



NEW FORMS OF DIGITAL MONEY AND POTENTIAL IMPACTS OF RETAIL CBDC ON BANKING SYSTEM LIQUIDITY CONDITIONS



At
ECB Money Market Contact Group
15th September 2021

NEW DIGITAL FORMS OF MONEY

INTENDED TO ADDRESS ADVANCED REQUIREMENTS OF MARKET PARTICIPANTS



Retail CBDC

A form of money **issued by the Central Bank (in addition to cash)**, which is **available to non-banks** (private individuals and, where applicable, companies) **for the digital payment of goods or services**.

Wholesale CBDC

A form of money **issued by the Central Bank (in addition to deposits on central bank accounts)**, which **offers new functionalities for existing business partners** of the central bank (commercial banks) (e.g. for financial market transactions).

Synthetic CBDC

Digital monetary units (“tokens”) mainly **issued by (bank-) consortia** via a **“pre-funded wholesale payment system”** at the Central Bank, which can be **transferred via a DLT system** without an intermediary (e.g. for **financial market transactions**).

Tokenised Commercial Bank Money

Digital version of commercial bank money **issued by credit institutions (in addition to the present commercial bank money on banking accounts)** as digital monetary units ("tokens") on a DLT system, **based on uniform standards and legal construct of the commercial banking sector**.

Trigger Solutions

Technical bridge between DLT and conventional (typically instant settlement) payment system, from which payment instructions and confirmations are linked to DLT systems.

THE ECOSYSTEM OF INNOVATIVE FORMS OF MONEY

CBDC, TOKENISED COMMERCIAL BANK MONEY AND TRIGGER SOLUTION



Landscape of present forms of money

Cash (banknotes and coins)
(issued from the central bank to non-banks)

Central bank money
(central bank balances of commercial banks)

Commercial bank money
(created by credit institutions)

CBDC and tokenised commercial bank money combine the benefits of **today's financial order** (safety and soundness of central and commercial bank money) with the **requirements and advantages of an advancing digitalisation**

Possible future landscape of money forms

Cash (banknotes and coins)

Retail CBDC (digital euro)

Central bank money
(central bank balances of banks)

Wholesale CBDC

Synthetic CBDC

Account based commercial bank money

Commercial bank money token



Trigger Solution

INTRODUCING A DIGITAL EURO

POTENTIAL IMPACT ON THE BANKING SYSTEM



Potential scenarios →

Central with the ECB

Direct and decentral

Banks as an intermediary

Design

Impact banking sector

Customer holds ...

Transaction processing ...

Steering ...

- **Account with ECB*** via National Central Banks (commercial banks as gatekeeper e.g. wrt KYC)
- Through **ECB**
- **No holdings cap**

- **CBDC-Token** in “**wallet**” at regulated providers (esp. wrt KYC)
- Direct **P2P** potentially via DLT
- **High holdings cap** and / or **other mechanism** (i.e. interest rate)

- Max. 1 **account / wallet** per person at **commercial bank**
- Through **commercial banks**
- **Low holdings cap**

Refinancing base / Treasury

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Holdings retail clients

▣ ▣ ▣

▣ ▣

▣ ▣

Holdings corporates

▣ ▣

▣

+/-

Macroeconomic implication

▣ ▣

▣

+/-

NB: discussion on programmability of CBDC still ongoing therefore not taken into consideration in this analysis

The demand for innovative forms of digital money could impact both the banking system and economy in several dimensions, thereby creating new opportunities and risks (e.g. structural disintermediation).

POTENTIAL DYNAMICS OF RETAIL CBDC



LIQUIDITY RISK LIES IN FAST OUTFLOW POTENTIAL IN TIMES OF STRESS

i. Analysis assumptions

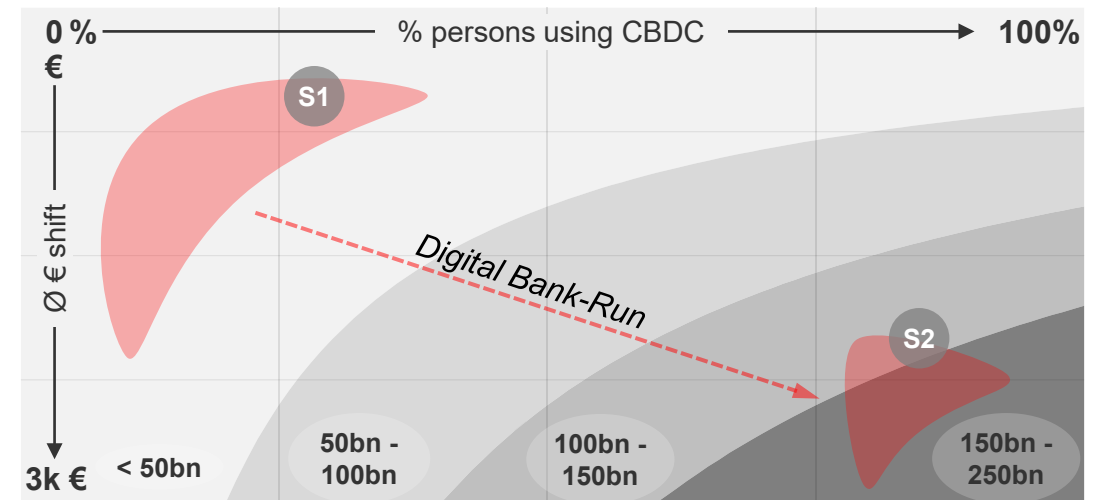
- ~83.2mn private persons in Germany
- Maximal wallet volume **€3,000**
- This results in a worst-case outflow equaling a deposit drain of €250bn (~83.2mn · €3k)

iii. Consequences

- **Introduction CBDC:** the preferences of households for CBDC is gradually emerging / manifesting
- Banking sector is likely to have sufficient capacity to withstand slow shift and low outflow volume scenarios
- **Digital Bank-Run:** abrupt outflow of large volumes could put the banking system at risk, being able to magnify the effects of a crisis and impairing the flow of credit
- Liquidity risk lying in possibility of fast deposit shifts – potential risk volume depending on S1 equilibrium

ii. Two states of retail CBDC

- S1 Following introduction **slow convergence** to steady state of CBDC usage
- S2 In times of stress digital bank-run as **fast-hitting** scenario can be triggered, resulting in almost immediate shift of equilibrium towards increased CBDC usage

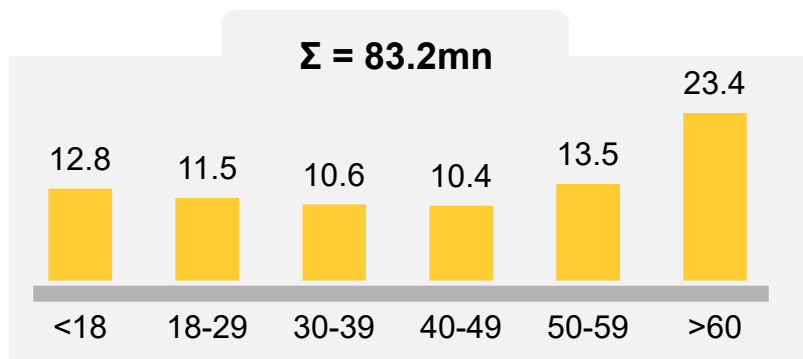




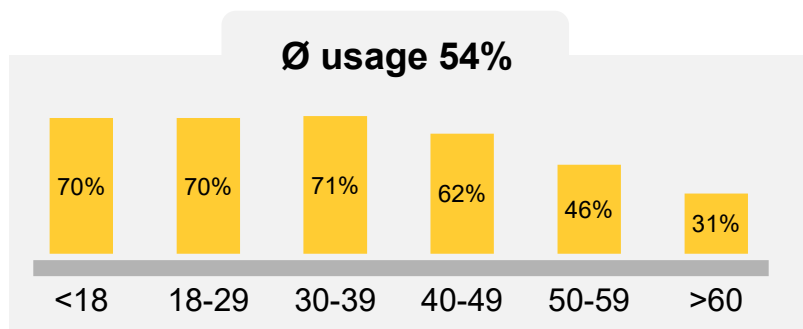
RETAIL CBDC IN EQUILIBRIUM

AGE DIFFERENTIATION AND DIGITAL AFFINITY

Demographic structure of Germany (in mn)*



Assumption 1: CBDC acceptance equal to Online Banking usage*



Assumption 2: Average shift to CBDC

€1.000

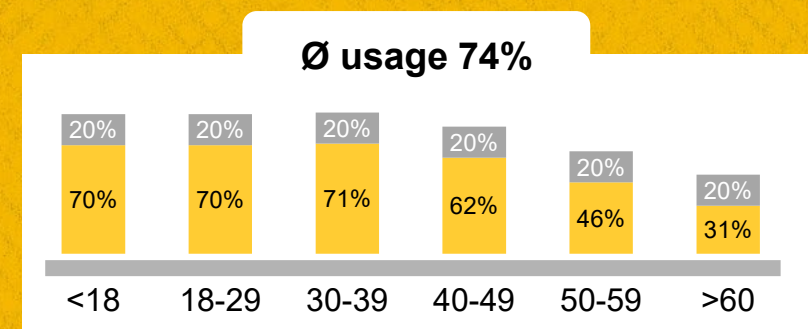
$\Sigma = € 45$ bn deposit outflows

AND IN DIGITAL BANK-RUN

SUDDEN EXOGENOUS MARKET SHOCK (E.G. PANDEMIC)

1. With ongoing bad news on the condition and health of financial institutions.
2. Customers suddenly perceive CB money more secure than bank deposits.
3. Holding risk-free central bank issued CBDC becomes vastly more attractive.
4. Flight towards retail CBDC on fast and large scale.

Assumption 1: CBDC users increase by 20%.



Assumption 2: Larger average shift to CBDC

€2.700

$\Sigma = € 119$ bn additional deposit outflows

Source: Based on data from Federal Statistical Office of Germany ([here](#)) and study from Association of German Banks ([here](#))



DISCLAIMER

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