

# The future of digital retail payments in Europe: A role for central bank issued crypto cash?

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# Overview

- Introduction
- Literature Review
- Role and Evolution of Money
- Retail Payment developments in Europe
- Rationale for Euro cryptocash
- Design Suggestions
- Considerations
- What CBCC should not be
- Recommendation

# Introduction (1/2)

## ***Era of profound paradigm shift***

Technological innovation/digital economy/decentralization and impacts on financial markets, infrastructures and processes

Old world: old money/Financial Market Infrastructures (FMIs) – regulated, relatively secure, not always efficient

New world: new money (e.g. Bitcoin)/new systems based on Distributed Ledger Technology (DLT) – unregulated/experimental/ephemeral, but also faster, sometimes cheaper, potentially more secure

The ability to transfer funds in a legally sound, safe and efficient way forms the centrepiece the world's global economy.

DLT will fundamentally transform operations and market structure in the financial industry.

# Introduction (2/2)

- Wave # 1: Bitcoin
- Wave # 2: Distributed Ledger Technology
- Wave # 3: Central Bank Crypto Currency (CBCC)

## Backdrop:

- De-risking in global payments
- From dollarization to Bitcoinisation
- Competition for fiat currencies?
- Some live examples of fiat cryptocash

# Literature

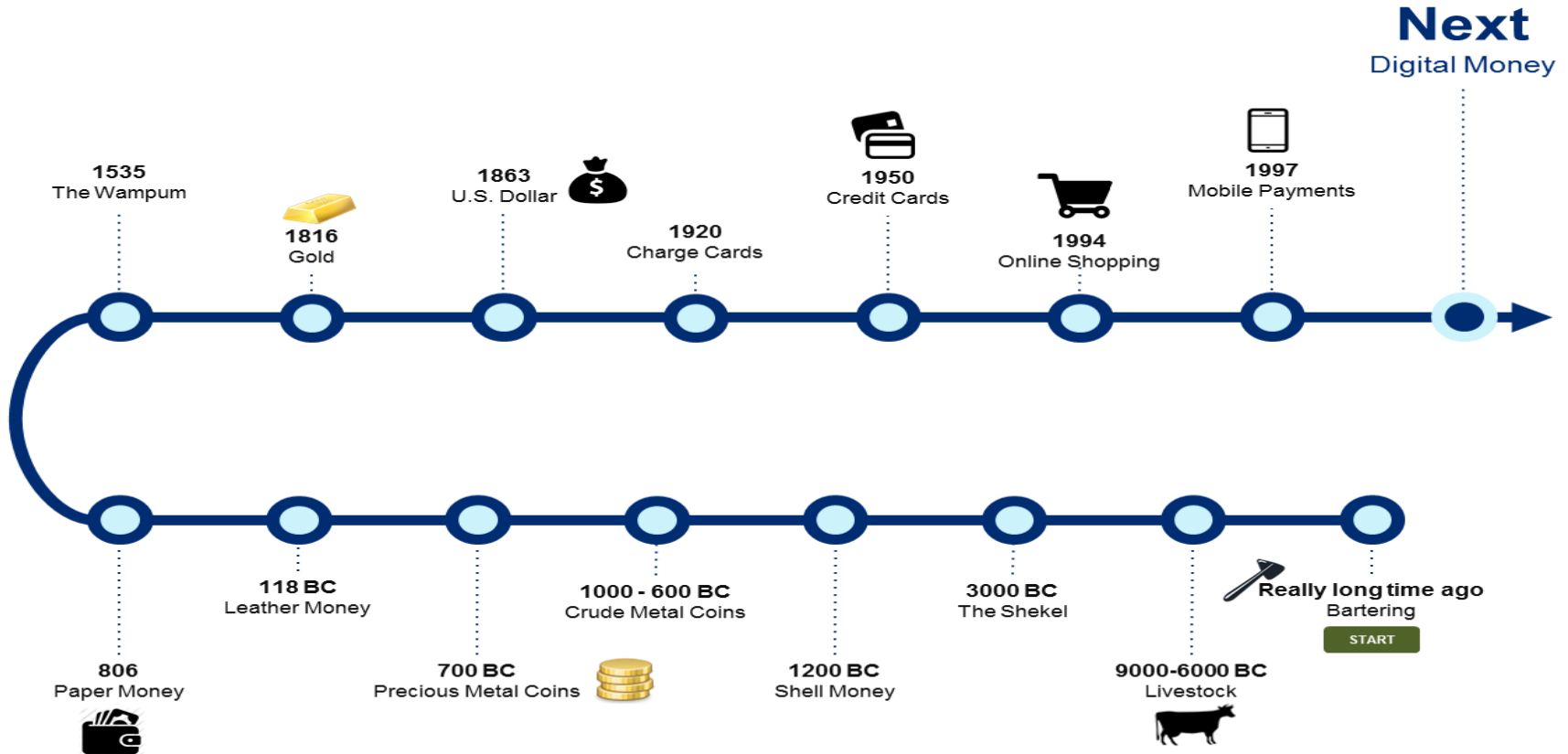
## Cash studies on cost, usage, behaviour

- Schmiedel, Kostova, Ruttenberg (2012)
- EC Merchant Indifference Test (2015)
- Van Hove (2015)
- Bagnall et al (2014)
- Kahn (2015); McAndrews (2017)

## CBCB/CB digital currency

- Bech, Garratt (2017)
- Riksbank (2017)
- Experiments: Project Jasper, Stella, FedCoin, MAS Ubin (I+II), E-Krona...

# Role and Evolution of Money



# The Future of Retail Payments in Europe

## ***Different forms of money and their transactional, operational, regulatory and legal properties***

- Fiat money
- Electronic commercial bank money
- E-money
- Private cryptocurrency (e.g. Bitcoin)

## ***Payment instrument evolution***

- SEPA Credit Transfers & Direct Debits & Cards
- SEPA Instant Payments
- Trend shifts from card to account based payments

## ***Settlement Space***

- SEPA Pan-EU ACH
- Eurosystem TIPS for 2018

## ***Regulatory Environment***

- Payments Services Directive
  - Payment Services Directive 2
  - General Data Protection Regulation
  - NIS Directive
  - E-IDAS Directive
- ....and more

## ***Technology Developments***

- Application Programming Interface (API)
  - Cloud Technology
  - DLT
- ...Could this accelerate the switch from physical cash to commercial bank electronic payment solutions?

# Rationale for Euro Cryptocash (1/2)

- 3 possible future scenarios:

1) Significant acceleration of electronic payment adoption and demise of cash due to PSD2, SEPA Instant and other drivers (see Sweden, Denmark, Finland as examples): Questions around independence, risk free asset, payment system stability

2) A pronounced increase of the importance of private cryptocurrencies with the risk of crowding out fiat money of all forms: Questions around sovereignty, legal tender, trust

3) A backlash of open banking/access PSD2 related and other market developments (e.g. the rise of Alipay and WeChat): Questions around trust, increased demand for cash and CB digital retail payment solutions, financial inclusion

Flipside: if physical cash is gone and commercial banks operate on DLT without need to store balances at CB...what would that mean for the role of a CB?



# Rationale for Euro Cryptocash (2/2)

Distributed  
Eurosystem

ECB Independence

Competition and  
alternative to private  
cryptocurrencies

Efficiency

Financial  
Stability

Step towards  
x-border

Removal of  
SPF

Privacy of  
transactions

Financial  
Inclusion

A digital means for  
consumer payment  
and saving

# Design Suggestions

## CBCB key elements

- **liability of the central bank (Eurosystem)**
- **cryptocurrency form**
- **denominated in Euro**
- **Value based**
- **1:1 exchange**

**Holders**  – *restrictions imposed on* financial institutions and businesses based on central bank policy; primarily a consumer retail instrument (with limits)

**Records**  of transfers and holdings – *on the Eurosystem distributed ledger*

**Conversion**  – supported by commercial banks, subject to KYC/AML checks

**Transfer mechanism**  - *peer to peer*

**Transparency**  – *anonymity of transactions for holders; transaction value limit of EUR 250*

**Availability**  - *24/7/365 online only*

**Convertibility**  - *into cash and commercial bank deposits*

**Interest bearing**  – no

**Legal Status**  – potential to designate as legal tender

# Considerations

## Economic perspective

- **Monetary policy impact** (cash substitution, interest, seigniorage)
- **Financial stability** implications (Positive impact expected due to the balance between digital commercial bank money and digital central bank money)
- Impact on **banks business models** (bank deposits, credit provision) and market infrastructure
- **Cost-benefit analysis** for CBCC
- **Acceptance** by users

## Technical perspective

- **Maturity** not yet reached; need for further experimentation in a rapidly evolving market
- **Safety, efficiency, neutrality**

## Operational perspective

- **Role of Eurosystem** in maintaining DL, organise issuance, verification, redemption, destruction, vetting crypto wallet applications and setting security standards

## Policy perspective

- **Consumer protection**, financial education
- **Data privacy**

# What CBCC should not be

- Destroyer of commercial banking model
- Accelerator of systemic bank runs
- A monetary policy tool to pass on negative interest rates
- A corporate payment and investment solution
- An option for limitless creation of euro-crypto cash (QE on steroids)
- A means to control the population
- A facilitator for money laundering abuse
- A cyber security risk

# Recommendation

- Experiment with different technologies to test for a new form of central bank cash as a retail payment instrument for our digital future
- DLT, zero-knowledge proof, cloud are all relevant technology components that look promising
- Through experimentation identify gaps and relevant questions across technical, operational, policy related aspects
- A step on the journey to improve domestic and cross-border payments