Tokenization of Real-World Assets: Opportunities, Challenges and the Path Ahead

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Digital assets are no longer just the playground of fintech startups. Mainstream financial institutions now offer token-friendly custody and settlement, global exchanges are piloting digital-asset divisions, and traditional asset managers are dipping their toes into tokenized share classes. For established players, the appeal is clear: smoother operations, faster settlements and a bigger pool of potential investors.

Tokenization of real-world assets (RWA) is the process of representing rights in an asset through a cryptographically secured digital token recorded on a distributed ledger. In plain English: RWA tokenization uses blockchain technology (like a spreadsheet in the cloud that no one can secretly edit) to buy, sell, track and hold digital versions of RWA – from real estate and works of art to financial instruments, including investment fund interests.

The RWA tokenization market reached $24 billion in size this year, growing 308 percent in three years, and could reach up to $30 trillion by 2034.[1] This growth appears primed to accelerate as mainstream financial institutions increasingly adopt the technology and identify genuine efficiencies in blockchain infrastructure. RWA tokenization looks set to modernize the process of funding, trading and managing assets in the digital economy. Therefore, it is important for financial service providers and their advisors to understand the risks and opportunities presented by RWA tokens, as well as legal and regulatory considerations.

Tokenization in a Nutshell

In the physical world, a casino chip might represent the right to exchange it for money, or a concert ticket might represent the right to attend a specific concert. Similarly, in the digital world, tokens are digital assets that represent ownership, rights or value, existing on a blockchain or other distributed ledger technology (DLT).

DLT enables digital tokenization without the need for ledgers or databases controlled by a central entity. A digital token can be "native" – created solely for use on the blockchain, with no real-world twin (e.g., a cryptocurrency like Ether) – or "linked", where the token is a digital counterpart to something tangible or intangible in the real world. Either way, the DLT records every transfer, and smart contracts can be used to automatically execute the rules attached to the token (such as issuance and redemption protocols, distribution of dividends, interest or other income, or implementation of governance proposals once voting thresholds are satisfied) and even conditions to a transfer (such as permissions, compliance checks and corporate actions). Tokenization has enabled RWA to be divided, traded and managed in ways not previously possible, all while leaving an audit trail where every transaction is transparent and verifiable.

RWA Tokenization

Tokenization can be applied to any object of recognized value, including real estate, precious metals, fine art, intellectual property royalties and financial instruments. Tokenization allows these RWAs to be divided into multiple fractional interests, enabling ordinary investors to own a portion of a high-value asset they would otherwise be unable to purchase outright.

RWA tokenization refers to the process of representing legal or beneficial ownership rights of RWA as "on-chain", "off-chain" or hybrid tokens. "On-chain" means tokens that can be managed entirely on a DLT, where all key legal information about the asset is embedded in the token and recorded directly on the blockchain – facilitating a transparent, verifiable and immutable record of ownership. Conversely, an "off-chain" structure is where the token serves as a digital representation or reference instrument while the underlying rights and records remain with a third party outside the blockchain using traditional legal and custody frameworks (e.g., platinum bars in a vault or the UK's Land Registry). Hybrid approaches are also possible, where some legal data is stored on the DLT and other information remains "off-chain". For example, ownership records or transaction histories might be recorded "on-chain" for transparency and automation, while sensitive documents are kept with traditional legal registries. Hybrid tokens might enable parties to benefit from the efficiency and transparency of DLT, such as automated settlement or real-time ownership tracking, while still relying on established legal processes for aspects like dispute resolution, privacy or compliance.

Legally, it is important to note that ownership of an "off-chain" or hybrid RWA token doesn't always mean you own the associated RWA outright. It might just be an electronic record of your interest, while the real asset sits safely off-chain in a vault, a bank or in a lawyer's filing cabinet (share certificates, title deeds, etc.). Understanding whether a token is informational, certificatory or dispositive is crucial for enforceability and investor protection.

Key benefits and advantages of RWA tokenization include:

- **Enhanced liquidity.** Assets that were once hard to trade or only available to deep-pocketed investors can now be sliced into smaller pieces and traded 24/7 globally. Fractional ownership lowers barriers to investment, allowing retail investors to own a portion of a high-value asset.
- **Enhanced efficiency.** DLT is decentralized, enabling the use of smart contracts that automatically execute upon the satisfaction of pre-determined conditions. Trading and settlement automation is instantaneous and simplified, allowing interests to be traded more freely and reducing the need for intermediaries. Even where "off-chain" or hybrid tokens are used, the DLT functions as a ledger of reference that may facilitate more efficient notice, settlement and reconciliation (without replacing existing legal processes).
- **Transparency.** Distributed ledgers are verifiable by anyone with access to the ledger, which mitigates fraud and can enhance effective regulatory compliance. Again, smart contracts can be utilized to enforce relevant governance protocols, laws and regulations automatically. This has the potential to massively simplify current record-keeping with enhanced data disclosure.
- **Cost savings.** Operational cost savings may result from the automation process and the reduced need for intermediaries.

Fund Tokenization

The perceived advantages highlighted above have spurred innovative players in the investment funds market to create tokenized fund products. The issuance of fund tokens, where the token represents a share or unit of ownership in a limited partnership (or other traditional investment fund vehicle), is accelerating across the asset management industry.

In the UK, the Investment Association's Technology Working Group has worked with HM Treasury and the Financial Conduct Authority (FCA) to develop a blueprint for implementing the tokenization of UK investment funds.[2] The FCA has recently shown support for the Monetary Authority of Singapore's Project Guardian, which is also related to the tokenization of assets and investment funds.[3] In 2023, HM Treasury announced plans for the Digital Security Sandbox, where firms can set up and operate financial market infrastructure using digital asset technology.[4] The implicit acceptance by the government and regulating bodies that digital assets are here to stay has helped pave the way for the wave of innovation we see today, with the tokenization of UK-authorized funds being brought within the confines of an acknowledged regulatory framework.

Fund tokenization is also being utilized in Europe, with various models emerging in France, Germany and Luxembourg (to name a few). The EU DLT Pilot Regime, set out in Regulation (EU) 2022/858, seeks to achieve some homogeneity across the European jurisdictions by introducing a single regulatory "sandbox" for DLT multilateral trading facilities, settlement systems, and combined trading-and-settlement systems. Such a regime allows authorized operators to admit and record tokenized

shares, bonds and fund units below defined value thresholds, while benefiting from targeted exemptions from other EU regulatory requirements.[5] This harmonized framework is intended to stimulate cross-border liquidity, underpin investor protection and facilitate supervisory convergence.[6]

US funds are even using public blockchains, representing the trust that some players now have in the technology. For example, Hamilton Lane has a number of tokenized funds available, including a tokenized feeder for the off-chain Private Infrastructure Fund. This feeder has reduced the typical minimum investment amounts for investors from an average of $5 million (for the direct fund) to $500.[7]

Key Debates and Considerations about Tokenization

While momentum behind fund tokenization continues to build, certain legal and regulatory challenges must be considered before managers, custodians and distributors can effectively scale this technology:

- **Regulatory perimeter.** In the UK, the FCA's technology-neutral approach means tokenized fund units that mirror conventional shares/units are already treated as "security tokens" (i.e., specified investments under the UK's financial markets regulation), so the regulatory regimes and anti-money laundering laws that govern traditional securities offerings still apply. The position is similar across all jurisdictions.
- **Ownership and title transfer.** While the Property (Digital Assets, etc.) Bill[8], which formalizes the recognition of digital assets as property under English law, is expected to be passed soon; uncertainty remains as to how certain tokenized units can be legally transferred. If the distributed ledger is only evidential and the legal title stays off-chain, a traditional instrument of transfer is still required. Conversely, if the ledger is the register of legal title, managers must ensure they can still execute mandatory redemptions or freeze units (e.g., in case of anti-money laundering (AML) or sanctions events) consistent with unilateral, court-recognized transactions. Documenting that override power in the fund documentation and coding it into the smart contract is essential.
- **Smart contracts.** As discussed, many tokenized fund models automate issue, redemption and distributions via smart contracts. Smart contracts are, at heart, code that acts like a contract. Following the Law Commission's 2021 advice, English courts are open to enforcing them if the usual ingredients – offer, acceptance, consideration and intention – are present.
- **Cross-border distribution and recognition.** Regulatory sandboxes (like the FCA's Digital Securities Sandbox, the EU DLT Pilot, Singapore's Project Guardian, and Abu Dhabi's Global Market's DLT regime) offer safe spaces for players to experiment with digital asset initiatives and innovations, but cross-border recognition is still in its infancy. For example, a UK-domiciled

tokenized fund that wishes to promote in the EU or the US must still comply with the full suite of local offering, registration and disclosure requirements applicable to those jurisdictions. Within the EU, this involves navigating both the pan-European Markets in Crypto-assets Regulation (MiCA Regime) and the various domestic sandbox frameworks under the EU DLT Pilot Regime. In the US, the Securities and Exchange Commission (SEC) is scrutinizing tokenized money market funds, feeder funds and similar structures on a case-by-case basis and granting relief, if at all, through bespoke exemptive orders or no-action letters.

- **Security risks.** Private-key theft, protocol bugs, cybercrime and data privacy laws are all risks associated with DLT. Unlike centralized registrars, blockchains are unforgiving – a mistaken or fraudulent transfer may be irreversible. Moreover, the permanent recording of an individual's wallet address could conflict with laws on controlling and processing personal data.

Conclusions

RWA tokenization is no longer a speculative thought experiment; it is steadily re-engineering the plumbing of global capital markets, offering the promise of deeper liquidity, operational efficiency and increased transparency. Yet the pace of innovation has outstripped the harmonization of the legal and regulatory frameworks that must ultimately safeguard investors, issuers and intermediaries. As we have explored, questions of title, enforceability of smart contracts and cross-border recognition remain unresolved, even as supervisors from the FCA to the European Securities and Markets Authority (ESMA) and the SEC signal a willingness to experiment through sandboxes and pilot regimes. It is, therefore, essential to navigate the legal considerations involved in order to ensure legally sound and compliant tokenization projects. For issuers, this means proactively engaging with evolving regulations to structure trustworthy and attractive offerings. Intermediaries must adapt their processes to ensure robust compliance and risk management in a continuously changing environment. Investors, meanwhile, should seek clarity on rights, protections and recourse mechanisms before participating in tokenized funds, or other RWA tokenization projects.

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1 "Real World Asset Tokenisation Market has Grown Almost Fivefold in 3 Years," *CoinDesk*, June 26, 2025

2 The Investment Association, UK Fund Tokenisation: A Blueprint for Implementation, November 2023.

3 FCA, FCA welcomes Project Guardian's first industry report on tokenisation, November 4, 2024.

4 HM Treasury, Consultation on the First Financial Market Infrastructure Sandbox, Digital Securities Sandbox, July 2023.

5 Including the recast Markets in Financial Instruments Directive and the Central Securities Depositories Regulation.

6 ESMA, DLT Pilot Regime - Regulation (EU) 2022/858.

7 Hamilton Lane Private Infrastructure Fund.

8 UK Parliament, Property (Digital Assets etc) Bill, July 17, 2025.

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