CHICAGO

PAYMENTS SYMPOSIUM

CHICAGO

PAYMENTS SYMPOSIUM

Panel:

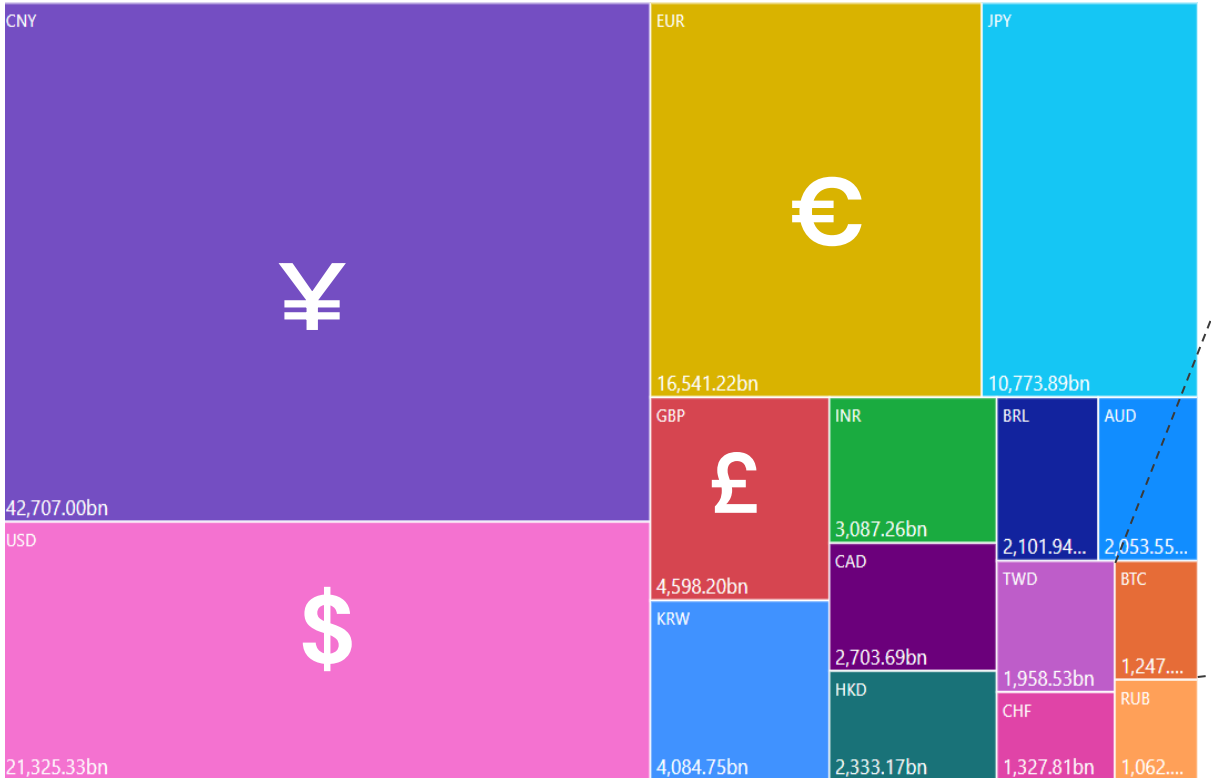
Digital Currency, Digital Assets and Settlement

Digital Currency, Digital Assets and Settlement

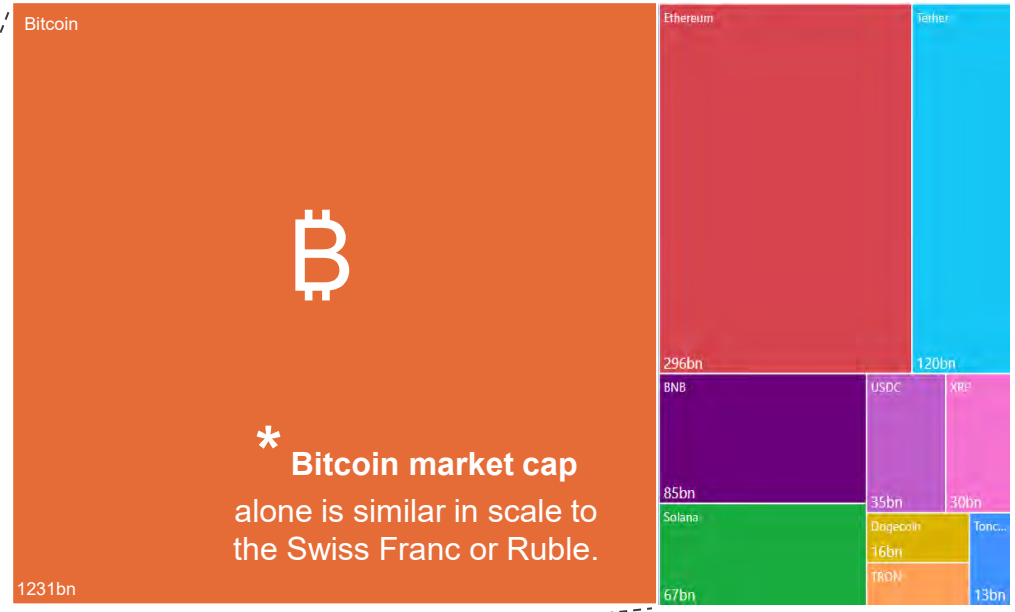
Chicago Payments Symposium 2024

Level set: Crypto valuations now rival top global fiat currencies

Top 15 Currencies by Market Cap
(in billions of US dollars)



Top 10 Cryptocurrencies by Market Cap
(in billions of US dollars; includes crypto, stablecoins, and CBDCs)



* **Bitcoin market cap** alone is similar in scale to the Swiss Franc or Ruble.

Some digital assets are better suited to act as “money” than others

	1 Cryptocurrency	2 Stablecoins	3 CBDCs	4 Non-fungible Tokens (NFT)	5 Security Tokens
	A digital store of value or medium of exchange stored on the blockchain and verified cryptographically	Designed to offer **price stability** or a store of value by **pegging its price to another, more stable asset**	CBDC is a **digital token representing a nation’s fiat currency** and acting as a claim against its central bank.	NFT’s are a specific type of a cryptocurrency token that **represent ownership of a unique digital asset**.	Tokens issued on distributed ledger technology that meets the definition of a security or financial instrument.
Properties of Sound Money			***Centralized***		
Durability	✓	✓	✓	✓	✓
Portability	✓	✓	✓	✓	✓
Divisibility	✓	✓	✓	✓	
Uniformity	✓	✓	✓		✓
Limited supply	✓*	✓	✓	✓	✓
Acceptability		*Limited, but growing*			
(unofficially) **Stability**		✓	✓		

* Different coins have different mechanisms to control supply, ex. Bitcoin has a maximum supply of 21M (not yet all minted). Ethereum has no maximum supply, but limits supply by burning some ETH during each transaction.

Digital asset payments can have advantages over traditional fiat rails

Faster, Cheaper Transactions

Bypass market intermediaries and **reduce the costs and time of each transaction,** allowing for a more streamlined, 24/7/365, cost-efficient method of transferring value.

More Liquidity

Tokenized assets can **enable fractional ownership of a token's underlying asset** and make it easily for customers to buy, sell and trade. Digital asset payments enable these transactions.

Transparency and Provability

Because crypto tokens live on the blockchain, users can **easily trace their provenance and transaction history** in a way that is verifiable and immutable.

Programmability

Crypto tokens can be transferred or altered automatically according to **terms programmed in smart contracts,** enabling automated execution of complex transactions without intervention.

Future Proof

Establishing digital asset payments acceptance can **unlock new use cases, customer experiences, and opportunities** for businesses as the web3 ecosystem evolves.

Financial Services is being rebuilt on blockchain

In spite of recent market turbulence and regulatory pressure, Digital Asset adoption is moving from the fringes of finance to the largest institutions in the world

Key Trends

Regulatory Evolution

While still fragmented the regulatory landscape across the globe is becoming more clear paving a path for traditional financial institutions

Crypto & AI

Collaboration between AI technologies and cryptocurrencies is expected to impact data verification processes for KYC / AML processes

Emergence of DeFi

Use of DeFi continues to increase and improve Traditional FIs with more inclusive and user friendly solutions and accounting for ~5.2% of the overall Digital Asset market

Emerging Payments

Digital Assets and DLT are eliminating intermediaries and reduce transaction fees, while enabling seamless and efficient cross border payments

Increased stablecoin adoption

USD stablecoin supply hit $147B while 93% of Central Banks have expressed interest in developing a CBDC

Tokenization

Tokenization is already streamlining FI activities by converting RWA into digital tokens allowing for faster and more efficient transactions

Embedded Finance

The Global Embedded finance market is projected to grow at a CAGR of 35.5% from 2023 to 2027, driven from the increased adoption of digital payments which includes blockchain

2022

2023

2024

MiCA Regulation: Expected to enter into force in early 2023: MiCA is intended to close gaps in existing EU financial services legislation by establishing a harmonized set of rules for crypto assets and related activities and services.

FSMA 2023: received royal assent in June 2023, providing UK authorities the power to specify crypto asset activities and to deliver a digital settlement regulatory regime

Bitcoin ETFs receive SEC approval: 11 ETFs were approved, marking a major step toward institutionalization

Citi announces the launch of Citi Token Services, developing new digital asset capabilities for it's institutional clients

Proposal for expansion of Fedwire hours to 22x7, which would increase efficiency and stability for payments, but notably not 24x7

USDT has reached 350 million users with 24% increase in last 24 months, signifying increased adoption of stablecoins globally, but will be delisted in EU by end of 24

FTX collapses and files for bankruptcy: approximately 130 additional entities are part of the proceedings

Closure of traditional banks Silvegate, SVB, and Signature: The FDIC forced their closure after massive withdrawals in their deposits

JPM launches of the Tokenized Collateral Network (TCN) application utilizing the blockchain to enable the transfer of tokenized ownership interests in MMF shares for the first time

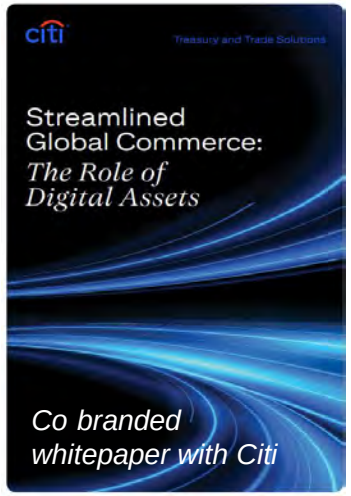
SFC of Hong Kong accepts first crypto ETF: Once approved, the ETF could go live on the exchange by mid 2024

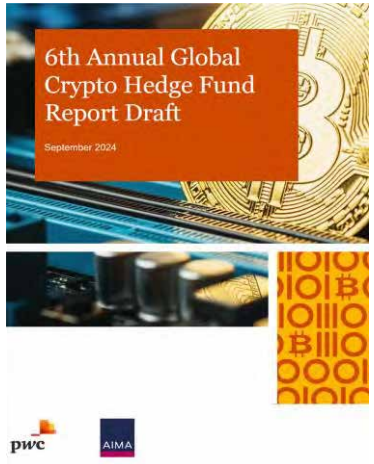
Robinhood acquires Bitstamp, strengthening institutional crypto presence and global presence

Paypal and EY settle first corporate payment via PYUSD, signifying a significant advancement in enabling instant corporate payments

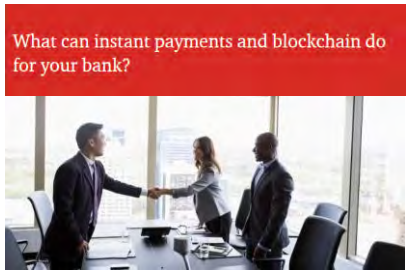
We routinely publish clear, engaging thought leadership reports

Branded and Co-branded Whitepapers and Reports





Upcoming October 2024 (2023 Hedge Fund Report)



Media

Citi Digital Dispatch with **Ryan Rugg**, Head of Digital Assets for Treasury and Trade Solutions

Guest Speaker at Citi's 11th Annual Digital Money Symposium (June 2024), "Tokenization today: what is real and happening now?"

Speaker at Enterprise Digital Asset Summit (EDAS) 2024 on Institutional Accounting and Financial Controls

CHICAGO

PAYMENTS SYMPOSIUM

Panel:

Digital Currency, Digital Assets and Settlement

Digital Currency, Digital Assets and Settlement

Chicago Payments Symposium 2024

Status quo in the Eurosystem

The following slides present the current state of discussion and do not contain finally binding Eurosystem decisions.

Central Bank Digital Currency

liability of a central bank

general public		limited access	
cash	**retail CDBC**, e.g. **digital euro**: supplement to cash and deposits as a *new form* of central bank money	**central bank deposits**	**wholesale CDBC**: new technology wholesale central bank money settlement (*technological evolution*)
	Since 2021: „**Digital Euro“ Project**		Since 2023: Exploration on **new technologies for wholesale central bank money settlement**

Source: Eurosystem
10 October 2024

The case for a digital euro in an increasingly digitalized world

Facilitate

- A digital euro would integrate **central bank money** and the latest **payment trends**
- It would be a form of digital cash **universally accepted** in the euro area, complementing current means of payment

Adapt

- **An additional payment choice** for euro area citizens, complementing cash
- **Legal tender status**, ensuring pan-European reach and acceptance
- **Always an available option** for euro area citizens in all payment scenarios

Strengthen

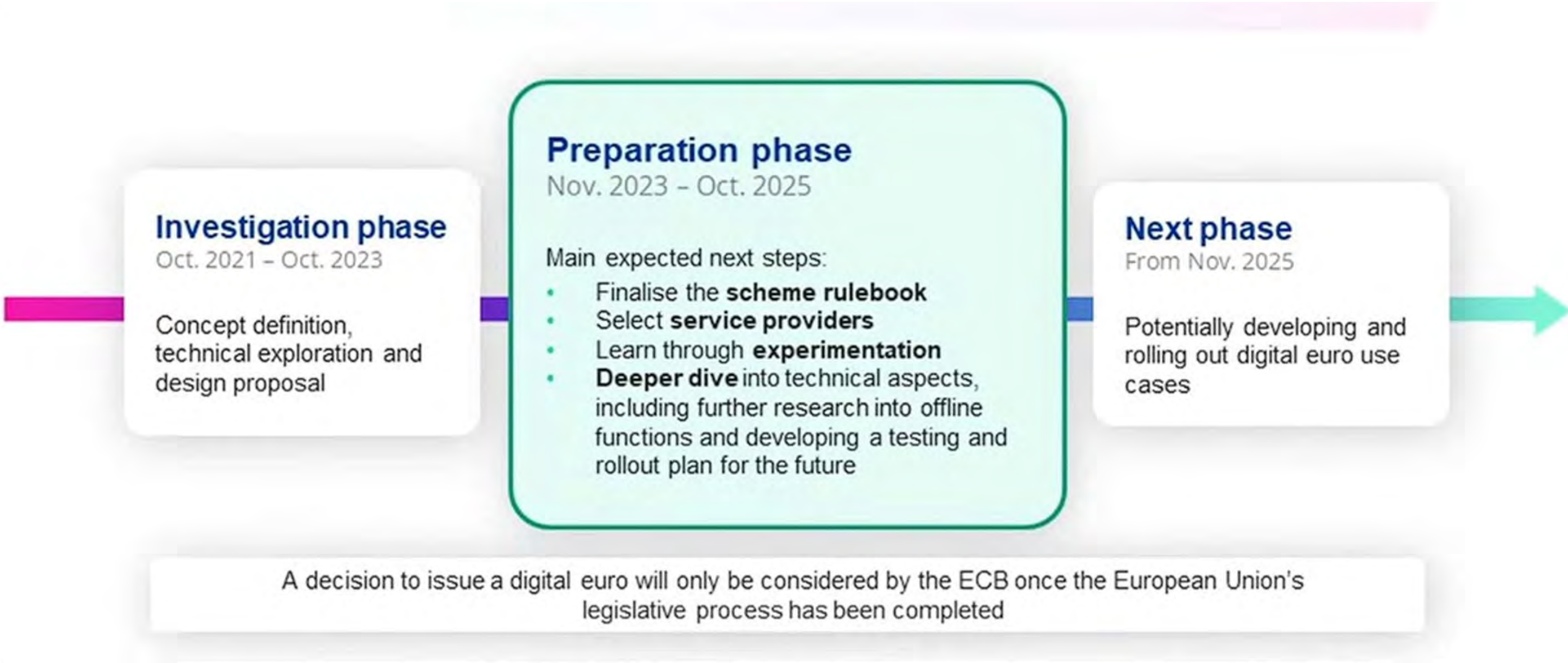
- Preserving **Europe's strategic autonomy** and monetary sovereignty
- Reducing our **dependence on non-European payment service providers**
- Fostering **innovation** and **competition** in the European payments sector

Source: Eurosystem
10 October 2024

Focus on the fundamentals: Key design choices

Source: Eurosystem
10 October 2024

Preparing our currency for the future



Source: Eurosystem
10 October 2024

Eurosystem`s exploratory work on new technologies for wholesale settlement of transactions in central bank money

Eurosystem is investigating **how central bank money settlement in euro could take place in the presence of new technologies** such as Distributed Ledger Technologies (DLT).
Dedicated market contact group set up to continue dialogue with the market.

Objectives

(i) consolidate and **further develop the ongoing work** of Eurosystem central banks in this area,

(ii) gain insight into how different solutions could **facilitate interaction** between TARGET services and DLT platforms, and

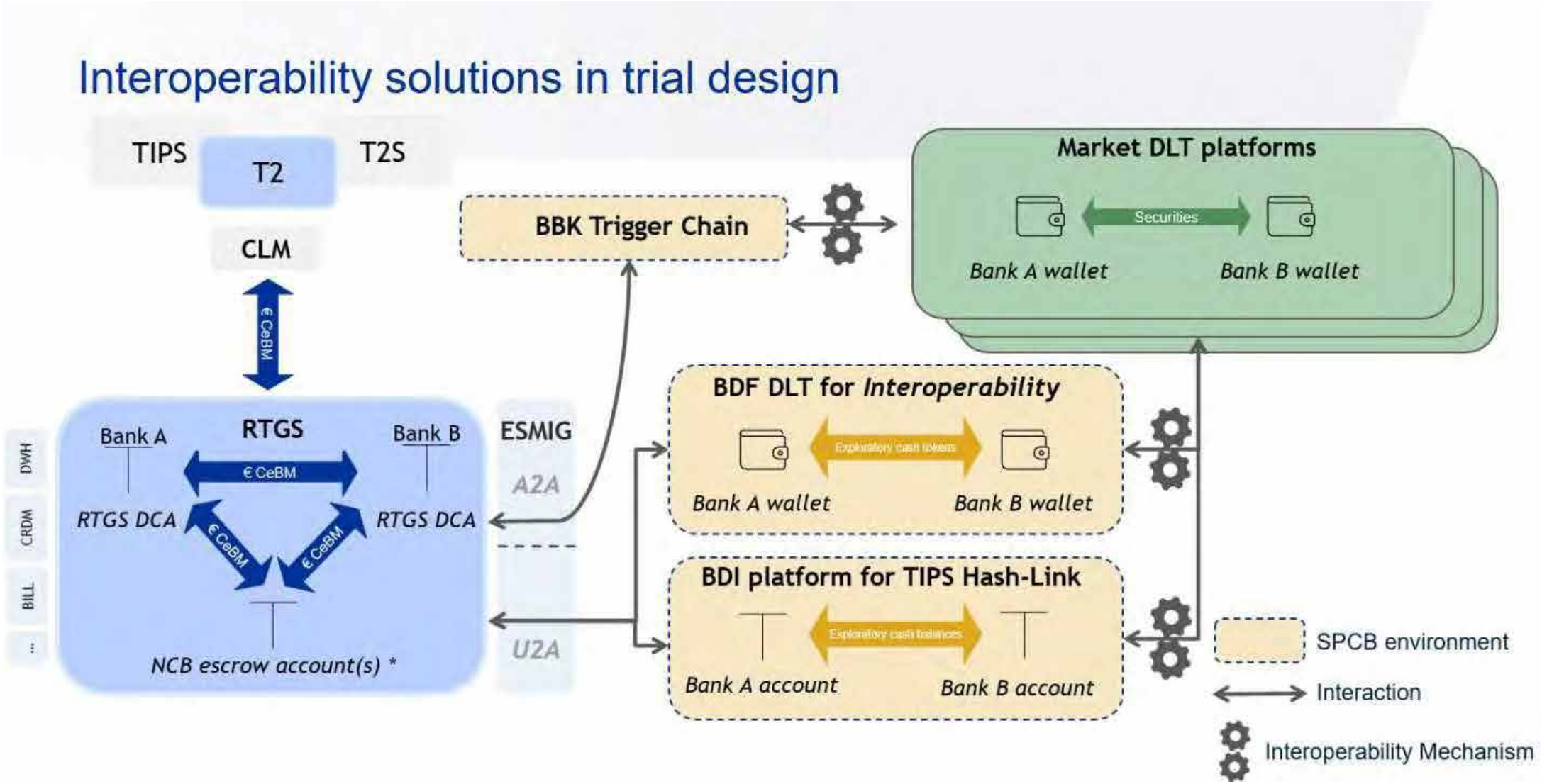
(iii) meet **market demand** for central bank money settlement during their own pilots under **DLT Pilot Regime** for example

The exploratory work is **part of the Eurosystem's broader efforts** to:

- contribute to digital innovation in payments and securities settlement
- ensure central bank money to remain monetary anchor supporting stability, integration and efficiency of the European financial system

Source: Eurosystem
10 October 2024

Solutions in scope for exploratory work



Source: Eurosystem
10 October 2024

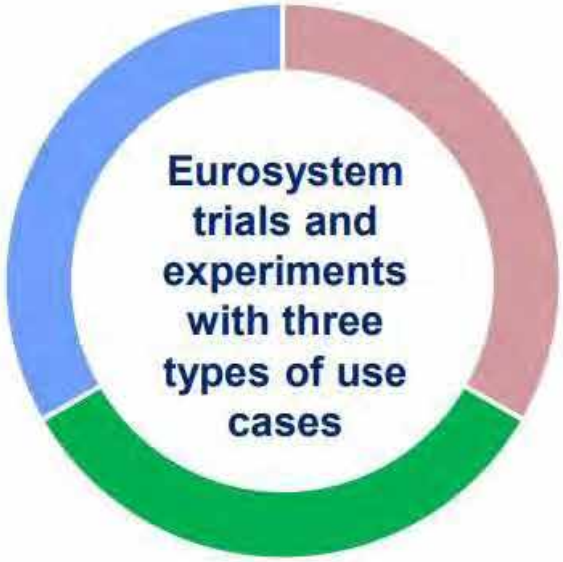
Proposed trials and experiments at a glance

Domestic payments use cases within the euro area

(experiments = mock settlement)

- ✓ *E.g. automation of margin calls*
- ✓ *E.g. tokenised deposits / deposit tokens transfers*
- ✓ *E.g. automation of interbank settlement and reconciliation*

***Who**: commercial banks, CCPs*



Securities related use cases

(trials = real settlement + experiments = mock settlement)

- ✓ *Issuance and distribution of securities natively on DLT (e.g. Commercial paper, bonds, tokenised funds)*
- ✓ *Secondary market transactions (1st exp already completed !)*
- ✓ *Securities lifecycle management: coupon payment, asset servicing, redemption*
- ✓ *Repo*

***Who:** commercial banks, CSDs, CCPs, investors, issuers, trading venues*

International use cases with other central banks

(experiments = mock settlement)

- ✓ PvP FX settlement

Source: Eurosystem
10 October 2024

And in parallel with trials and experiments

Continued research into DLT and new technologies

- ✓ Impact of DLT, analysis of other solutions for CeBM settlement (DLT-Integration and DLT-Distribution)

Monitoring of ongoing initiatives and stakeholder engagement

- ✓ Dedicated Eurosystem Market Contact Group for new technologies and wholesale settlement: 60+ European and international market stakeholders
- ✓ Monitoring of other central bank / BIS initiatives

Eurosystem participation in other BIS-IH initiatives

- ✓ Agorá
- ✓ Rialto (via Eurosystem centre)

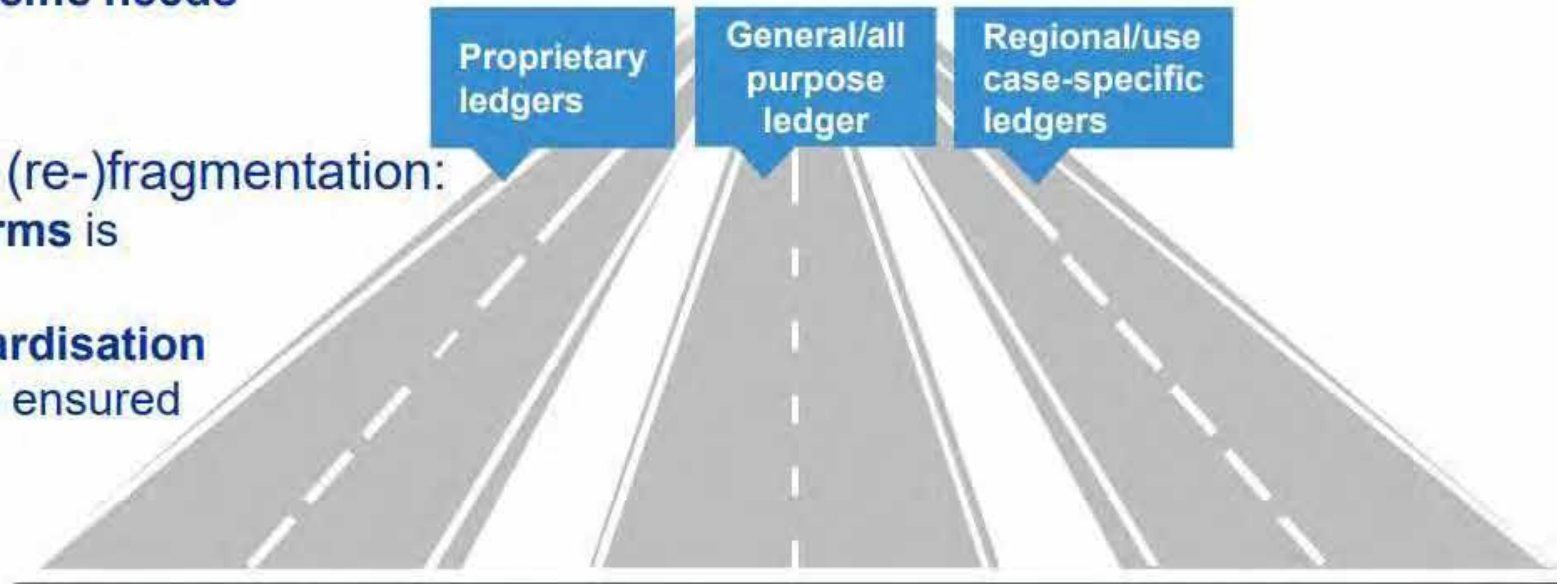
Source: Eurosystem
10 October 2024

Looking ahead: a single- or multi-ledger future?

- **Uncertainty about future landscape** for wholesale payments and securities settlement
- **Single DLT platform** could be **useful** to leverage **advantages of new technologies** and **avoid fragmentation**
- Challenge compared to multiple ledgers:
  - more **difficult to realise** and **keep up to date**
  - less likely to address **specific needs**
  - **time to market**

In any scenario, need to avoid (re-)fragmentation:

- **Interoperability of DLT platforms** is key requirement
- **Common protocol** and **standardisation of concepts and data** must be ensured



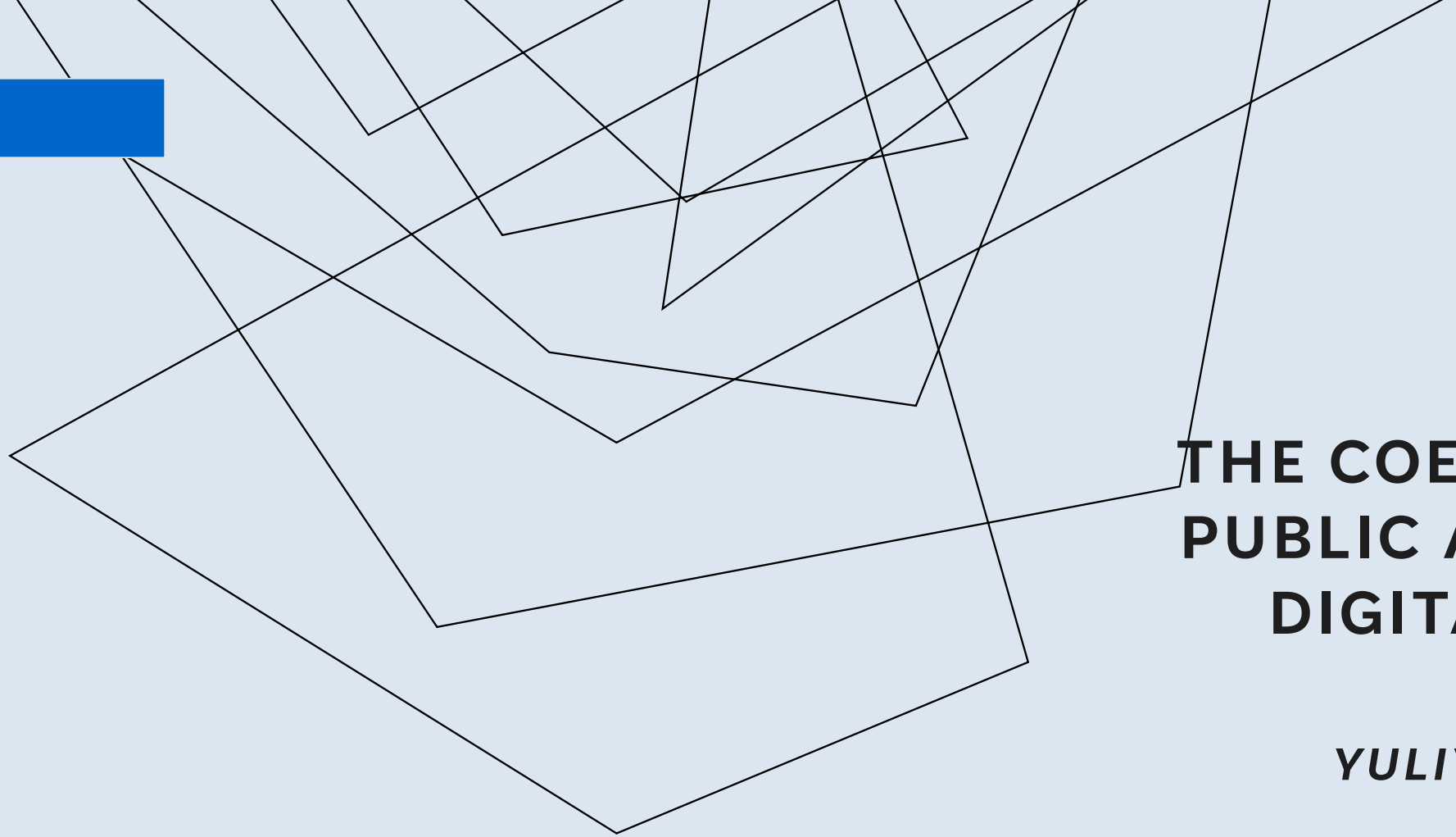
Source: Eurosystem
10 October 2024

CHICAGO

PAYMENTS SYMPOSIUM

Panel:

Digital Currency, Digital Assets and Settlement



THE COEXISTENCE OF PUBLIC AND PRIVATE DIGITAL MONEY

YULIYA GUSEVA

PAYMENTS SYMPOSIUM

OCTOBER 2024

Rutgers Center for Corporate Law and Governance
Blockchain and Fintech Program

THE COMPLEX CONSTRUCT OF MONEY: PUBLIC AND PRIVATE

Money involves both public and private elements.

Significant portions originate from private sector entities like banks.

PUBLIC-PRIVATE ECONOMIC PARTNERSHIP

This partnership is deeply embedded in U.S. economic fabric.

Federal law specifies which firms issue the safest private money.

The Federal Reserve (Fed) manages the monetary system through various tools.

Government mints coins and prints fiat money.

Physical money is shrinking, replaced by credit-based money.

TRADITIONALLY FAVORING BANKS...

Banks bundle lending, payments, and deposit-taking.

Protected by deposit insurance and a special resolution regime.

Access the Fed's clearing and settlement system (“master accounts”).

Banks supported by the Federal Reserve and the FDIC.

Regulators bolster trust, making banks close to public money.

Value of money based on the power of the issuing authority.

SOLID BUT IMPERFECT

- Financial crises and bank failures highlight systemic risks and interdependencies.
- Millions of unbanked and underbanked residents in the U.S.
- High costs and slow speeds in payment transfers.
- Cross-border transfers are particularly costly and slow.
- Failure to enable real-time payments across the board.

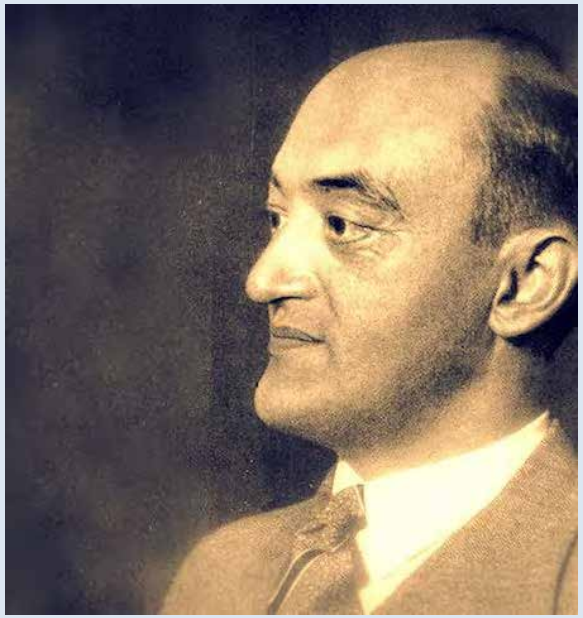
Can innovation help?

PRIVATE AND PUBLIC: RISK V. INNOVATION

	Low Innovation	High Innovation
Low Risk	Government [Banks?]	
High Risk		Private Money [Banks?]

BANKS AS INNOVATORS

- Large firms should innovate to survive (Schumpeter's intuition)
- U.S. banking system favors large banks, reducing competition and incentives to innovate
- Heavy regulation may limit the ability to innovate
- Christensen's innovators' dilemma



THE NEWCOMERS

Money market funds (MMFs).

E-money payment platforms.

Stablecoins: digital private money backed by other assets to maintain stable value.

COMBINATIONS

- Visa and Mastercard integrated stablecoins into payment networks.
- PayPal launched PayPal USD backed by US dollar deposits.
- Faster processing and settlement of payments, especially cross-border.
- Stable value combined with technology.

HAYEK'S COMMODITY RESERVE CURRENCY PROPOSAL (1943)

Private stablecoins are inspired by this idea.

Designed as global payment methods backed by currencies and/or commodities.

Concept:

- Private money can be collateralized by commodities or pegged to fiat currencies.

RISKS?

- Threats to monetary sovereignty and financial stability.
- Risk of currency substitution.
- Potential to undermine nation states' monetary policies.
- Threaten to create a parallel economy.
- Concerns over money laundering and terrorist financing.

THE PUBLIC SIDE: CBDCS, GOVERNMENT, INNOVATION

1. Governments are always a suboptimal source of innovation.
2. Face resource constraints (FedNow).
3. Technological innovation is often driven by entrepreneurs.
4. Slow because of the need to get it right (typically) on a first try.

DESIGN ISSUES?

1. Variations in access, anonymity, availability, and interest-bearing features.
2. Retail vs. wholesale CBDCs.
3. Possible issuance on public ledgers, permissioned ledgers, or centralized ledgers or with other technologies.
4. Trade-offs between the right to privacy and AML/CFT laws.

   (The May 2024 House Bill)
5. Issues of security, resiliency, and financial stability (Sand Dollar).

RISKS...

1. Need for proper interoperability among CBDCs.
2. Benefits may be speculative without large-scale adoption by businesses and consumers (China, India).
3. Success depends on functionality and superior performance.
4. Unclear legal mandates to issue CBDCs (U.S.).

PRIVATE AND PUBLIC: WHO INNOVATES AND WHO IS “RISKLESS”?

	Low Innovation	High Innovation
Low Risk	Government and Banks	
High Risk		Other Private Money

COEXISTENCE OF PUBLIC AND PRIVATE DIGITAL MONEY

- Public money provides stability and trust
- Private money offers innovation and diversity of solutions
- Better financial inclusion for underserved regions
- Interoperability: APIs, smart contracts, and standardized protocols for seamless conversion
- Synergy between private money and public money (stablecoins, banks, CBDCs, etc.)
- Preserving the role of USD as a reserve currency and main currency for international transactions

Thank You!

Questions?