

The tokenisation of Real World Assets (“RWAs”), Web3 and the pairing of AI with distributed ledger technology

On 24th March 2024, The Technology Working Group of The Investment Association published its Second Interim Report titled [“Further Fund Tokenisation: Achieving Investment Fund 3.0 Through Collaboration”](#).

The forewords to this report are excitingly expansive:

“The third industrial revolution – otherwise known as the digital revolution – is ushering in a new and exciting era of innovation and technology.

*We now stand on the precipice of a huge technological change. With its reputation for pushing the frontiers of innovation, and its world leading investment management sector, the UK is ideally placed to seize on the transformative capabilities of **tokenisation** and apply them to investment funds.”*

They continue:

“New technology has the potential to fundamentally change the way asset management works. And for the better. ... Interoperable technical and regulatory standards will be important to fully harness the benefits of technology ... there are no significant legal or regulatory barriers to the industry blueprint for tokenisation – unlocking the opportunity to implement Distributed Ledger Technology in fund processes.”

What is a token?

In general, a token is an anonymous **digital representation of rights which confer control or a much broader bundle of ownership powers over something of value**, either a tangible physical asset in the real world that can be touched and felt or, alternatively, an intangible asset such as intellectual property or even identity and data. Tokenisation is the transformation of those rights into digital form.

A digital token’s ability to represent something else arises from the information which it imparts about itself and the asset or part of the asset for which it is a proxy within a digital world that typically relies on blockchain technology. Blockchain technology, whereby records of data ownership and transactions are held or transacted on a decentralised ledger that is replicated across networks is also

commonly referred to as 'Web 3.0' when applied in the context of the internet networks which we interact with on a daily basis.

What are the benefits?

In theory, decentralisation more effectively preserves the integrity of records of ownership and of transactions compared to data records whose control is ceded to one or a limited number of real world data controllers where there may be a greater risk of tampering or failure.

The tokenisation of asset ownership also potentially allows more investors to acquire property rights in fractions of real world assets they could never afford to wholly own personally and in which fractional ownership would be too expensive to administer in the real world.

This technology enables a wealth manager to easily construct, deploy and automatically manage model portfolios at scale across traditional and alternative assets, allowing a seamless investor experience with improved transparency.

With the use of blockchain technology it may be possible to expand the coordination and transaction of more types of assets across multiple managers on shared ledgers to accrue even more efficiency and expand the investable universe and potential for liquidity, including for:

- alternative investments with their operational differences and limited liquidity compared to traditional public assets;
- automated portfolio deployment of cash into tokenised alternative investment and traditional investment fund vehicles; and
- cross-asset model portfolio re-balancing through automated order execution and settlement across alternative investments, public assets and cash.

Public assets such as equities, exchange-traded funds and mutual funds benefit from industry-wide traditional settlement venues, straight-through processing technology, improved real-time access to asset and market data, a broader range of market participants and, therefore, increased liquidity and accessibility. As a result, these assets are well suited to the discretionary model.

In contrast, alternative assets are commonly offered on an advisory basis, whereby a wealth management firm curates a short list of approved funds from which clients can select and invest. This

limits distribution at scale, despite the portfolio-enhancing characteristics that alternative investments can offer, notwithstanding, it has been said, that alternative assets have historically delivered [better risk-adjusted returns](#)¹ than portfolios without them; - a view perhaps sometimes expressed with the benefit of ‘survivor bias’.

The tokenisation of alternative assets can reshape the alternative investment landscape, making it more inclusive, transparent and efficient and enable a broader range of individuals to engage with high-value assets.

How then is tokenisation of alternative assets achieved?

The first step to the direct tokenisation of a real world asset (“**RWAs**”) will depend on the asset to be tokenised. This will differ according to whether it is an immovable asset, such as land, or a chattel and whether the tokenisation is direct or indirect.

Tokenisation can also take place either *directly* or *indirectly*.

The value of asset-backed tokens is the same as the underlying RWA because the blockchain-based representation is not a new asset.

An example of *direct* tokenisation would be:

Agrotoken

A grain farmer deposits grain with a trusted grain custodian which issues a Proof of Grain Reserve (“**PoGR**”) certificate. The farmer then requests the Agrotoken platform to issue crypto grains (1 ton of grain – 1 crypto grain token) and transfers the PoGR as collateral for the crypto grains. Agrotoken issues (mints) the crypto grains and deposits them in the farmer’s digital wallet. The farmer can now transfer crypto grain within the crypto grain ecosystem. A holder of crypto grains can request detokenisation from Agrotoken which ‘burns’ the surrendered tokens in return for a PoGR certificate enabling the detokenised grains to be released for regular commercialisation.

In the UK, such tokenised rights would come within the FCA definition of ‘cryptoasset derivatives’ a term which the FCA defines in this way:

¹ *How alternatives can address your 60/40 portfolio blues*, Financial Times (July 2022)

“a derivative where the underlying is, or includes, an unregulated transferable cryptoasset or an index or derivative relating to an unregulated transferable cryptoasset.”

An unregulated transferable cryptoasset is defined as [*emphasis in bold added*]:

“a cryptographically secured digital representation of value or contractual rights that uses distributed ledger technology and which:

- (a) is capable of being traded on or transferred through a platform or other forum;*
- (b) is not limited to being transferred to its issuer in exchange for a good or service, or to an operator of a network that facilitates its exchange for a good or service;*
- (c) is not electronic money;*
- (d) **is not a specified investment**;*
- (e) is not a representation of ownership or other property right in a commodity²; and*
- (f) is not money issued by a central bank.”*

An FCA authorised firm is prohibited from selling, distributing or marketing a direct crypto derivative to a retail client pursuant to COBS 22.6.5.

However, because the definition of unregulated transferable cryptoasset excludes a ‘specified investment’, an RWA can be tokenised indirectly.

For example, ‘shares’ are a type of ‘specified investment’ and so a RWA might be owned by a special purpose vehicle (an “**RWA SPV**”) whose sole shareholder is a custodian which proves its share ownership to a crypto platform which then issues to retail investors digital tokens conferring rights in respect of the shares held.

² Query what is meant by “or other property right” and how broadly could “commodity” be read? Could it mean any asset commonly consumed or traded?

Debentures and warrants are also 'specified investments'. So, similarly, such securities could also be tokenised and sold, distributed or marketed to retail investors by authorised firms.

Why is a distinction drawn between direct tokenisation and indirect tokenisation?

Such a distinction makes sense if it is reasonable to expect that the custodian of shareholder rights, from which the token rights are derived, will exercise its rights as a shareholder to hold RWA SPV directors to account as regards their care and control over the RWA. Therefore, the expertise, experience and integrity of the RWA SPV directors matters. Normal rules apply.

A decentralised autonomous organisation (“**DAO**”) smart contract structure might underpin an indirect RWA SPV token issue and be of a type, if such as yet exists, that requires the custodian to initiate appropriate token holder mandates as to how the custodian should exercise its shareholder rights.

This would imply the need for the real world custodian or another third party to owe trustee responsibilities to the body of token holders so that it is obliged to take appropriate action to trigger the DAO structure when timely shareholder action is called for which has not been predicted by the smart DAO contract.

Alternatively, an activist token holder might be a catalyst for a token holder on-chain action group mandate.

Caution may be required where the crypto platform is also an owner of shares in the RWA SPV or where related party transactions are in play with regard to the RWA SPV. Normal concerns apply.

Therefore, depending on their nature, RWA SPV token issues will require quite sophisticated smart DAO contracts if they are to replicate the sophistication of rights normally enjoyed by shareholders and bondholders of publicly issued securities. Failing this, decision-making is likely to be highly inefficient.

Perhaps, in this brave new world, effective artificially intelligent custodians are likely to be in high demand if the decentralised ownership and management of RWA SPVs is to be accompanied by robust oversight and governance which is not vulnerable to real world actors at risk of failure or tampering.

Indeed, this possibility is recognised in the first interim report from The Technology Working Group published in November 2023 [“UK Fund Tokenisation: A Blueprint for Implementation”](#):

“It is likely that investment management-specific benefits of AI will further manifest once paired with distributed ledger technology”

It is not enough merely to preserve the integrity of records of ownership and of transactions. With real world assets, possession is always nine tenths of the law and the tokenisation of RWAs or of RWA SPVs can only succeed if their real world care and management is equally as robust as the digital record of their ownership.

The restriction on FCA authorised firms selling, distributing and marketing cryptoasset derivatives to retail investors does not apply to collective portfolio management firms. This also makes sense, enabling retail investors to benefit from investing in alternative RWAs, directly as well as indirectly, provided there is appropriate professional oversight of real world care and management of the RWA or RWA SPV by an AIM or a UCITS investment firm.

In July 2023, HMT announced its plans for the first UK financial market infrastructure sandbox, the [Digital Securities Sandbox](#) (“DSS”) which aims to enable digital securities to be tested and, ultimately, adopted across financial markets. It is now possible for firms that successfully apply to the DSS to be authorised by the Bank of England and the FCA as a digital securities depository or “DSD” to undertake the activities traditionally associated with central securities depositories, namely the issuance, maintenance and settlement of financial securities. It will also be possible to combine these activities with that of a trading venue, creating new business models.

All eyes await the authorisation of the first DSD fund managers and whether they will invest directly in RWAs or indirectly in RWA SPVs whose directors, rather than the DSD fund manager, will be primarily responsible for the care and management of the real world assets in question.

Why bother?

If an investor can trade in the shares of an RWA SPV why might an investor want to buy and sell token derivatives of underlying shares?

Why might an issuer want to issue tokens rather than shares?

The benefits are as noted above. The answer, for both investor and issuer, is the ability to trade tiny fractions of economic ownership within a global capital market enlarged by a population of small investors who wouldn't ordinarily be given the opportunity to invest in RWA SPVs because the administrative costs of them doing so would be prohibitive.

So for the investor, the "why bother" question is answered by the ability to access perhaps, superior returns on investment compared to the returns that might ordinarily be available.

For the issuer, the answer to the same "why bother" question is the flip side of this; a larger market implies the potential to realise additional capital.

For both, the key to successful trading will be sophisticated blockchain settlement software that is competent to settle trades in the instant so that, at any time, the issuer of the tokens knows to whom it should account for dividend payments and other benefits of the shares from which the tokens are derived - a competence that needs to overcome any hidden dangers lurking within some freeware or open license software.

But the question remains, what is a token in law? Is it or should it only be a derivative of a share?

We know that the provisions of a company's constitution bind the company and its members to the same extent as if there were covenants on the part of the company and of each member to observe those provisions, per section 33(1) Companies Act 2006 ("**CA**") and that these binding covenants only apply to members. So, in the ordinary course, token holders do not directly benefit from the provisions of articles of association. These provisions only benefit a shareholder whose membership is recorded in the register of members.

Further, token holders do not receive any benefit directly from all the provisions of the Companies Act that exist to protect the interests of members, including the duty of a director to act in the way he considers, in good faith, would be most likely to promote the success of the company for the benefit of its members as a whole, per section 172CA.

Only a member of a company may apply to the court that a company's affairs are being or have been conducted in a manner that is unfairly prejudicial to the interests of members generally or of some part of the members (including at least himself).

These shortcomings could be addressed if a token holder were to be a member of a company. This is unlikely, perhaps, in practice, but possible, given that the qualification to be a member is only that a person should agree to become one and that their name is entered in a company's register of members as a member of the company (see section 112CA which states only that "every other person [*in addition to the subscribers*] who agrees to become a member of a company, and whose name is entered in its register of members, is a member of the company" with no requirement to own shares in order to be a member of a company and also the decision of the Court of Appeal, Civil Division, in *Re Nuneaton Borough Association Football Club Ltd [1989] BCLC 454*). Though, were membership to be offered, a token holder would also want to be sure that they were a member whose liability for debts of the company was limited by the company's constitution.

Assuming then, that a token holder is not a member of a company, the best RWA SPV token issues will be those that offer quite sophisticated smart DAO contracts that replicate the sophistication of rights normally enjoyed by shareholders and bondholders of the best publicly issued securities.

This means that there should always be a competent third party that is appointed to represent the body of token holders who can take appropriate action to trigger the DAO structure when timely shareholder action is called for which has not been predicted by smart, even artificially intelligent, DAO contracts.

RW Blears LLP is advising [Tangerine X](#) on the development of Fractalized, a Real-World Asset tokenization platform for high-value, high yield illiquid assets, starting with large commercial shipping vessels.

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