SPEECH

Money in the digital age: digital euro, tokenisation and the role of central banks

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For centuries, issuing money and safeguarding its value has been at the heart of central banks' mandate.

But the technological environment is changing.

People increasingly pay digitally. Financial institutions are experimenting with distributed ledger technology (DLT). Assets are being represented as digital files, or tokens. New actors have entered markets traditionally served by banks.

This transformation opens up significant opportunities.

It can make payments more convenient and finance more efficient. And it can pave the way for new products and business models.

But it also creates risks.

If we do not provide a digital form of cash, the role of public money may continue to decline. And we may find ourselves trapped in a situation where there is no pan-European digital payment solution that caters to every type of day-to-day transaction.

If tokenised finance develops on closed, incompatible platforms without a safe settlement asset, fragmentation could increase and the singleness of money could be weakened.

And when Europe depends excessively on infrastructures, technologies or solutions controlled elsewhere, our resilience and monetary sovereignty is diminished.

The question, therefore, is not whether payments and finance will become more digital. They already are.

The question is how we can ensure that our monetary system continues to preserve the singleness of money, trust and stability, while also supporting efficiency, resilience and autonomy as this transformation unfolds.

Our answer is to extend central bank money into the digital environment while preserving the two-tier monetary system in which public and private money coexist.

In retail payments, this means preparing for a digital euro. In wholesale markets, it means ensuring that central bank money can be used to settle tokenised transactions – through Pontes – while working with the market – through Appia – to shape the wider digital finance ecosystem.

These initiatives are often discussed separately. But they are all part of one comprehensive strategy: to keep central bank money at the heart of retail and wholesale finance, while giving European market

participants the infrastructure they need to innovate, grow and remain competitive internationally.

Central bank money as the anchor

Our monetary system rests on the coexistence of public and private money.

Central bank money is the ultimate risk-free settlement asset. And it supports the role of private money because trust in commercial bank money rests on its convertibility at par into central bank money.

This convertibility ensures the singleness of money. One euro has the same value as any other, throughout the euro area.

Our objective is not therefore to replace private money or private innovation. It is to provide a stable public foundation to ensure day-to-day payments are cheap, resilient and inclusive. And to enable financial innovation to develop safely, at scale, in an integrated European market.

Preparing a digital euro for retail payments

Let me turn first to retail payments. This is what the digital euro is for: our day-to-day transactions.

A Europe-made, Europe-wide payments solution

There is still no European digital means of payment that works across all euro area countries and all major use cases.

European private solutions tend to cover specific markets or payment situations. This means that banks and their customers depend heavily on international card schemes and global technology companies.

Two-thirds of euro area card payments rely on international schemes. Of the 21 euro area countries, 13 have no domestic card scheme. And where a domestic payment solution exists, it does not always cater to all use cases and cannot be used in other euro area countries without co-badging with international schemes.

This is not just a question of sovereignty, resilience and freedom of choice. It is also a question of competitiveness.

European payment service providers have so far been unable to compete with international payment solutions on a European scale, let alone at global level. This is mainly because it would be costly for each individual provider to develop a Europe-wide acceptance network.

The recent announcement of an interoperability platform that would allow private payment solutions to share customers, enabling users to pay wherever interoperable solutions are accepted, is a step in the right direction and one we very much welcome. But much remains to be done: cross-border transactions account for just 5% of the market and interoperability does not expand acceptance domestically, nor does it broaden the use cases covered.

The digital euro would fill this gap.

It would provide a digital form of central bank money for everyday payments, complementing cash and private solutions. It would be available both online and offline and would be usable throughout the euro

area for most use cases: person-to-person payments, e-commerce transactions and payments in physical shops.

But the ECB would not provide customer-facing services. Banks and other regulated payment service providers would distribute the digital euro, manage customer relationships and develop complementary services.

Our objective is not to take over the role of banks. On the contrary, the digital euro would equip banks with the infrastructure they need to compete in the digital age and help them expand the reach and use cases of their own solutions.

A platform payment service providers can build on

The digital euro would provide a common acceptance layer across the euro area.

Its legal tender status would give it pan-European reach: it would be accepted wherever digital payments can be made.

The digital euro's open standards could be used by private payment services providers, thereby simplifying acceptance at physical points of sale, online and in mobile commerce.

The ECB has signed agreements with the European Card Payment Cooperation, nexo standards and the Berlin Group to reuse established European technical standards for digital euro payments. This should minimise adoption costs.

Co-badging would add to these benefits. Banks could integrate the digital euro into existing cards or mobile applications alongside their own payment solutions. Where a private solution is accepted, it could remain the preferred option. Where coverage is incomplete, the digital euro would step in to ensure that private solution users can still pay.

A sustainable economic model

The digital euro is also being designed with a sustainable economic model in mind.

The Eurosystem would bear the costs of establishing and operating its core infrastructure and would not charge any scheme or processing fees for digital euro transactions. Banks and payment service providers would be compensated for the services they provide. The precise arrangements are currently being discussed as part of the legislative process.

The digital euro is not therefore simply a new public payment instrument. It would provide public infrastructure that can help private European solutions scale up, offer value-added services and compete more effectively Europe-wide.

Safeguarding financial stability

Whenever a central bank proposes a digital form of money, a legitimate question arises: could deposits leave banks, impairing their capacity to provide credit?

We have taken this question very seriously.

The digital euro is being designed as a means of payment, not an investment product. It would not be remunerated, and individual holdings would be subject to limits.

Users would be able to link their digital euro holdings to a commercial bank account. A waterfall mechanism would allow users to make payments exceeding their digital euro balance by drawing the difference from that account. A reverse-waterfall mechanism could be used to automatically transfer to the linked bank account incoming amounts above the holding limit – or an even lower threshold if the customer so wishes. Behavioural research suggests that this approach could drive up digital euro adoption while reducing individual holdings.[1]

The limits will have to be calibrated to balance three objectives: making the digital euro convenient to use, safeguarding financial stability and preserving the smooth implementation and transmission of monetary policy.

Detailed analysis supports these safeguards.[2]

At the request of the European Parliament, the ECB examined the possible effects of hypothetical holding limits from €500 to €3,000 on the balance sheets of 2,025 banks, including both significant and less significant institutions.

It considered two scenarios: business-as-usual and flight-to-safety. The flight-to-safety scenario is an extreme tail scenario that has not occurred over the first 25 years of the euro. It also assumes no monetary policy response, although a crisis of this sort would normally lead the central bank to consider taking action.

The results are reassuring under both scenarios.

Under the business-as-usual scenario the introduction of the digital euro is projected to have an extremely contained impact on banks' liquidity and funding metrics.

Indeed, digitalisation itself supports bank deposits, as payments migrate from cash to deposit-based instruments. Our analysis estimates a potential €127 billion deposit inflow by 2034, equivalent to 0.4% of banking sector assets or 1.5% of retail sight deposits. At aggregate level, this exceeds the estimated digital euro-related outflows in the business-as-usual scenario for holding limits up to and including €3,000. No aggregate outflow would thus be recorded.[3]

If we disregard the deposit inflows resulting from the continuing decline in the use of cash, the aggregate liquidity coverage ratio would fall only slightly, from 166% to 163%, for a limit of €3,000. The aggregate net stable funding ratio would decline from 128% to 127%.

The extreme scenario also produces manageable results, even when we take a very conservative view and ignore the trend towards digitalisation. On aggregate, regulatory liquidity metrics remain well above 100%. With a holding limit of €3,000, the liquidity coverage ratio falls to 100% for only 13 banks, representing 0.3% of total banking sector assets. And only nine of those, representing 0.1% of total banking sector assets, would be at risk of liquidity buffers going below that level.

These findings must be interpreted within the scope and assumptions of the analysis. The figures are illustrative and do not represent a decision on the eventual holding limit.

But the conclusion is clear: within the range assessed, holding limits are effective in containing deposit outflows and safeguarding financial stability.

The digital euro is therefore not designed to disintermediate banks. It is designed to safeguard their role as the monetary system becomes increasingly digital.

It is also worth noting that the discussion about the financial stability implications of the digital euro often disregards the fact that people can already easily and instantly transfer their deposits from bank accounts to other entities, where – unlike with the digital euro – they may be remunerated, unlimited or denominated in foreign currencies.

Where the project stands

So where do we stand?

The legislative process is advancing. The Council of the European Union agreed on its position in December 2025, the European Parliament adopted its position in July 2026 and the trilogue negotiations are now under way. The European Council has called for the negotiations to be concluded by the end of this year.

The Governing Council of the ECB will only decide whether to issue a digital euro after the legislation has been adopted. Assuming the legislative process is fully concluded by the end of 2026, we aim to be ready for a potential first issuance in 2029.

But technical preparation must advance in parallel.

The digital euro pilot is planned to begin in the second half of 2027 and run for 12 months. We have selected 36 payment service providers from across the euro area, following a call that attracted more than 50 applications.[4] Last week, the selected providers and the Eurosystem met to start work on the next stage.

The objective is not merely to try out the technology. A payment system is an ecosystem, involving service providers, merchants, central banks, infrastructure operators and users. The pilot will allow that ecosystem to test the design, learn from experience and identify areas for improvement.

On 15 September we opened a call for e-commerce and mobile-commerce merchants to take part in the pilot. Participants will test customer payment journeys, assess integration with existing checkout systems and provide feedback on the user experience.[5]

Moreover, the digital euro is not intended just to fix any shortcomings in the existing euro area payments landscape. It is also an opportunity to think about the future and provide a platform to innovate, to enhance the quality and breadth of payment services. New opportunities are emerging, and we want to make sure that European payment service providers are fully equipped to seize them and gain a strong competitive edge.

Last week we therefore launched a new wave of activities through the digital euro innovation platform, building on an initial exercise that involved around 70 market participants.[6]

One workstream will experiment with integrated electronic receipts, payments involving multiple payers or recipients, conditional payments and new features offered through payment apps.

A second workstream will look further ahead, exploring developments that could enhance digital euro payments in the future. This includes possible applications of artificial intelligence, such as AI-enabled payments or micropayments. The workstream will also explore digital euro use in public services,

including payments for transportation, mobility and parking services or payments to and from public authorities.

We cannot know precisely how Europeans will want to pay in 20 years' time. But we can build a foundation that is open to innovation, robust enough to earn public trust and able to develop as users' needs evolve.

Tokenisation and the future of finance

Let me now turn to wholesale markets.

Tokenisation can bring issuance, trading, clearing, settlement, custody and asset servicing into a shared digital environment. Smart contracts can automate coupon payments, collateral movements and compliance checks. Cash and assets can be exchanged atomically, meaning that either both legs of a transaction are settled together or neither is.

The potential benefits include greater automation, faster settlement, lower processing costs and more efficient use of liquidity and collateral. But these benefits will only materialise fully if tokenised markets have access to a safe and scalable settlement asset.

Pontes: central bank money for tokenised finance

This is why the Eurosystem launched Pontes on 21 September.

Pontes enables wholesale transactions in tokenised assets to be settled in central bank money. It connects market DLT platforms with Eurosystem services. It is an operational service that banks, market infrastructures, issuers and investors can use to expand safely into digital finance.

The service will be enhanced progressively in line with market needs and technological developments, for instance by extending operating hours and offering immediate settlement finality on the Eurosystem DLT platform.Full implementation is expected by mid-2028, when we plan to offer a 24/7 service as well as greater programmability, state-of-the-art resilience and multi-currency capability.

Appia: shaping the wider ecosystem

Appia looks further in the future.

Appia addresses the architecture, standards and governance required for an integrated European tokenised financial ecosystem. It covers asset interoperability, collateral management, tokenised central bank money infrastructure, cross-border transactions, resilience and interaction with the legal framework.

The work on Appia is based on analysis, experimentation and cooperation between the Eurosystem and other central banks and private market participants. Our goal is to deliver a blueprint in 2028.

The market is already actively involved in this work. The public consultation on the Appia roadmap received 127 responses, and 90% of respondents made at least one proposal to contribute. Our market contact group, comprising 61 entities chosen from among the more than 100 that applied, will provide continuous input and direction for the work.[7] We also plan to run concrete work involving teams that bring together market participants, national central banks and the ECB.

The guiding principle is straightforward: we should lay the foundations of an integrated European digital finance ecosystem before incompatible systems become entrenched.

For banks, this means access to an ecosystem in which they can issue tokenised deposits, provide custody services and asset servicing, mobilise collateral and develop programmable financial products across a European market.

Together, Pontes and Appia can help European banks keep pace with the transformation of global finance, while avoiding dependence on foreign infrastructures or settlement assets denominated in foreign currencies.

Supporting tokenised deposits across banks

Pontes and Appia are also important for the future of commercial bank money.

Tokenised central bank money is not intended to crowd out tokenised commercial bank deposits. On the contrary, it can provide the settlement anchor that allows tokenised deposits to develop safely and achieve scale.

This is because it will enable deposits issued by different banks to be exchanged. Without central bank money, commercial bank money would fragment into separate tokens circulating within closed networks. This would give a built-in advantage to the largest international bank.

Our approach is to preserve, in the tokenised environment, the principle that applies today: a euro issued by one regulated bank should be exchangeable at par with a euro issued by another.

Pontes can thus be the bridge between private settlement assets, enabling tokenised deposits to be transferred between banks.

Conclusion

Let me conclude.

We are modernising public money and public infrastructure so that private innovation can flourish on a stable and integrated foundation.

The digital euro would give banks access to common standards and a pan-European acceptance network. It would help them maintain customer relationships, develop value-added services and compete more effectively across borders. And it would incorporate safeguards, supported by detailed analysis, protecting bank intermediation and financial stability.

When it comes to digital finance, we are front-runners. Pontes is already making central bank money available for tokenised transactions. Appia looks ahead to an ecosystem in which tokenised central bank money, tokenised deposits and other regulated assets can coexist and interact across institutions and networks without friction.

Together, these initiatives serve one objective: a European financial system that is innovative, integrated, resilient and internationally competitive. We will build it together.

The history of money is one of continuous adaptation.

Our task is to preserve what makes money trustworthy as technology evolves. That is the role of central banks in the digital age.

And by playing that role in close partnership with market participants, we can ensure that the digital transformation strengthens Europe's financial system and benefits all Europeans.

Thank you.

1.

Garcia, T., Lambert, C., Pancaro, C., Rimbaud, C. and Soldà, A. (2026), "When Less Is More: Behavioural Effects of CBDC Holding Limits", *Working Paper Series*, ECB, forthcoming.

2.

ECB (2025), *Technical data on the financial stability impact of the digital euro*, October.

3.

The model results indicate that only a few banks would lack sufficient excess reserves to sustain their preferred liquidity buffers. Among these, most would borrow from the interbank market, while banks without market access would be able to borrow from the central bank, as they retain sufficient unencumbered collateral.

4.

ECB (2026), "ECB selects 36 payment service providers to join digital euro pilot", *press release*, 14 July; see also the ECB's digital euro pilot webpage.

5.

ECB (2026), "Call for online and mobile merchants to participate in digital euro pilot now open", *press release*, 15 September.

6.

ECB (2026), "Call for expressions of interest in a new wave of digital euro innovation platform activities", *MIP News*, 28 September.

7.

ECB (2026), "Eurosystem selects members for the Appia contact group", *press release*, 19 August.

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