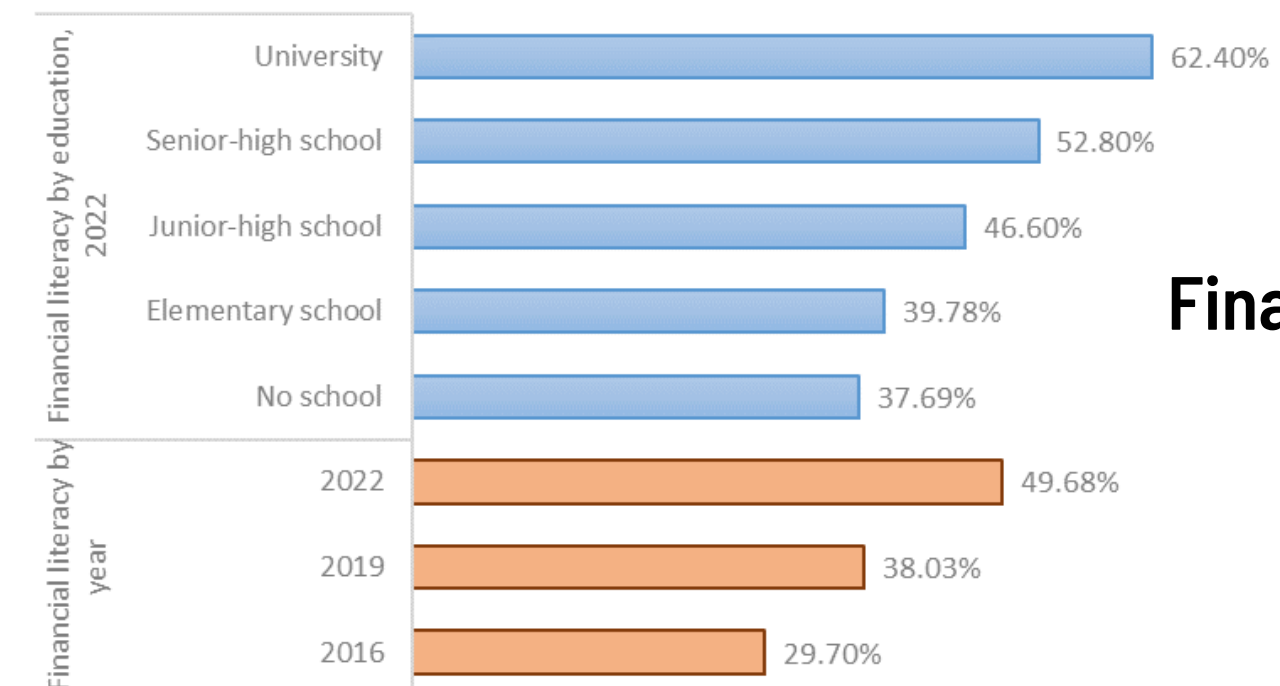
- **Financial literacy**

- The low level of financial literacy often leaves individuals unaware of the advantages of financial products. It also leads individuals to use these without a clear understanding of the associated risks.

Financial account ownership (in%)



Source: Bank of Indonesia, CMEA



Source: Financial Services Authority

Financial literacy (in%)

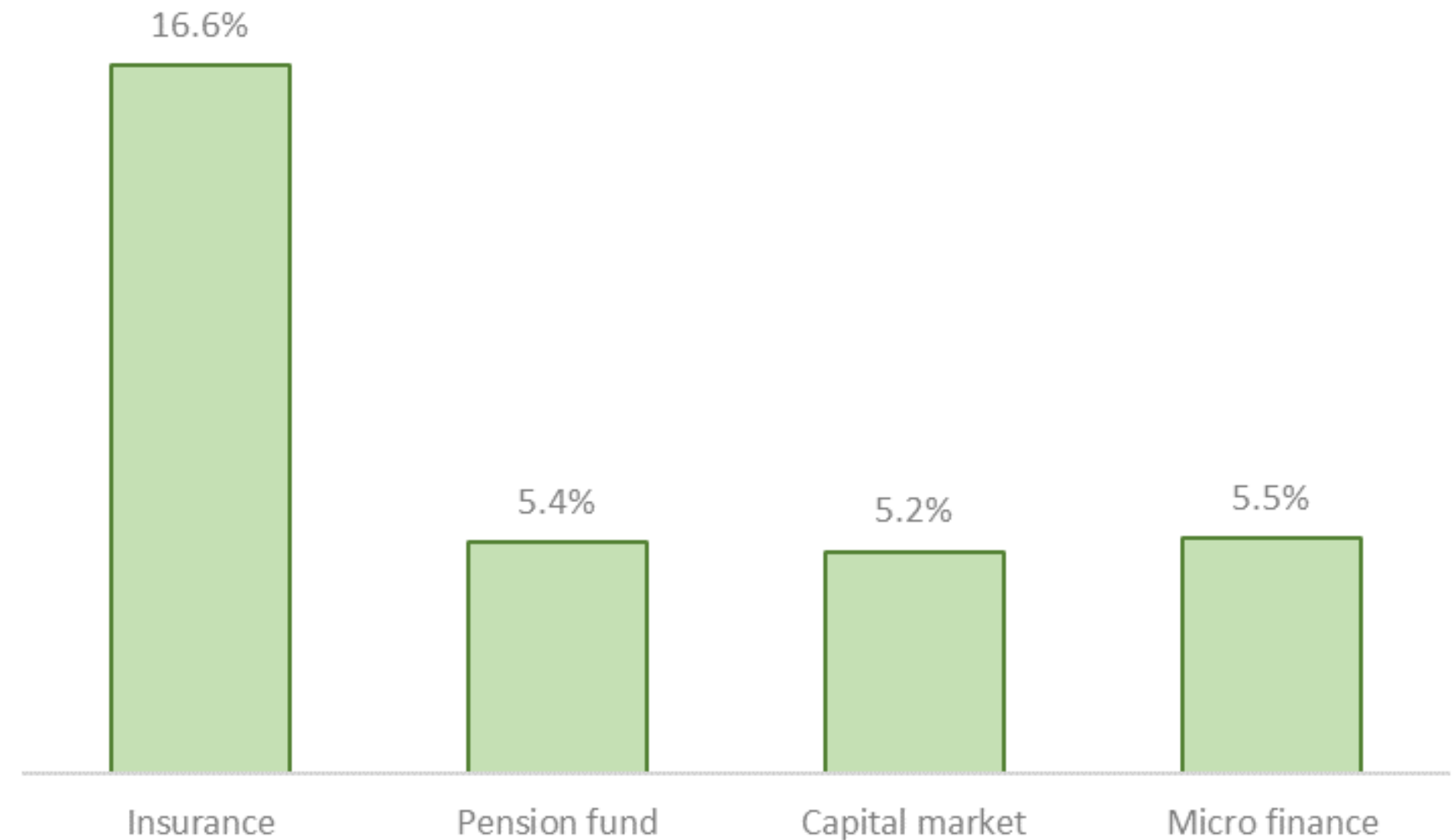


CBDC for financial inclusion



Efforts to deepen financial inclusion need to be assessed in the context of each financial products.

Financial Inclusion (in%)

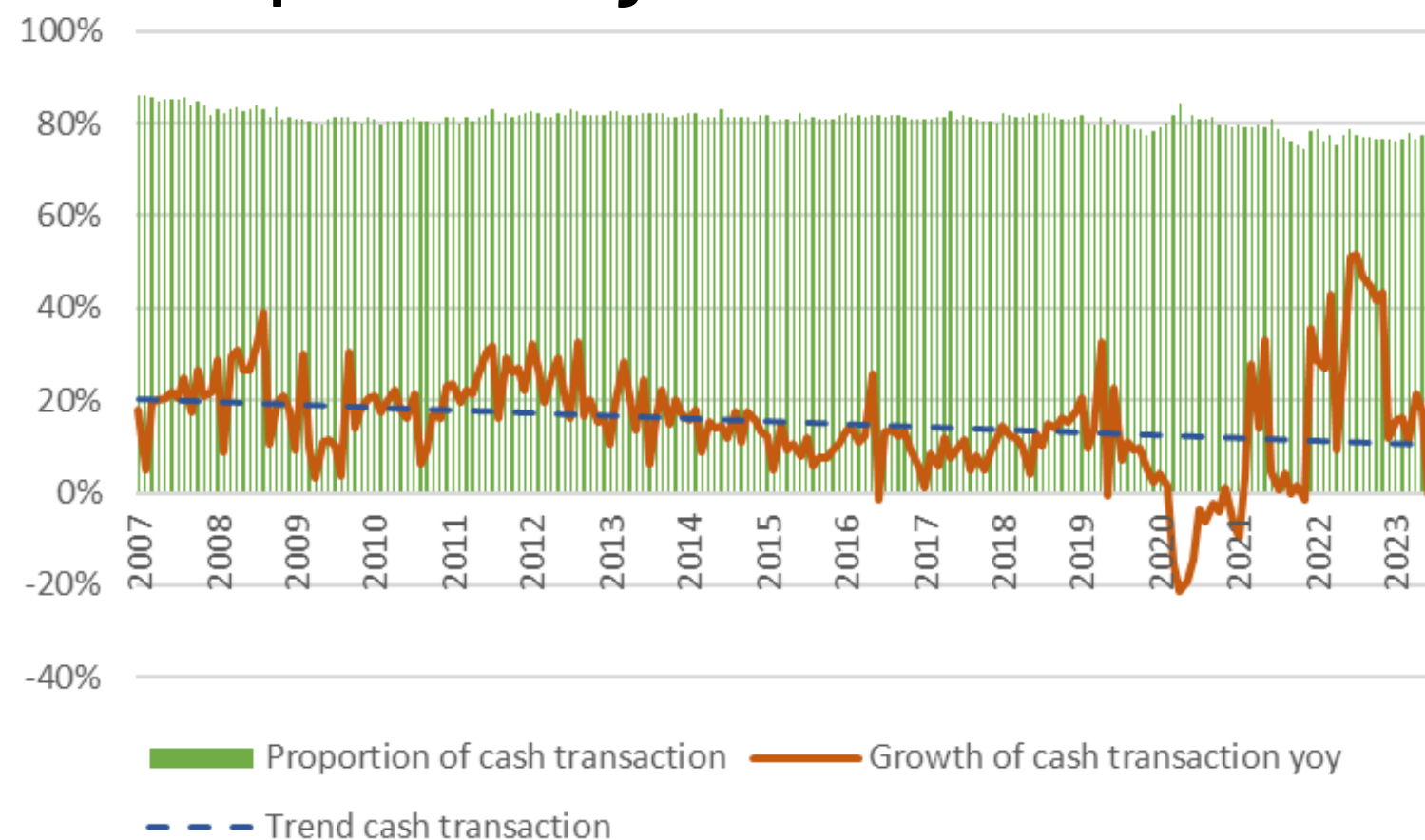


Source: Financial Services Authority (2022)



Potential benefits of CBDC

Proportion and growth of cash transaction



Source: CEIC

01. Efficiency

- Similar to RTGS for interbank settlement
- Efficiency in the necessity to print, store, and circulate physical money
- Transformation into a cashless economy needs to be taken step-by-step.

02. Innovation enablers

- Direct distribution (single-tier) for social assistance programs.
- Granular data to mitigate asymmetric information and improve alternative credit scoring

03. Cross-border transaction

- Increase efficiency due to the lack of an RTGS-like system in cross-border transactions.
- Opportunity to tackle the issues in international remittances.
- The need for shared principles and standards, interoperability, and transparency.

POTENTIAL RISKS OF CBDC

Financial disintermediation



- Non-interest-bearing CBDC also poses risks of disintermediation.
- Substitution of CBDC with savings

Exchange rate volatility



- The absence of CBDC in domestic markets might still have the risks of ER volatility and capital outflow.
- Risks are higher in developing countries

Security



- A lower level of security for a centralized ledger.
- Several cases of cyberattacks in the Indonesian government server, although none in the Bank of Indonesia.
- Impact on public trusts.

Geopolitical aspect



- CBDC may disrupt the established global financial architecture
- Strategy for de-risking -> CBDC could change the configuration of reserve currencies.



Policy Recommendation

CBDC presents significant opportunities in terms of efficiency, cross-border transaction, and promoting innovation

Limiting the focus of CBDC to countering cryptocurrencies is overly narrow. There are alternative (perhaps more efficient) policies available.

Collaborative policies are essential to complement CBDC in promoting financial inclusion by addressing structural issues and serving as a tool to foster innovation.

