DEUTSCHE BUNDESBANK
EUROSYSTEM

Digital Euro

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Reasons for the introduction of the digital euro

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Digital euro – Time schedule

- **October 2021:** ECB started **investigation phase** on the feasibility of introducing a digital euro (D€) as central bank digital currency for everyone.

- **11-2023 – 10-2025**: After completion of the investigation phase the Governing Council of the ECB has decided to start the **preparation phase (step 1)**.

  - Further exploration of the technical requirements of the D€ payment system (including the selection of a European payment service provider (PSP) responsible for processing transactions).

- **In parallel to this**: Creation of the legal framework for the D€ by EU legislators and - based on the outcome - finalization of the D€-rulebook (scheme).

- **11-2025: Preparation phase (step 2).** Developing and rolling out digital euro use cases. **Start of the D€ in 2027?**

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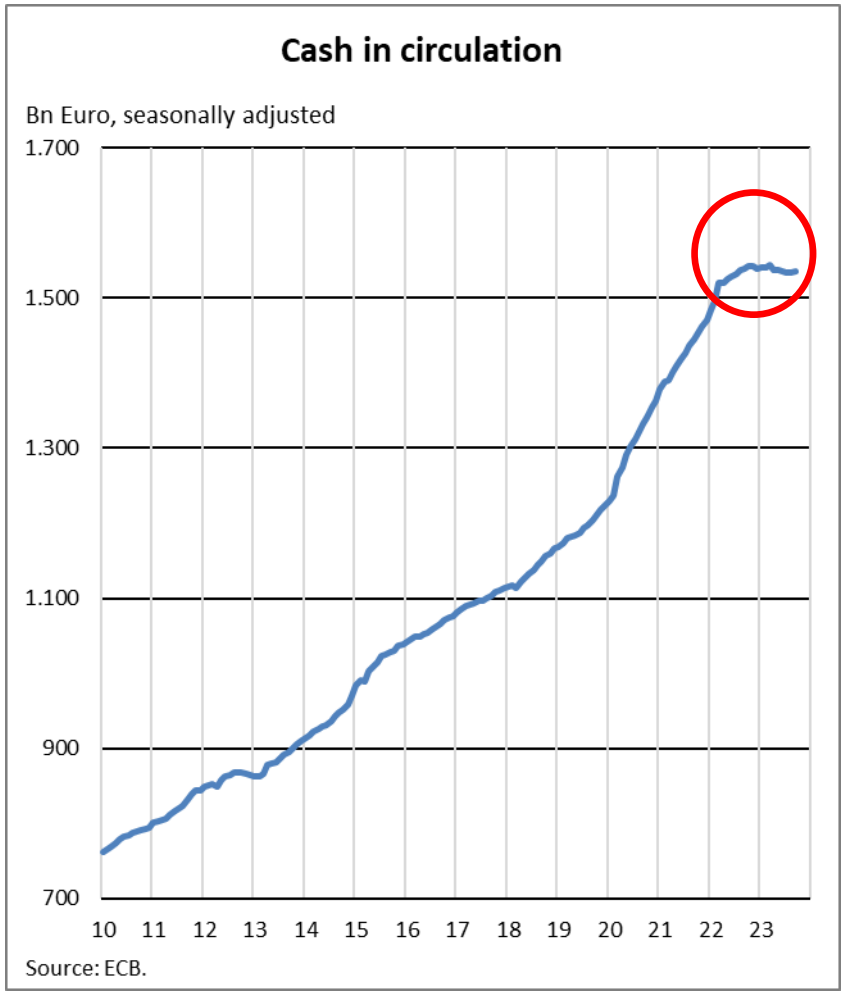
Digital euro – Declining demand for cash

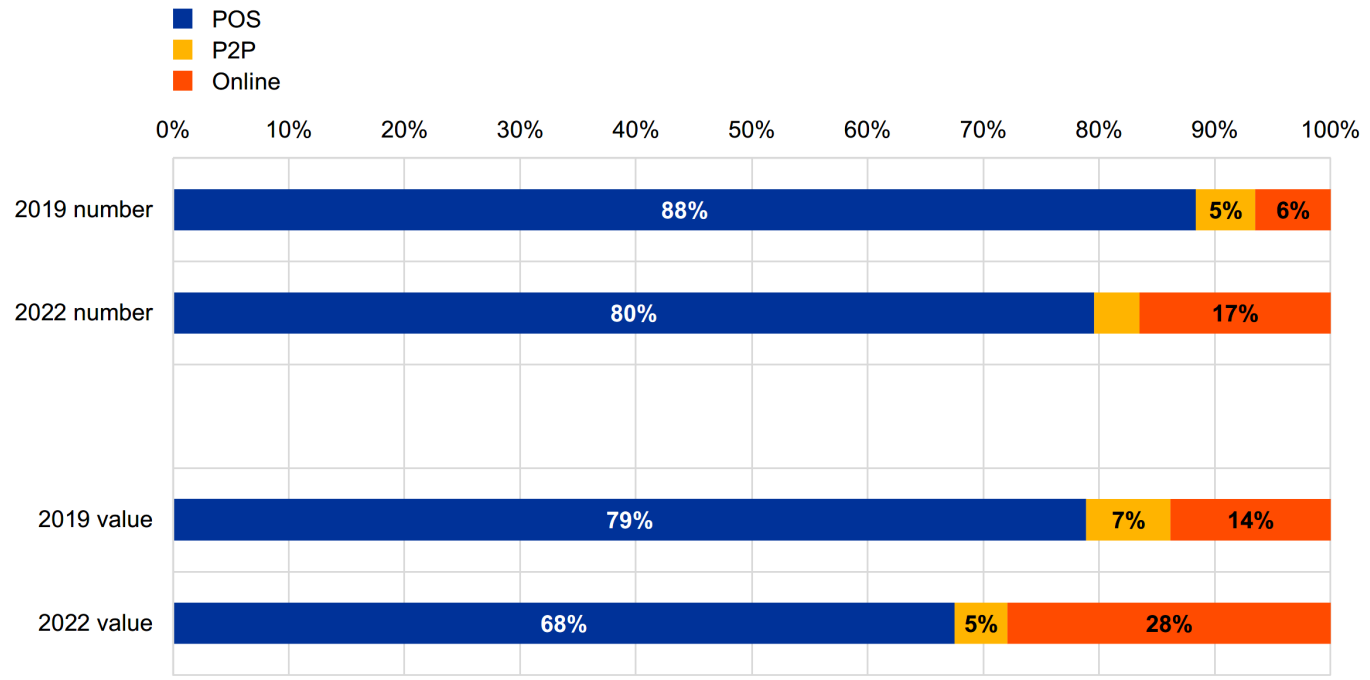


- Surprising: Cash in circulation increased strongly until mid-2022, but has declined slightly since then.
  - Cash more in demand as a store of value in times of crisis.
- **2022/23**: As the coronavirus pandemic subsides, hoarded cash holdings have been liquidated.
- In addition: Rise in interest rates makes interest-free cash holdings less attractive.
- However, **cash as a means of payment** is on the decline (see next slide).

Digital euro – Decreasing number of payment transactions at the physical point of sale

Number and value of non-recurring payments by payment situation, 2019 – 2022, euro area

(percentages)

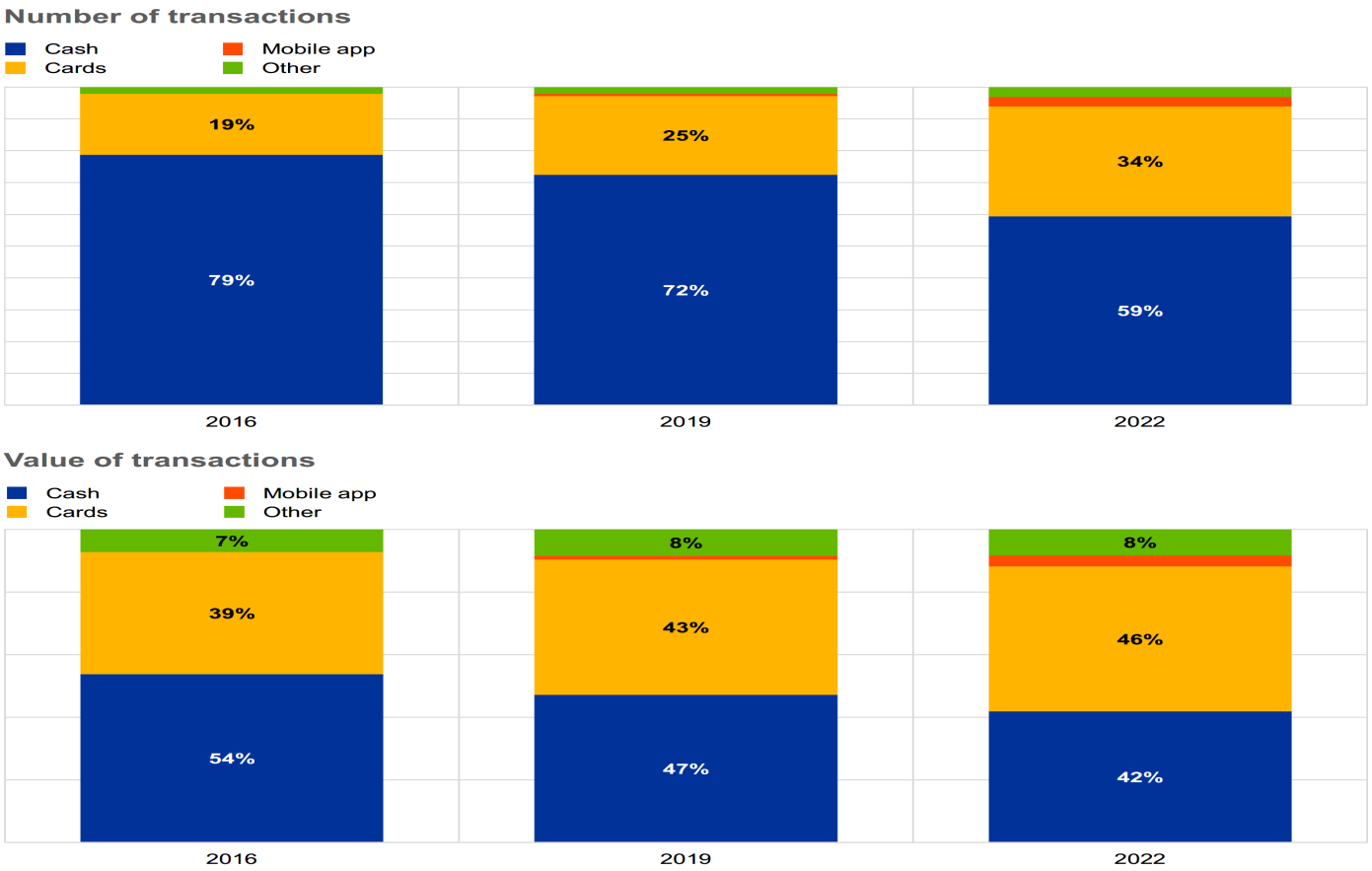


Sources: ECB, calculations based on De Nederlandsche Bank and the Dutch Payments Association (2020, 2022) and Deutsche Bundesbank (2018, 2022).

Digital euro – Cash is being used to a lesser extent as a means of payment at the point of sale

Share of payment instruments used at the POS in terms of number and value of transactions, 2016-2022, euro area

(percentages)



Sources: ECB, calculations based on De Nederlandsche Bank and the Dutch Payments Association (2020, 2022) and Deutsche Bundesbank (2018, 2022).

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Digital euro – Preserving the role of public money as a monetary anchor

- A currency serves as **monetary anchor** if it is used as a unified **unit of account** and supplied as a public good (an asset to society) by a central bank.

  - As long as public money serves as the unit of account, any payment obligation is only fulfilled by transferring central bank money (either by handing over cash or by transferring bank reserves – **or by the D€**).

- With the declining use of cash, public money could lose its role as a **monetary anchor** in the sense that it guarantees the **exchange of private money (bank deposits) into central bank money** (**D€!**) at all times.

- The declining use of cash reduces the demand of banks for base money. That might undermine the **control the ECB (monetary anchor) on interest rates**. With the introduction of the **D€**, the **demand for reserves increases**, as the loss of bank deposits is accompanied by a loss of reserves.

Digital euro - Strengthening sovereignty in the payment system

- The digital euro strengthens **Europe's strategic autonomy**. The aim is to reduce Europe's dependence on non-European private payment service providers.

  - More than two thirds of card transactions in Europe are carried out by non-EU companies. National card providers get pan-European reach only by **co-badging** with US card issuers or integration with google/apple pay.

- By establishing its own payment infrastructure, the digital euro guarantees and strengthens Europe's informational sovereignty, but above all its political and strategic sovereignty (vulnerability to financial sanctions).

Digital euro – An attractive digital euro strengthens competition and efficiency in payment transactions

- **Advantages for the consumer**:
  - Another choice that fosters competition and may reduce costs in payment transactions.
  - 100% (default) security, as the D€ is a liability of the central bank.
  - Final payments in real time.
  - Can be used throughout Europe.
  - Covers all forms of payment (physical in-store, online, offline, P2P)
  - Inclusive, as loading the wallet can also be made in cash.
- **But**: There is **no evidence of market failure** in the domain of cashless payments. The payment system appears to function smoothly and efficiently.

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Digital euro - Work sharing between the Eurosystem and payment service providers

- The tasks of managing the digital euro is shared by the Eurosystem and private payment service providers (PSP's including banks).

1. Supervised **issuing PSP's / banks** provide all direct **services for end users**.

2. In the preparatory phase, the ECB will select a **PSP (acquirer)** to develop, operate and maintain a platform for handling the exchange of information from payment initiation and authentication to crediting/debiting the D€ wallet (**€€€!**).

3. The **Eurosystem** is responsible for **clearing payments** on the central bank accounts of commercial banks (PSP's with a banking license) via Target 2.

Figure 1: Overview of the allocation of activities

Digital euro - Wallet loading

- The digital euro will be "held" in a **wallet** and used via an app. People without a digital device will be offered a **card** for D€ payments.

- The wallet/card can be loaded with cash (→ inclusion) at ATMs or at authorized institutions (to be determined → Germany?) as well as **via the linked bank account**.

- The digital euro will offer both online and offline functions so that it can also be used with a limited/non-existing internet connection.

Digital euro – Costs

- The use of basic functions (on/off-boarding, wallet management, order acceptance, limit management, AML/CFT check-ups) of the digital euro account (wallet) is **free of charge** for private people - like cash.

- The **acquirer PSP's** cover their costs through **merchant fees**. These can be **capped by EU-regulation. These fees** should not exceed their own costs incurred (including a reasonable profit margin) or comparable market fees.

- **Wallet providers (Issuer PSP's)** cover their costs as they participate in the fees collected by acquirers from merchants.

- **The Eurosystem** provides its clearing services **free of charge** (→ cash).

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Financial stability – Compression of interest revenues of banks

- As there is no risk of default, the **digital euro is the safest digital means of payment**. For this reason, the interest rate on D€ holdings defines the **lower bound for the interest rate on bank accounts**.

- **Consequence**: Pressure on banks to raise remuneration of deposits with zero interest rate.

  - However, banks can **minimize the spread** (mark-up) by offering attractive services for their bank accounts.

- As a result, **banks' interest revenues (and profits) will shrink**, weakening their ability to build up capital and thus their resilience to negative shocks.

Financial stability - Upper limits for amounts in the euro wallet (online)

- The digital euro serves as a means of payment, but **not as a store of value**. Accordingly, the digital euro is not intended to replace traditional bank accounts.

- To **prevent excessive holdings in D€ accounts**, an **upper limit** (to be specified) will be introduced for D€ accounts of private households (e.g. €3,000 ≈ Rmb 23.000).

- For **commercial users** and **public institutions** the **holding limit is zero**.

- Upper limits prevent **large amounts** of bank deposits from being suddenly withdrawn (**digital bank run**).

  - The (potential) impact on the liquidity of individual banks varies due to the differing importance of bank deposits as a source of finance.

Financial stability - Upper limits for amounts in the euro wallet (online)

- Upper limits for D€ holdings do not constrain payments from or to the digital euro wallet due to the application of the **two-sided waterfall principle**:

  - Incoming payments that exceed the upper limit are automatically redirected to the linked bank account. Outgoing payments that exceed the available D€ amounts automatically result in the missing amount being made available from the bank account.

- The application of the waterfall principle requires the existence of a linked bank account.

  - **Cash depositors** without a bank account cannot use this function. They have to load the wallet in advance with the required amount of money (**up to the limit!**).

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Digital euro - Remuneration

- The digital euro remains interest-free. The **transmission mechanism** of monetary policy is therefore **not strengthened** (an argument stated in 2017 by a former ECB board member, Yves Mersch, to justify a digital euro).

  - The transmission of monetary policy might even be impaired as substitution effects between bank deposits and D€ holdings work in opposite direction.

- A non-interest bearing D€ offers the option to **circumvent negative policy and bank deposit rates**. Accordingly, to guarantee the effectiveness of negative interest rate policy, D€ holdings (online and offline) have to be limited.

- Thanks to the waterfall principle, the upper limit can be kept low.

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Discussion – Digital euro as a monetary anchor

- The provision of a central bank digital currency (CBDC) for everyone seems neither necessary nor sufficient to serve as a monetary anchor as long as the **option** to convert bank deposits into cash exist.

- However, exchanging private money for public money is more convenient if it is done digitally. **But**: **caps on D€ holdings put a strict limit on this convertibility** (whereas there is no cap on the exchange for cash), especially for merchants and authorities with a holding limit of zero.

  - Raising the limit in times of financial tensions would be no option as it would reinforce the liquidity drain for banks.

- Convertibility does not seem to be of **practical relevance** to people due to the existence of deposit insurance. But this may not be true in financially weak countries in the EU. Thus, with the launch of the D€ **the call for a common deposit insurance system in the EU** might be intensified.

Discussion – Digital euro as a monetary anchor

- The argument that the additional reserve demand with the **introduction of the D€** counterbalances declining demand for cash and **restores the control of the ECB over interest rates** seems to be weak.

- The banks need reserves as long as the minimum reserve requirement exists. If demand for cash declines, the ECB could easily **raise the minimum reserve ratio** to a level required for interest rate control.

  - With a higher minimum reserve ratio, the abolition of remunerations on minimum reserves (effective from September 2023) is a burden for the banks that is detrimental to financial stability.

- Brunnermeier and Landau (2022) claim that competition between private digital currencies could spread to the **unit of account**. However, without a central bank in the background to guarantee price and economic stability, this threat seems **exaggerated and not correlated with the use of cash**.

Discussion - Rationale for the digital euro

- **National sovereignty in payment transactions**: In principle, this is a valid argument and covered by ECB's mandate for the **smooth functioning of the payment system**. Nevertheless, it is questionable whether it requires the ECB to offer an additional public payment instrument.

  - A **less expensive alternative** would have been to foster the development of a private payment solution (like the European Payment Initiative, **EPI**). The D€ probably **frustrates initiatives to built a private pan-European system**.

- **Advantages for end users**: A cost-free digital euro for households and free of charge services provided by the Eurosystem generate **illusions**:

  - Ultimately all costs of running the D€ system have to be borne either by bank customers (via interest rates) or by taxpayers (via diminished central bank profits). **There is no free lunch!**

Discussion – Aspects of financial stability

- The introduction of the digital euro leads to a **loss of low-interest deposits** and central bank reserves by banks (balance sheet contraction). A large drain of deposits could force banks to increase refinancing with the ECB (liability swap).

  - **Problem**: Additional refinancing with the central bank could send out negative signals (**stigma**) about the financial soundness of the borrowing bank.

- The loss of interest revenue from the deposit facility as well as the interest costs resulting from additional refinancing with the central bank amount to roughly EUR 40 billion or almost 1.3 % of the capital of all banks in the euro area.

- The **loss of interest revenues** (net) weakens the resilience of banks and therefore financial stability (although central banks benefit from higher profits).

- However, banks could generate revenues by offering additional services for D€ wallets (e.g. smart contracts).

Discussion – Aspects of financial stability

- **Trade-off**: Issuing PSP's will lose revenues from payment transactions. **But**: they will be compensated by the fees generate by acquirer PSP's.

- On the other hand the fees collected by acquirer PSP's are likely to be capped by EU-regulation.

- Now, either the compensation of wallet providers (issuer PSP's) might be insufficient to cover all costs…

- …or the remaining income for the acquirer PSP's will no longer cover their costs.

- In the latter case it is not guaranteed if any PSP is willing to take over the task of payment system administration. In this case, the cap on merchant fees would not be feasible.

Conclusion

- The D€ transforms public money from the analogue to the digital world.

- The D€ would supplement cash, but not replace it. However, it can be assumed that cash payments will be at least to some extent replaced by the digital euro.

- Nevertheless, it is still unclear whether the digital euro is attractive enough to generate a sufficiently large number of users (network effects) and thereby revenues to **cover the (probably considerable) costs**.

- To ensure its success and steer development in the desired direction, the use cases for the digital euro and the benefits it offers for private households, merchants and banks should be made clear.

- The digital euro should **rely as much as possible on existing payment infrastructures** (→ SEPA instant payments) and build on them. This will keep costs low and ensure a **level playing field** for public and private payment systems.

Thank you!