Comments

on Strengthening Europe's Sovereignty in Interbank Payments through Blockchain with a Distribution Solution!

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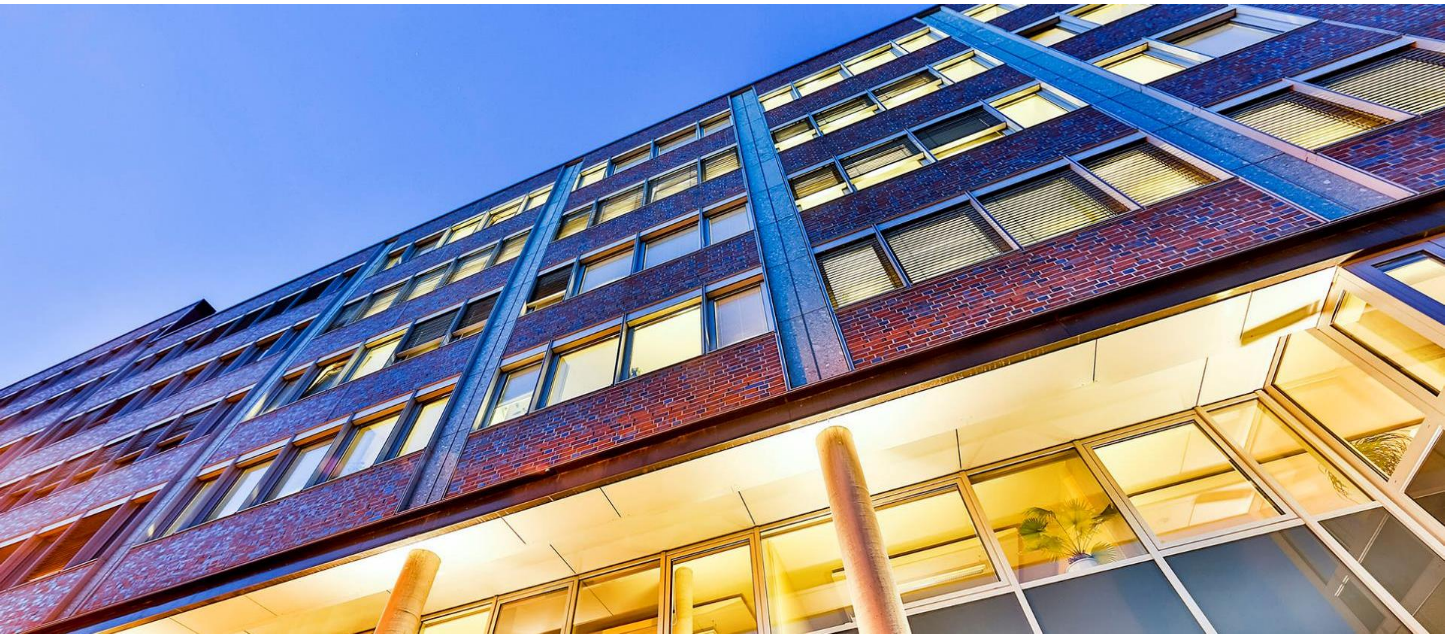

Summary

The area of wholesale settlement in the interbank market is currently undergoing a phase of dynamic development, in which the use of distributed ledger technology (DLT) is opening up new opportunities for efficiency, speed, and risk reduction. The DLT-based approaches currently under discussion for the settlement of payments and securities transactions in central bank money have the potential to sustainably strengthen the European capital market and significantly enhance Europe's position in global competition.

Three possible architectural models are available for implementation: interoperability, integration, and distribution solutions, which differ in how central bank money and digital assets are technically linked. Building on extensive testing conducted in 2024, the Eurosystem is pursuing Pontes as a short-term interoperability solution and Appia as the long-term development of a token-based wholesale CBDC. The objective is to enable innovation while ensuring stability, control, and legal certainty.

From the perspective of the Association of German Banks, the current design of Pontes entails unnecessary complexity and weakens investment incentives. In the long term, only the distribution solution is convincing, as it makes central bank money directly available on market-facing DLT platforms and combines efficiency, innovative capacity, and regulatory oversight. A prerequisite for the success of the distribution solution is the establishment of clear and harmonised regulatory frameworks across the euro area.

1 Wholesale settlement solutions based on distributed ledger technology

Wholesale settlement refers to the settlement of transactions between payment and securities service providers with central bank money, i.e., payments settled between banks and other financial institutions. It focuses particularly on securities settlements (delivery versus payment – DvP without an intermediary (e.g. central securities depository, CCP) and on payment settlements in individual or several currencies (payment versus payment, PvP). More specifically, this comprises interbank payments and their settlement, securities settlement, cross-border payments and foreign exchange (FX) transactions, and central bank money as collateral for loans or securities (collateral management). The Eurosystem is currently working on various solutions aimed at increasing the efficiency of wholesale settlement with the aid of distributed ledger technology (DLT). In simple terms, the objective is to make it possible to settle securities or foreign exchange transactions directly with the corresponding money transfer digitally, instantly and seamlessly. It will allow both sides of a transaction – the assets and the money – to be linked to one another. In future, all the institutions that currently participate in the T2 payments system will have access to such DLT-based wholesale settlement solutions. There are basically three different approaches to combining distributed ledger technology with wholesale settlement: the interoperability solution, the integration solution and the distribution solution. The interoperability solution combines existing central bank payment infrastructures, such as TARGET (T2) or TIPS, with DLT-based infrastructures (market DLT). With this approach, central bank money remains in the systems of the central bank. Private market DLT platforms are connected via interfaces. The connection can either be made directly between the market DLT and the existing central bank systems (T2 and TIPS) or between a DLT-based central bank infrastructure (which only provides central bank money) and the market DLT. Transactions can be settled instantly or in near time on the Eurosystem's market DLT. The integration solution issues a tokenised form of central bank money on a central bank DLT platform, on which all other assets are also issued and traded. This eliminates the need to connect a central bank DLT to a private market DLT via an interface. This solution enables securities and payment transactions to be settled seamlessly on a single DLT infrastructure (the central bank's shared ledger). The central bank not only issues and controls the digital central bank money, it also sets out the framework conditions for the DLT infrastructure on which the digital assets can be issued and traded. This gives financial institutions and market participants direct access to the tokenised form of central bank money; however, they are still operating within an infrastructure provided by the central bank. The distribution solution provides for tokenised central bank money to be issued on private market DLTs or for banks to issue tokens backed by central bank money that meet the requirements of the central bank. As with the integration solution, a seamless DLT infrastructure can be created, which enables the technological advantages to be exploited and an almost risk-free transaction to be performed. The distribution solution entails the maximum level of innovation because payments are processed where the assets are created and traded – in the market. Regardless which of the above solutions is adopted, the advantages are clear: They not only allow transactions to be conducted more quickly and efficiently, they also reduce counterparty credit risk and, at the same time, strengthen the competitiveness and financial sovereignty of Europe in international payments.

2 ECB activities: the ECB's dual strategy with Pontes and Appia

In 2024, the Eurosystem conducted exploratory work on three different interoperability scenarios: the Deutsche Bundesbank's trigger solution, the Banca d'Italia's TIPS hash-link solution and the DL3S full-DLT solution from the Banque de France. The exploratory work has shown that settling transactions in central bank money is more efficient, more secure and more transparent. These findings now form the basis of the Eurosystem's future strategy. In a press release from 1 July 2025, the European Central Bank (ECB) outlined its plans to settle transactions based on distributed ledger technology. The ECB's Governing Council adopted a two-pronged strategy building on the findings of the exploratory work and providing the market with both a short-term (Pontes) and a long-term (Appia) solution. The objective is to promote innovation and, at the same time, ensure stability. The initiative for the short-term solution in Pontes provides for a pilot solution by the end of the third quarter of 2026, which combines DLT platforms with existing TARGET services. For the first time, this will give the market a uniform infrastructure provided by the Eurosystem. The plan is to incorporate the functionalities tested in the DLT exploratory work in 2024 and to examine possible enhancements during the pilot phase in line with the legal, operational and technical standards of TARGET. With Pontes, the idea is to settle payments in central bank money via technical interoperability platforms between various DLT systems from the fourth quarter of 2026. Two settlement methods running in parallel are envisaged: a trigger-based solution (similar to the approach taken by the Bundesbank), whereby settlement continues to take place in the existing TARGET system, and a Eurosystem cash token based on the French pilot solution. The ECB is planning to go live with Pontes in the first quarter of 2028, then offering only the French solution and phasing out the trigger-based solution. Even though the ECB officially refers to wholesale settlement solutions, in our opinion, it is already developing a token-based wholesale central bank digital currency (wCBDC) in Pontes. Since it is likely that the market will continue to operate on multiple DLTs in the future, Pontes is intended to serve as a permanent bridge between these systems over the long term. In Appia, the ECB is planning to develop a fully-fledged, token-based wCBDC, which closely aligns with the solution developed in Pontes. This initiative is aimed at establishing a sustainable, innovative and integrated financial ecosystem in Europe. Particular attention is being paid to making sure the processing of cross-border transactions is secure and efficient. To achieve this, the Eurosystem intends to work closely with both public and private stakeholders and to further analyse the potential of DLT solutions.

3 Position of the Association of German Banks on the future design of wholesale settlement solutions in the Eurosystem

Current developments in Pontes:
Current plans reveal a number of aspects that could potentially hamper the success of the project and prevent it being implemented on time. The parallel use of trigger solutions and cash tokens in the pilot project significantly increases complexity and could delay implementation – especially at a stage when speed and clarity are crucial factors for success. In addition, one of the two solutions is to be phased out again in the first quarter of 2028 – a development that will pose a key incentive problem: Given the potentially high sunk costs, market participants will probably only invest in the solution that is likely to work long term. Not only does this falsify the original exploratory work of the Eurosystem, it also makes it more difficult to proper conclusions from the findings of the interoperability approach in the trials.

Furthermore, this method appears to incorporate a number of functionalities that were originally intended for the later Appia track into Pontes at an early stage. This harbours the risk of unnecessarily burdening both the fast operationalisation of Pontes and the long-term technical development of Appia. A greater focus on a streamlined interoperability solution that could be deployed early would help advance the project within a more stable and competitive environment.

Long-term positioning for Appia:
It is vital for the long-term, further development of wholesale settlement solutions as part of the Eurosystem's DLT initiatives to choose an architecture that enables efficiency gains, reduces market fragmentation and, at the same time, maintains legal certainty and the controllability of central bank money. All the approaches being discussed by the Eurosystem – interoperability, integration and distribution solutions – contribute to making wholesale settlement faster, more efficient and more innovative. Integration and distribution solutions, in particular, offer the greatest economic added value long term since the transactions can be processed and the assets transferred directly on the same DLT platform. This significantly reduces settlement and counterparty risks, minimises frictional losses in the provision of collateral and manages liquidity more efficiently than a simple interoperability solution. In addition, settling both assets and central bank money on the same DLT enables a particularly high degree of integrability and therefore more dynamic and flexibly programmable connections. This reduces overall financing costs and strengthens the stability of the financial system in the euro area.

The interoperability solution certainly reduces risks and promotes innovation; however, it does not achieve the level of efficiency of the integration and distribution solutions and adds additional complexity and restrictions in terms of programmability due to the need for interfaces to existing payment systems. Nevertheless, it will play an important role in the long term since it is unrealistic to fully combine all assets on a single DLT platform.

The integration solution would prevent fragmentation, in theory, but it does have some serious disadvantages: It would potentially crowd out current private-sector initiatives and would, in practice, be tailored too closely to specific use cases to be widely accepted by the market. The danger is that this solution could cause the market to switch to stablecoins for interbank market transactions, or that integration with central bank money would still depend on an interoperability solution.

A distribution solution provides for central bank money to be made available directly on market-side DLT platforms in the form of tokens. This enables financial institutions to seamlessly process securities transactions or other financial market transactions on the infrastructures on which the corresponding assets are held. Central bank money would therefore 'go where it is needed'. The frequently expressed concern that the central bank could lose control over its central bank money in a distribution solution is misguided. Although the central bank would be changing part of its technological environment, it would not be losing its regulatory sovereignty over central bank money. It can define requirements for the tokenised central bank money, set out access rules, ensure transparency and impose penalties in the event of non-compliance. At the same time, this architecture would enable a high degree of innovation since new financial products, automated processes and smart contracts could be integrated directly. The Association of German Banks is firmly in favour of introducing the distribution solution as part of Appia.

In summary, the following picture emerges. The interoperability solution is a sensible first step and will also remain relevant in the long term because it will be difficult, if not impossible, to consolidate all assets on a single DLT. In the long term, however, it would not fulfil its maximum potential, as it would if the assets and the central bank money were on the same DLT. The integration solution would theoretically prevent fragmentation but would also shift key market processes and innovation dynamics within the area of responsibility of the central bank – with the corresponding risks for diversity and competitiveness. The distribution solution, on the other hand, would combine stability and regulatory control with market-driven innovation and efficiency. It would therefore create the best conditions for a sustainable and resilient European financial system and is, in the view of the Association of German Banks, the most convincing solution in the long term. In order for the distribution solution to reach its full potential, it is crucial that the market DLT landscape consolidates so that the central bank can reach the majority of the European market via a smaller number of powerful platforms. Otherwise, there is a threat of considerable integration costs and an undesirable fragmentation of liquidity.

4 A distribution solution would benefit from market consolidation and a clear regulatory framework

The distribution solution could really bring its strengths to bear if the market DLT landscape continues to consolidate. We assume that natural consolidation effects will occur as individual solutions are scaled up. A market environment of this kind would simplify connection to the Eurosystem, reduce integration costs and enable central bank money to be made available more efficiently via a smaller number of powerful platforms. Such consolidation effects would also benefit the market itself. It would help reduce redundancies and unit costs through greater economies of scale and bundle issuers, investors and on a small number of infrastructures. The gradual approach of the Eurosystem with Pontes and Appia could support this development. It could create early added value, enable broad market participation and, at the same time, provide the necessary flexibility to be able to respond to the dynamic further development of digital assets and platforms.

No significant legislative changes are currently required for interoperability solutions – such as the Bundesbank's trigger solution or the Banca d'Italia's TIPS hash-link solution – since settlement continues to take place directly in T2 or TIPS and the existing liability rules of the Settlement Finality Directive (SFD) remain applicable. This is not the case for integration and distribution solutions: These would require an amendment to the SFD, as settlement no longer takes place directly in T2, but in a blockchain-based representation of central bank money covered by credit balances in T2. In addition, liability rules would have to be checked and harmonised in the member states. In the long term, it is clear that the full potential of these solutions can only be realised within the framework of a more integrated European savings and investments union. Without legislative harmonisation, Europe threatens to fall behind its international competitors.

5 Conclusion

In our opinion, Pontes needs clarity and focus from the outset: A streamlined and rapidly implementable interoperability solution is crucial for the project to get off to a successful start without any unnecessary complexity. This is the only way to create the space needed long term to develop Appia in a technically uncluttered and strategically sustainable manner. We suggest not removing the trigger-based solution for the go-live – instead, it should be kept for a longer period as a solution due to its ease of use.

In the opinion of the Association of German Banks, the distribution solution – supplemented by the interoperability solution as a fallback for market DLTs that do not fully meet the central bank's requirements – represents the most convincing option in the long term. It combines efficiency gains, risk reduction and innovative strength with full regulatory control. Central bank money is made available where it is actually needed: on market-oriented platforms where assets are created, traded and transferred. This solution forms the basis for a future-proof, competitive and integrated financial ecosystem in Europe. The integration solution does not go far enough and is not likely to be widely accepted in the market. The interoperability solution is a good initial step and is useful as a fallback option. Nevertheless, only the distribution solution can leverage the full efficiency and innovative potential long term.

At the same time, the distribution solution is the most ambitious goal: the ECB would be breaking new ground by investing its money in a technological environment that has previously been operated exclusively by private stakeholders. The distribution solution would particularly benefit from the market continuing to consolidate, from clear standards being established and from regulatory guidelines being clarified. An environment with fewer but powerful and regulated market DLTs – supplemented by uniform standards for access, liability and transparency – would strengthen its efficiency and impact significantly. This kind of development would increase connectivity, reduce integration complexity and create the optimum conditions for the distribution solution to achieve its full potential.

This approach not only paves the way for a competitive, resilient and sovereign European financial market, but also promotes the creation of an integrated financial ecosystem that remains technologically sustainable and will strengthen Europe's position and sovereignty in international competition over the long term.

Annex

Solution	Description	Advantages	Challenge
Interoperability solution ('bridging solution')	Combines classic central bank systems (T2/TIPS) with market-based DLTs via interfaces, central bank money remains in the central bank system.	Uses existing infrastructure, little need for regulatory amendments, faster implementation and initial DLT experience	Complex interfaces increase maintenance effort, limited automation and programmability, innovation potential limited due to dependence on traditional systems, limited market integration, frictional losses from cross-DLT transfers.
Integration solution ('central bank's shared ledger')	Tokenised central bank money on central bank's DLT platform, on which other assets can also be held	Seamless settlement of payment and asset transfers, high level of security and regulatory control, minimised frictional losses as no need for cross-DLT transfers	Low market acceptance, displacement of private initiatives, limited innovation and competitive dynamics, risk of migration to stablecoins, legislative adjustments (SFD, liability) required.
Distribution solution ('central bank money on market DLT')	Central bank money available as tokens directly on regulated market DLTs	Direct settlement for assets, maximum innovation potential (smart contracts, new products), market-based architecture with high degree of flexibility.	Central bank approval lacking, SFD and liability rules need to be adjusted; regulatory standards and market consolidation needed for economies of scale and efficient liquidity management

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