

Central Bank Digital Currency (CBDC): The Next Payment Frontier?

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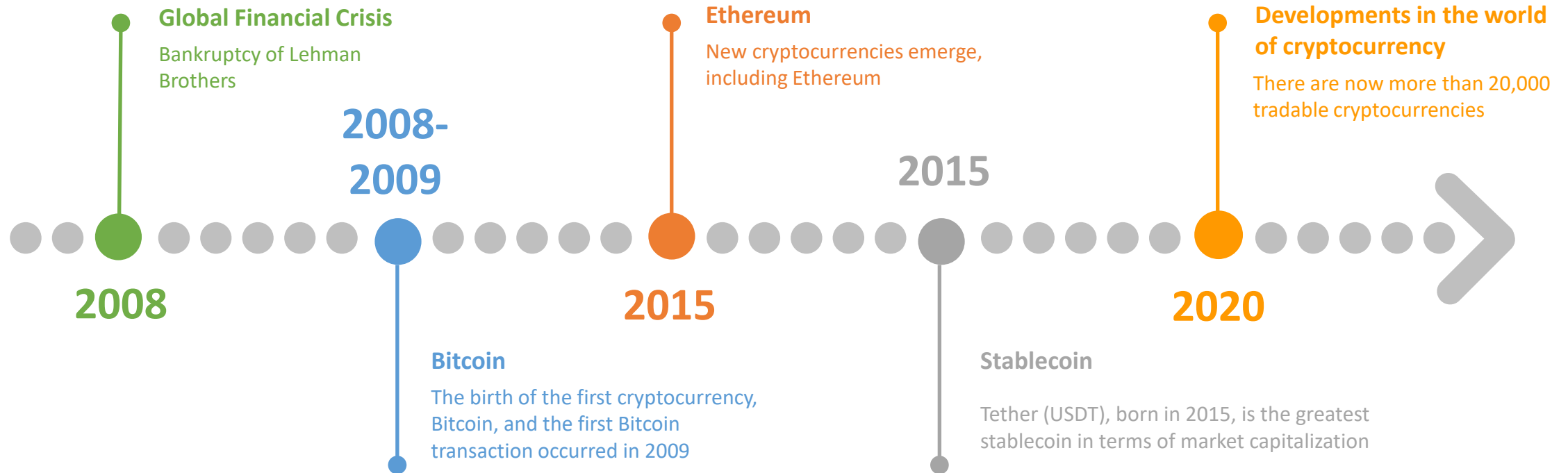
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Overview of the Sharing (Part I)

- **Why CBDC?**
- **Types of CBDC**
- **Technology Readiness**
- **Security is a primary attribute for a CBDC (Dr John Yuen)**

Rise of Cryptocurrencies

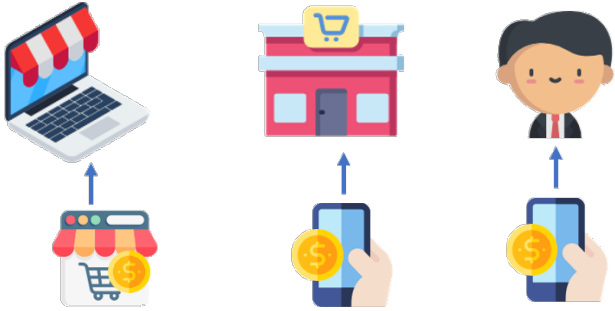


We witnessed the “success” of cryptocurrencies, the growing popularity of new payment systems, and the surge of decentralized finance.

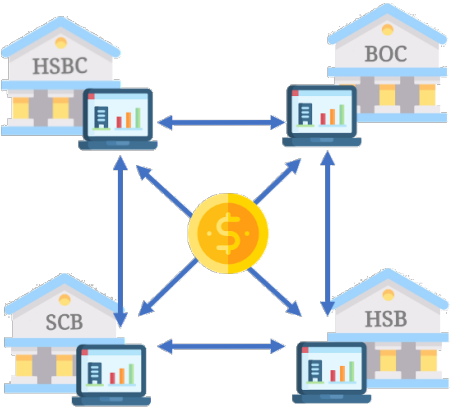
Why Central Bank Digital Currency?

- Using cryptocurrencies issued by private sectors are risky
- Potential benefits of CBDC
 - A direct response to the challenges posted by private cryptocurrencies
 - Instant payment and faster settlement
 - Lower transaction cost and cost-effective cross border payments
 - Financial inclusion
 - Advanced conditional payment
- Foster innovation and support new business model

Types of CBDC



Retail CBDC



Wholesale CBDC



Cross-Border Payment

Potential Impacts of Different Types of CBDC

Retail, wholesale and international payments using CBDC would enable more diversified payment systems and greater autonomy for the central bank.

1. Retail CBDC Replace Cash

- CBDC facilitates P2P payments.
- Compete with cryptocurrencies.

2. Improve the Functioning of Wholesale Payment Systems

- Current infrastructure is secure and reliable, but expensive from the point of view of collateral consumption.
- Distributed ledger technology (DLT) can reduce the collateral needs, increase efficiency and minimize cost.

3. Increase Efficiency of International Payments

- Current cross-border transactions are costly and time-consuming, all transactions are through correspondent banks to handle transactions conducted involving foreign counterparts.
- CBDC eliminates the layers of correspondent banks, enables real-time cross border transactions, and reduces the overall transaction cost.

Models of CBDC

- Centralised?
- Blockchain-Based?

Application Layer	Core Layer	Network Layer	Data Layer	Physical Layer
Wallet Credentials	Privacy-Preserving Technologies Smart Contract Consensus State Channel Side Channel	Gossip P2P Protocols Access Control PKI	Hash Functions Merkle Tree Signature Verification	TPM TEE

Distributed Ledger Technology

Technology concerns

- **Performance and Scalability**

The retail CBDC needs to support significantly high transaction throughput, while the functionality and efficiency of the platform could be maintained

- **Security**

CBDC design requires long-term security, to ensure the transaction data and records can be securely shared and stored. The system security allows the platform for recovering from attacks and for evolving protection mechanisms in response to technological advances

- **Privacy**

The visibility may deter certain users from choosing to make payments using CBDC as many may be uncomfortable with payments being monitored by a single source

The future?

- CBDC or Improvement over existing payment systems?
- Co-existence and CBDC plays a complementary role
 - Promote the development of DLT-based applications
 - CBDC can work outside the banking system and help financial inclusion
 - “Competition” to banks
 - Cross-border payments

Thank you!