



CONSOB

COMMISSIONE NAZIONALE
PER LE SOCIETÀ E LA BORSA

Tokenization of traditional assets

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*HANFA - Capital Markets in the Digital Age
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OUTLINE

- ❑ Introduction and context
- ❑ Opportunities & Challenges
- ❑ DLT Pilot Regime
- ❑ The Italian experience
- ❑ Cash-leg settlement
- ❑ Proposed approach and conclusions

- **What is tokenization of financial instruments?**

- **Why it matters now?**

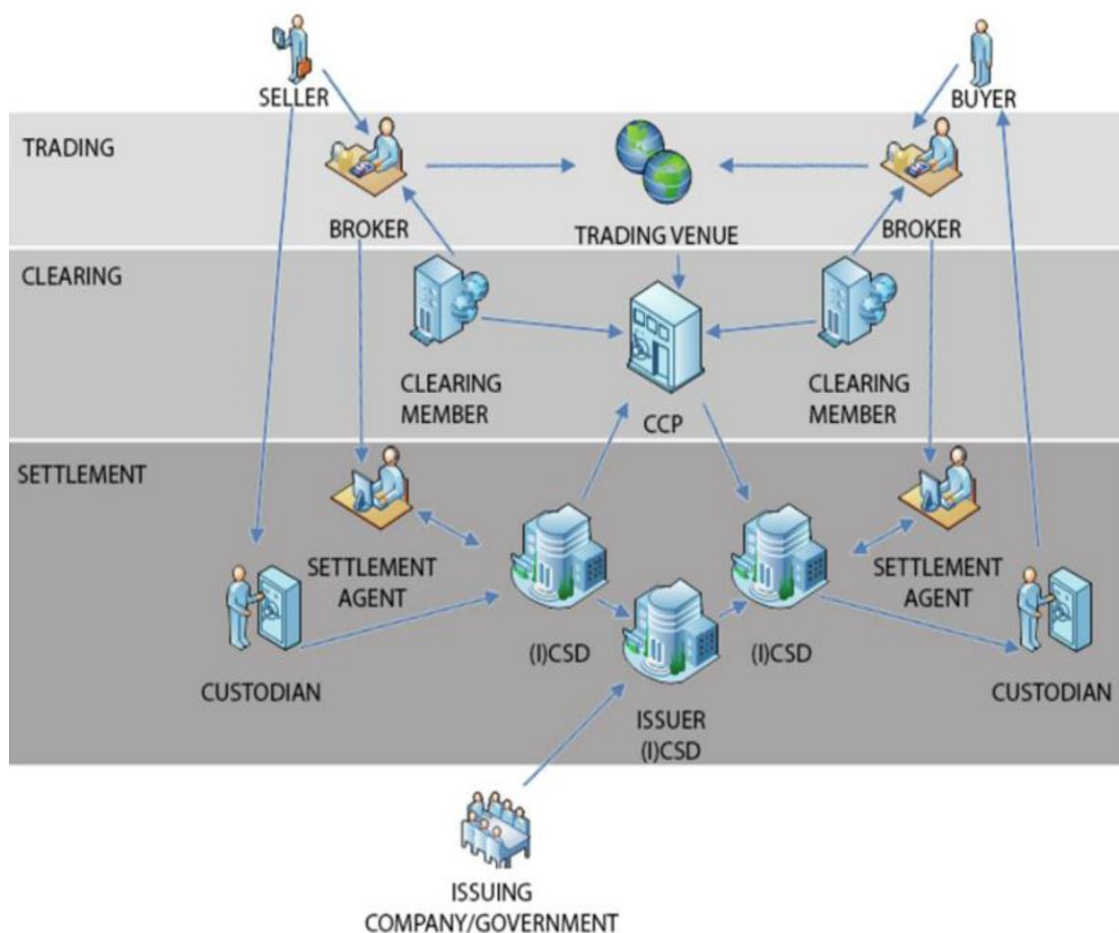
The process of converting financial instruments and other financial claims into a digital token on a distributed ledger through smart contracts

Tokenization could enable faster settlement, programmability, greater transparency, and direct control on financial assets

Tokenization could introduce a shift in trading and post-trading infrastructures and underlying architecture, how markets are structured, who performs which functions, and how risks are distributed, but generate novel and, at scale, potentially systemic risks*

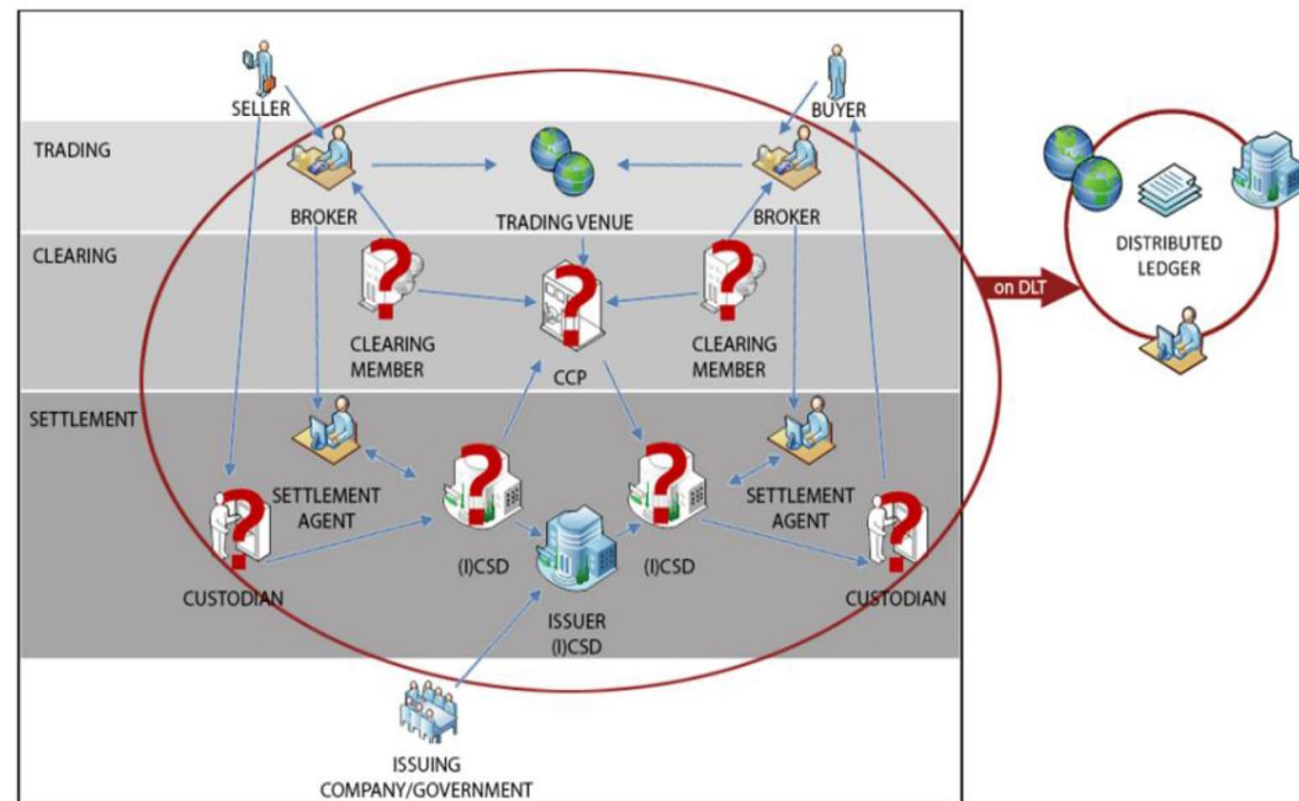
**FSB, The Financial Stability Implications of Tokenisation, October 2024*

Trading and post-trading infrastructures: today and tomorrow



Source: ECB

Dubrovnik, September 2nd, 2025



If the whole post-trade industry migrated to a distributed ledger settlement process, securities accounts would be updated automatically. Depending on the extent of the implementation of smart contracts, some layers of the industry could become redundant.

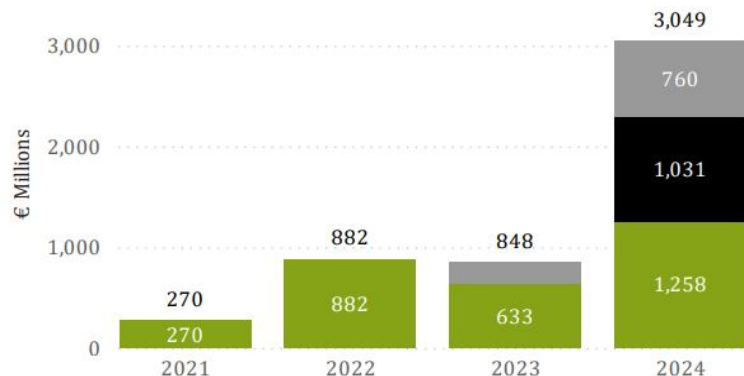
Trends & Developments



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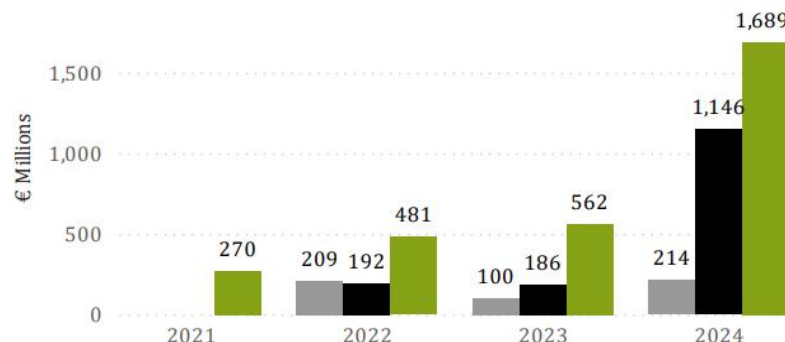
1.1 Global DLT Fixed Income Issuance

● Rest ● ECB trials ● SNB trials



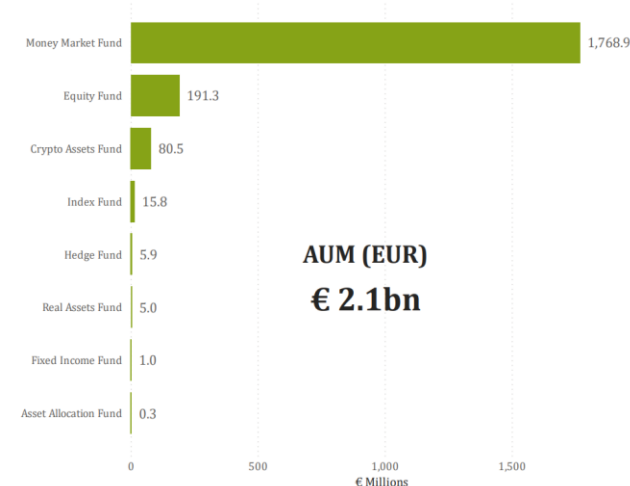
1.2 Global DLT Fixed Income Bond Issuance by Region of Issuer

● Americas ● Asia ● Europe

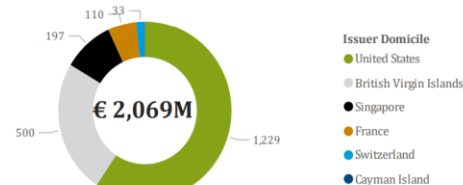


- ❖ DLT fixed income issuance reached €3bn, +260% compared to 2023
- ❖ Growth primarily driven by the ECB and the Swiss National Bank (SNB) DLT Trials, representing 60% of 2024 issued fixed income instruments
- ❖ More than €2.1bn AUM globally on 31 tokenized funds; US leading the market
- ❖ Adoption of DLT in capital markets currently modest relative to the size of global capital markets, but recent rapid growth presenting opportunities for future expansion

6.1 AUM of Global Tokenised Funds by Asset Class



6.2 AUM of Global Tokenised Funds by Issuer Domicile (EUR mn)

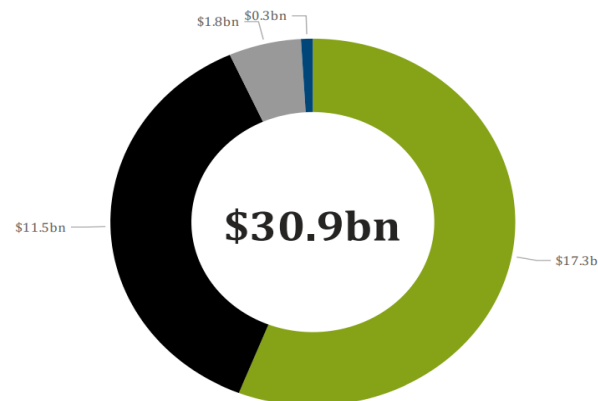


6.3 No. of Global Tokenised Funds by Issuer Domicile



7.1 Market Cap by Tokenised Asset Class

● Equity ● ABS ● Private Credit ● Real Estate



**Source: AFME DLT-Based Capital Market Report, Size and Growth of the Global DLT Wholesale Market, 2024*

Broader EU Policy Objectives

1. Economic growth and competitiveness – Greater access to capital markets
2. Significant advancement of Capital Markets Union objectives
3. Promoting innovation, competition, and development of new services

Risk reduction and resilience

4. Reducing settlement risk and improving settlement choice
5. Enhancing resilience (by reducing single-point-of-failure risks)

More efficient and transparent capital markets

6. Enhanced retail investor access
7. Data transparency and symmetry
8. Cost reduction and process streamlining

Legal and regulatory challenges

1. Legal uncertainty around settlement finality and asset ownership

→ Lack of harmonised rules on when DLT-based transactions achieve finality and how tokenised assets are treated under national law, especially in insolvency cases

Operational and governance risks

2. Operational risks linked to smart contracts and validator governance

→ Risks of coding errors, flawed automation, poor validator governance, and re-centralisation of risk points

Market infrastructure and integration barriers

3. Lack of interoperability with traditional systems and central bank settlement:

→ Challenges in integrating DLT systems with existing CSDs, CCPs, RTGS systems; reliance on non-central bank money for settlement adds credit risk and operational complexity

TRANSITIONAL EU FRAMEWORK

- The EU opted for a gradual, supervised opening, rather than a “big bang” reform
- The EU DLT Pilot Regime allows for a controlled environment to experiment with DLT-based trading and settlement under certain conditions and temporary exemptions (test-and-learn approach)

AIM: BRIDGING TRADITIONAL SYSTEMS & DIGITAL FINANCE

The purpose is enabling both supervisors and market participants to explore benefits (efficiency, transparency, automation) while managing key risks (resilience, legal certainty, especially settlement finality)

Authorised Infrastructures

Applicant	Type of DLT	Type of DLT Infrastructure	Notes
CSD Prague – live	R3 Corda Enterprise (permissioned blockchain)	DLT SS (DLT Settlement System)	Traditional CSD operating a DLT-based securities register and settlement system.
21X AG (DE) – live	Polygon (public, permissioned layer on Ethereum)	DLT TSS (DLT Trading and Settlement System)	Hybrid model combining trading and settlement; direct retail investor access enabled.
360X AG (DE) – active	Likely permissioned Ethereum or similar (TBC)	DLT MTF (Multilateral Trading Facility)	Focus on tokenising real-world assets: real estate, art, music.

- DLT Pilot **progressing cautiously but positively**; early authorisations: strong signal despite operational ramp-up challenges
- Potential for gradual scaling of DLT infrastructures, including in **private markets, SME funding, and fund distribution**
- Legal certainty, cash settlement innovations, and legacy interoperability as critical success factors
- **Applications Pipeline**
 - 4 official applications under analysis (all for DLT TSS from: LT, ES, FR, NL)
 - 3 more applications expected shortly
 - 7 additional potential applications

Technology choices – Diverse DLT models adopted

- **Permissioned enterprise DLT** (R3 Corda, Hyperledger Besu) preferred by traditional and SME-focused players
- **Public or semi-public DLT** (Polygon, Avalanche) used by fintech-driven applicants with robust whitelisting and compliance layers.
- **Emergence of hybrid models** (e.g., permissioned layers on public chains) to balance transparency with regulatory compliance.
- **Consensus mechanisms** tailored for trust and efficiency: Proof-of-Authority, Proof-of-Stake variants, no Proof-of-Work systems used.

Strategic trends

- **Access to capital markets for SMEs and Mid-Caps:** Lower barriers for IPOs and direct listings; reduced administrative costs; stronger investor relationships
- **Retail access models expanding:** Applicants exploring direct-to-retail market structures, supported by wallet whitelisting, suitability testing, and compliance controls.
- **Automation and instant settlement goals:** Applicants aim for DvP (Delivery-versus-Payment) atomic settlement — either via e-money tokens or commercial bank solutions.
- **Real asset tokenisation:** Examples include real estate, royalties, and energy assets.
- **Fund industry efficiency:** Promising opportunities for accelerating fund settlement and reducing fail rates.

Challenges identified

- **Interoperability** with traditional infrastructures remains limited
- **Cash leg settlement** still reliant on private solutions (no live CBDC)
 - Reliance on e-money tokens raising counterparty and liquidity risks.
- **Structural constraints** and regulatory complexity low new entrants' onboarding.
 - Low thresholds for financial instruments admitted under the Pilot regime limit participation of larger market actors.
 - Perceived time limitation (6-year sunset clause) reduces long-term investment incentives in DLT market infrastructures.

- **Implementing the EU DLT Pilot Regime**
 - Designation of competent authorities on trading and post-trading infrastructures under the DLT Pilot, related powers & sanctions
 - Broadened definition of MiFID financial instruments to include those issued on DLT
 - Civil law framework for the issuance and transfer of financial instruments natively on a distributed ledger, according to the principle of “legal equivalence”: financial instruments in digital tokenized form have the same legal standing as traditional (paper-based or dematerialized) securities
- **Allowing application of the civil law framework also to the issuance & transfer of tokenized financial instruments not admitted/beyond the EU DLT Pilot**
- **Fintech Decree as an enabling regime – legal framework opening the way to:**
 - Tokenization (native issuance on DLT) of a broader range of financial instruments compared those admitted in the DLT Pilot, as structured bonds, ABSs, mini-bonds, AIFs, with no size caps
 - Support to market-based financing of unlisted SMEs through tokenized OTC markets/private placements (no MiFID/CSDR market infrastructures involved)
 - Disintermediation: direct issuance; direct investor’s control over own digital assets via wallets
 - Accountability: clear definition of the role and responsibility of DLT registrars**
 - Proportionate and calibrated Consob supervision on DLT registrars

* Law 10 May 2023, no. 52 converting Law Decree 17 March 2023, no. 25

** DLT registrars: entities responsible for maintaining the records on the digital registers where tokenized financial instruments are issued. Entities potentially qualifying as DLT registrars include, amongst others, issuers, specialized third party entity, as well as banks, investment firms, market operators, CSDs and other financial intermediaries

3 DLT registrars supervised by Consob under the national regime

- ✓ *Cassa Depositi e Prestiti S.p.A. (corporate issuer)*
- ✓ *Fleap S.p.A. (small Fintech/new comer)*
- ✓ *Milano Global Advisors S.p.A. (small Fintech/new comer)*

Several ongoing applications to become DLT registrars and many informal dialogues on potentially interested parties...

...BUT...

Predominance of a “wait and see approach”; no application to the EU DLT Pilot and limited issuances of security tokens

Challenges

- DLT platforms enable atomic delivery of tokenized assets, but settling the cash leg in central bank money (CeBM) remains a critical gap
- Without CeBM on-ledger, institutions risk turning to tokenized deposits or MiCA stablecoins

Key benefits of CeBM settlement on DLT

- Near-instant Delivery-versus-Payment (DvP)
- Reduced counterparty risk
- Smart contract automation
- Transparency and auditability

Eurosystem's response

- Exploratory work (May–Nov 2024)
- Two-track strategy approved by ECB Governing Council (July 2025): **Short-term (Pontes)** - Interoperability link with TARGET Services; **Long-term (Appia)** - Integrated solution for DLT settlement, potentially including FX and cross-border use cases.

- DLT-based financial infrastructures need multiple actors to participate simultaneously to generate value:
 - Issuers need investors to buy tokenized financial instruments
 - Investors need a liquid market with enough issuers and intermediaries
 - Intermediaries (custodians, brokers, etc.) need both sides to justify integration costs
- But none of these actors want to be the first mover
 - **Coordination failure:** “*No one joins because no one has joined yet.*” This dynamic leads to market stagnation, where the potential of DLT remains unrealized despite its technical viability
 - Classic **network externality trap:** the system value increases only with widespread adoption, but adoption will not happen without that value

Why It Matters

- For authorities, this failure suggests that passive observation is not enough:
 - Recognizing the systemic nature of adoption (not just firm-level decisions)
 - Supporting early coordination through pilot regimes or sandboxing
 - Avoiding premature deregulation that assumes market forces will self-correct

Stakeholder Engagement

especially in emerging areas, e.g. interoperability, DeFi/smart contract certification, DLT integration with AI and IoT/GreenFintech

- Regulatory/Digital Sandbox
- Stakeholders Group or similar *fora*
- Joint Initiatives with Academia

Review of the DLT Pilot Regime

Consob/AMF Joint Position Paper of April 2025 and Recommendations in ESMA Report of June 2025

- Make it more attractive and flexible in size caps & eligible assets
- Remove 6 years sunset clause + establish a pathway toward a permanent DLT (possibly bespoke) regulatory framework
- Address interoperability/support settlement in central bank money

International coordination

- Foster convergent regulatory approaches and global risk monitoring (IOSCO, FSB) highly desirable, although difficult to achieve currently
- Reinforce EU–U.S. dialogue, complemented by G7/G20-level initiatives

- DLT adoption in capital markets is still limited but accelerating growth, and new entrants point to strong future potential. If the potential of DLT and blockchain technologies is realized in full, the way in which financial services are provided in future could significantly change
- Need to strengthen the dialogue with stakeholders to help addressing “chicken and eggs” and other types of market failures, remove legal obstacles/frictions from legacy framework and contribute building **an integrated European digital ecosystem** where assets and cash coexist on fully interoperable and programmable ledgers