

A new age of digital wealth

Tokenisation and the
transformation of investment



DMI

Digital Monetary Institute

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DIGITAL ASSETS COME OF AGE IN THE US

New opportunities should proliferate for investors as crypto and tokenisation go mainstream, but there will be new risks. By John Orchard, chairman of OMFIF's Digital Monetary Institute.



'Given the global primacy in traditional finance of the US's currency, its capital markets and its financial institutions, this is a game-changer for wholesale finance worldwide.'

CRYPTOASSETS already live in a well-developed market, albeit a self-contained one. Around 52m Americans own distributed ledger technology-based assets in an environment that has made it difficult for mainstream financial institutions to hold and trade them. No longer.

On 23 January, the US Securities and Exchange Commission rescinded a requirement for digital assets to be treated by custodians as direct liabilities of their own, on the same day that President Donald Trump issued an executive order stating his intent for the US to be a world leader in digital assets. Given the global primacy in traditional finance of the US's currency, its capital markets and its financial institutions, this is a game-changer for wholesale finance worldwide.

While American companies such as Circle and Coinbase have already been playing a dominant role in digital finance, the lack of regulatory clarity in the US has held back the creation of an environment where a wide variety of tokenised assets can circulate on exchanges, in banks, custodians and asset managers, as well as interact with payment services and digital versions of cash. This has been compounded by international standards due to be introduced by the Bank for International Settlements this year. Perhaps those will now also be revised.

DLT finance lives in three broad realms: cryptoassets, which are 'native' to blockchain, such as bitcoin; tokenised assets, which descend from traditional securities, commodities and property; and digital versions of money, such as USDC. While bitcoin originally grew up among advocates of abolishing fiat money and the institutions that deploy it, it seems likely that such assets will be absorbed into the existing financial ecosystem, which will expand and adapt to cater

for them.

As many people have discovered from the invention and demise of Meta's stablecoin Libra onwards, replacing traditional finance with an alternative decentralised finance environment is simply not going to happen. The merger of the two might, however, revolutionise what people can own and trade, and how. As the contributions in this report from R3, Stellar and Coinbase show, this process is already well underway.

Some issues are still outstanding. It is unclear what versions of digital money will be used to settle trades or can be deployed for repurchase agreement purposes, where and which public or private networks will eventually dominate the transfer value on the blockchain (or set of blockchains), or how they will interoperate.

Progressive central banks have been experimenting with versions of public money that can interact with digital assets in a closed, regulated ecosystem, broadly similar to how real-time gross settlement already works, but potentially linked cross-border. This is now only a remote possibility in the US, unless the Federal Reserve finds a way to modify the nomenclature for the now proscribed – by executive order – central bank digital currency. It could be that bank stablecoins, non-bank stablecoins or those produced by asset management firms, who already preside over cash-like money market funds and are subject to well-developed federal regulation, take up the slack.

Other jurisdictions think that 'the singleness of money', rooted in the central bank, is needed at the heart of the financial system. After studied resistance it looks like the US will now explore this conundrum first, potentially revolutionising the way money, securities and commodities work for everyone.

Investors adapt their approaches to digital assets

Tokenisation is rising up the investment agenda of asset owners and managers as they look to build returns from digital assets.

INVESTORS' attitudes towards digital assets are undergoing a fundamental shift. Where once scepticism or cautiousness trumped curiosity, asset managers and owners are increasingly investigating how they can incorporate digital assets into their investment cases. Tokenisation has the opportunity to redefine asset ownership, lowering transaction costs, bringing transparency and greater liquidity to a wide range of assets and broadening access to investments.

Cryptocurrencies such as bitcoin and ethereum, as well as the exchange-traded funds of these digital assets, have and continue to grab much of investors' attention. But there is an increasing desire to understand how tokenisation of real-world assets – those bedrocks of traditional portfolios such as equity, debt, real estate and commodities – can help create a new financial ecosystem. It will be one where traditional investment criteria such as diversification, store of value,

asymmetric returns and – perhaps most importantly – yield generation take precedence.

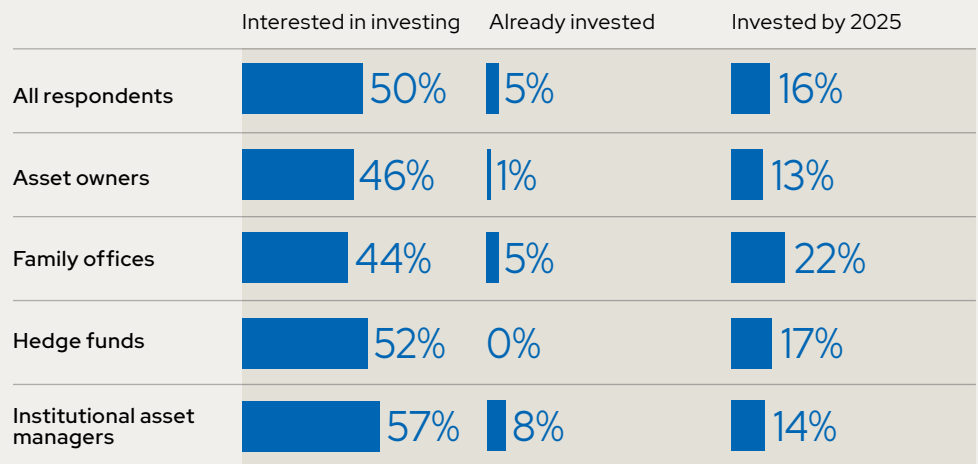
Research from consultant Roland Berger estimates that the total universe of tokenised assets will reach \$10.9tn by 2030, compared to \$400bn in 2023 – and still less than 1% of the total value of real-world assets in 2024. This would be a seismic shift in the nature of global financial markets – for reference, \$10.9tn is three times the current value of all listed equities on the London Stock Exchange. The three leading asset classes will be real estate, debt and investment funds.

OMFIF has undertaken a thorough study of a number of high-quality research reports published on the attitude of institutional investors to digital assets, as well as its own research on the future of digital money. The following selection gives a clear insight into the current state of play as well as future growth.

Figure 1.1 shows that 50% of surveyed investors are interested in investing in tokenised assets. Interest is highest among institutional asset managers at 57%. In the shorter term, more family offices expect to have invested by 2025 than any other investor type (22%).

1.1. Interest in investing in digital assets to reach critical mass

How interested are you in investing in tokenised assets/how soon will your firm begin investing in tokenised assets? Share of respondents, %



Source: EY/Parthenon

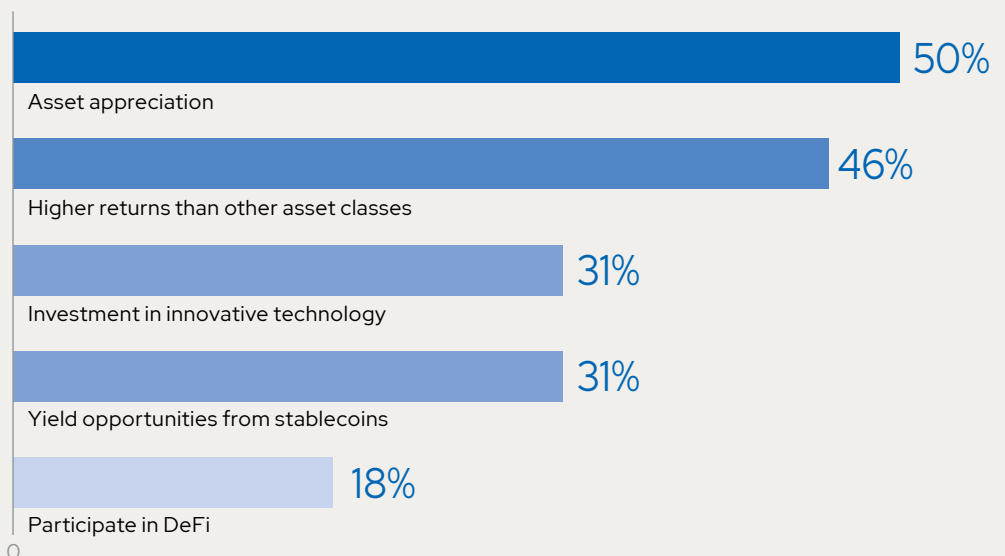
\$10.9tn

Estimated market size of tokenised real-world assets by 2030, up from \$400bn in 2023.

Asset appreciation and higher returns than other asset classes are the biggest motivations for investing in digital assets (Figure 1.2). Yield opportunities from stablecoins are also a strong reason. Speculative stakes aimed at understanding the 'concept' of digital assets are of declining importance as the market matures, with just 18% of investors citing participation in decentralised finance as a driver for investment.

1.2. Returns are key to investment interest in digital assets

Which of the following do you consider to be the main reason to invest in digital assets? Share of respondents, %

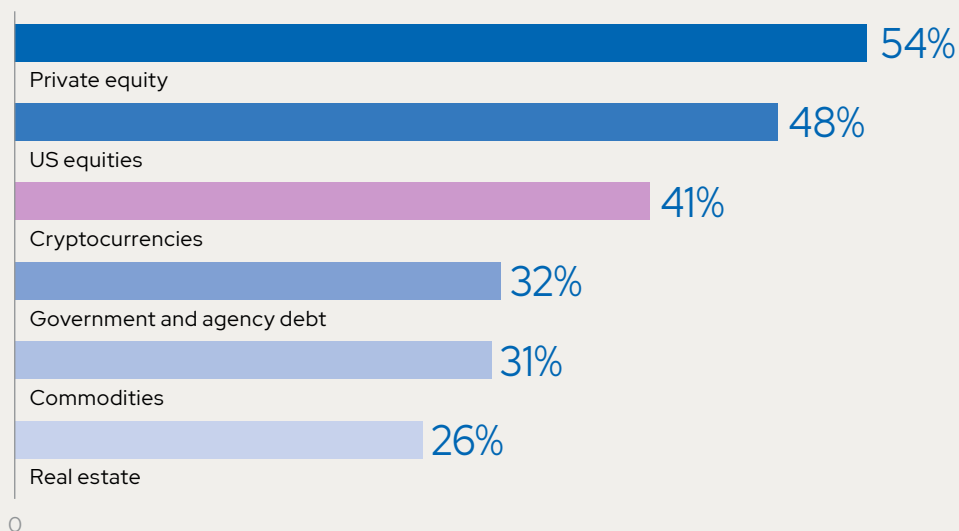


Source: Coinbase Institutional Investor Digital Assets Outlook Survey

Looking more generically at total portfolio construction, Figure 1.3 shows that cryptocurrencies rank as the third most attractive asset class for generating risk-adjusted returns, ahead of staples such as government debt, commodities and real estate. Only private equity and US equities offered higher expected returns.

1.3. Digital assets a good opportunity for returns by institutional investors

Over the next three years, in which asset classes do you see the biggest opportunities to generate attractive risk-adjusted returns?
Share of respondents, %



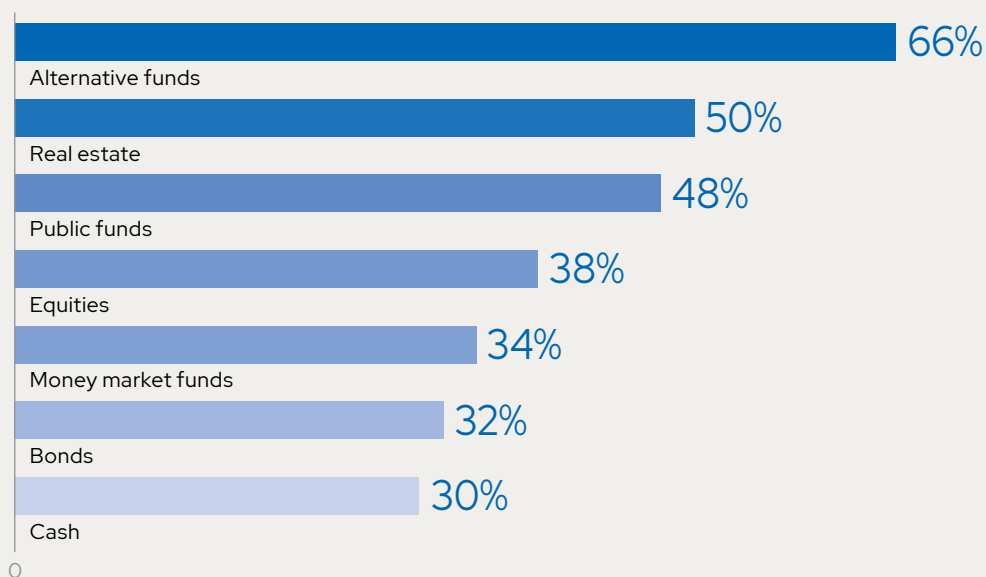
Source: Coinbase Institutional Investor Digital Assets Outlook Survey

56% of institutional investors in the US are familiar with digital assets, compared to 66% in Asia.

There may soon be an opportunity for institutional investors' clients to buy tokenised assets in all of these sectors and more. According to research from EY, two-thirds of fund managers are interested in tokenising alternative funds and half would consider real estate (Figure 1.4). This demonstrates the belief that tokenisation can benefit illiquid assets by creating access to new investors and capital, including fractional ownership.

1.4. Institutional investors most likely to tokenise illiquid assets

Which asset classes or security would your firm be interested in tokenising?
Share of respondents, %

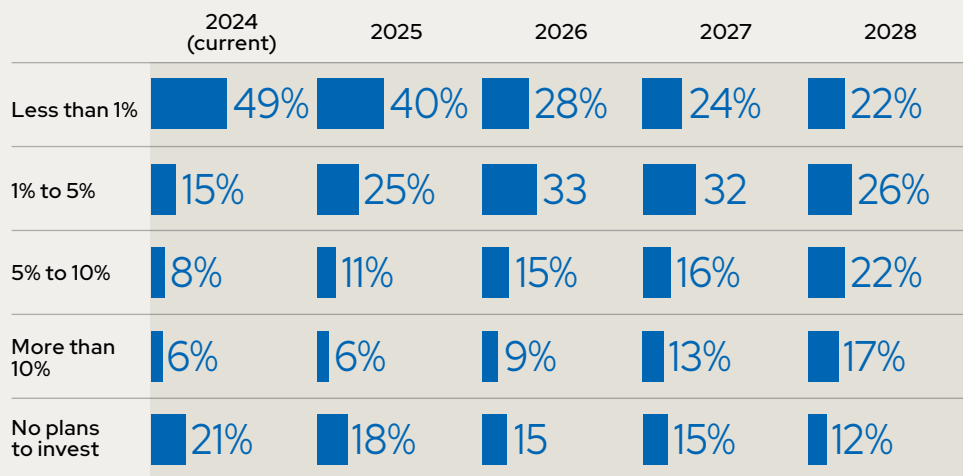


Source: EY/Parthenon

It is still early days in terms of actual investments. Roughly half of surveyed investors have less than 1% of their portfolios in digital assets. But by 2028 a similar proportion expects to have 1% to 10% of their investments allocated to digital assets (Figure 1.5).

1.5. Digital assets will become core part of institutional investor portfolios

What proportion of your portfolio do you anticipate being DLT-based/tokenised over the following periods? Share of respondents, %



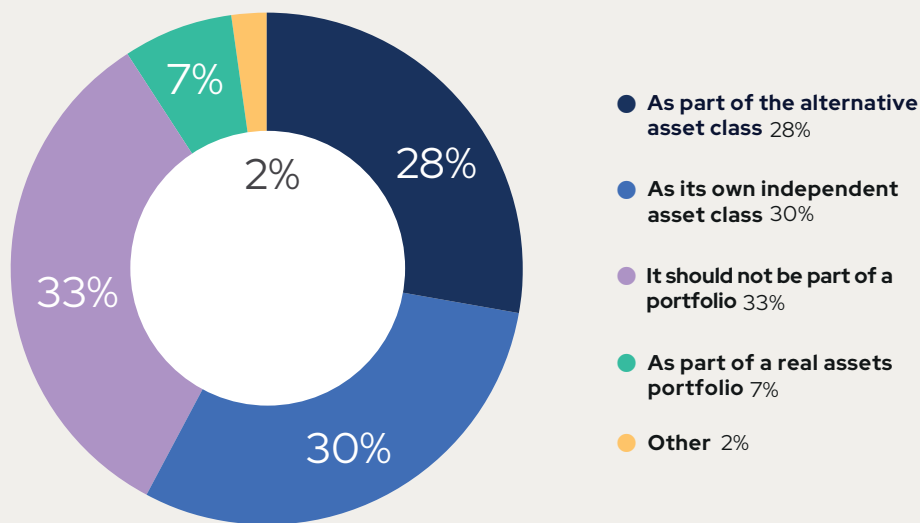
Source: EY/Parthenon

94% of institutional investors believe in the long-term value of blockchain technology and crypto/digital assets.

Where they will allocate these assets within their portfolios is less clear – investors are currently weighing up whether it should be as part of the alternative asset class, as an asset class in its own right or whether they should be held separate to existing portfolios (Figure 1.6).

1.6. Mixed views on incorporating digital assets

How do you believe digital assets should be held as part of your portfolio? Share of respondents, %

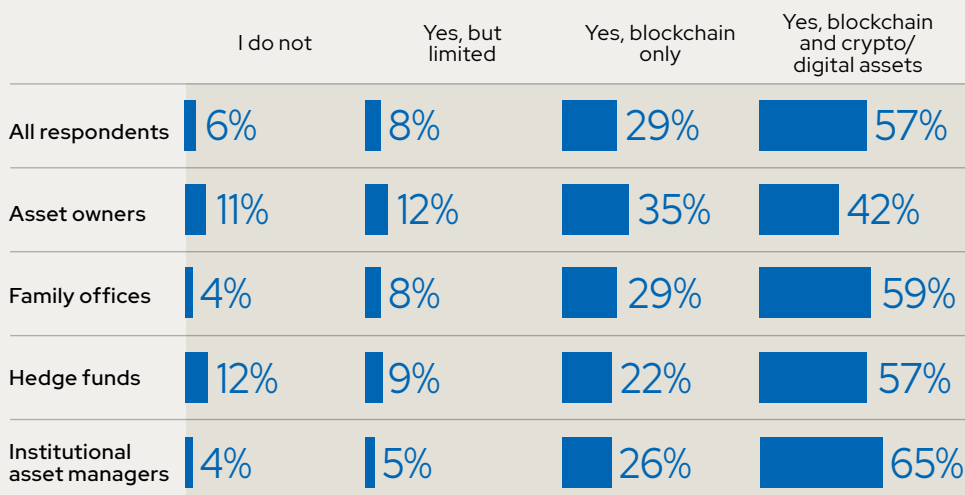


Source: Fidelity Digital Assets

Figure 1.7 shows the relative scepticism of asset owners towards digital assets. Public pension funds are trading carefully in this space. A survey carried out by OMFIF in 2023 showed that only one in five pension and sovereign funds were evaluating digital asset investments, and no funds were actually buying them. While asset managers are the most positive about the inherent value of digital assets, family offices are not far behind them.

1.7. Family offices among biggest believers in the value of digital assets

Do you believe in the long-term value of crypto/digital assets? Share of respondents, %



Source: EY/Parthenon

50% of surveyed investors are interested in investing in tokenised assets.

There is no doubt that family offices should have an important role to play in the development of digital assets globally. As Figure 1.8 shows, they have similar collective firepower to central banks, public pension funds and sovereign funds. They are considerably more agile and can act more quickly if they spot an opportunity.

1.8. Family offices and their influence as asset owners

Selected asset owners by assets under management, \$tn

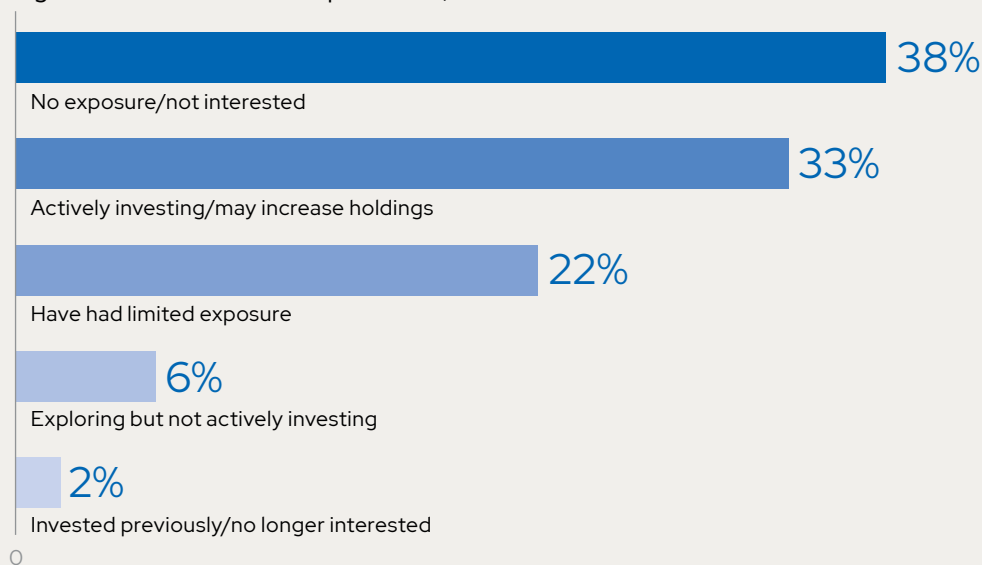


Sources: OMFIF, With Intelligence

Among those family offices, according to research from BNY Wealth, 55% of survey respondents revealed they had at least some exposure to cryptocurrencies and related digital assets. Of these, around 60% are actively investing or considering increasing their investments (Figure 1.9).

1.9. Family offices and their approach to digital assets

Which of the following best describes your current approach to cryptocurrencies/digital assets? Share of respondents, %



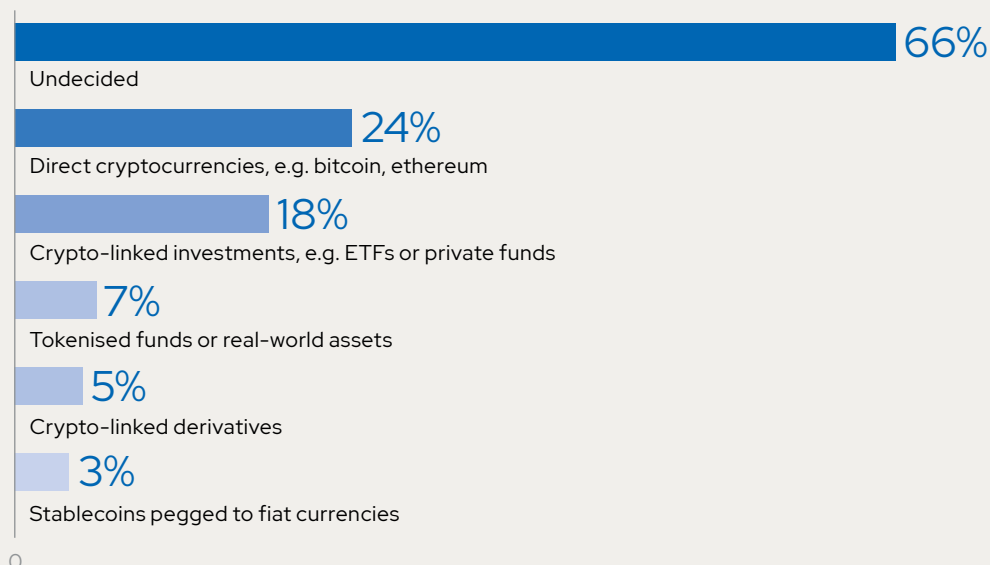
Source: BNY Wealth

55% of family office respondents have some exposure to cryptocurrencies and related digital assets.

While more established vehicles for digital investment such as direct holdings of bitcoin or ETFs based on cryptocurrencies remain the most popular routes for now, two-thirds of family offices taking part in a survey conducted by Citi said that they have yet to decide their preferred structure (Figure 1.10). Tokenisation, either of funds or real assets, is preferred by 7% for now, and may very well be the path to wider adoption.

1.10. Family offices considering a wide range of digital assets

Which types of digital assets are you highly interested in? Share of respondents, %



Source: Citi Global Family Office Survey 2024

FROM HEADWIND TO TAILWIND

Anthony Bassili, head of allocators and tokenisation at Coinbase, spoke to OMFIF about what to expect in the crypto industry under the new US administration.

OMFIF: What is the state of the crypto industry today?

Anthony Bassili: Crypto as a technology and an asset class has entered a new paradigm of institutional adoption and global scale. Globally, it's estimated that more than 500m people own crypto today and new, more accessible financial services are being built on crypto rails. As we look ahead, increasing institutional adoption and expanding use cases have signalled a transformation for the space.

With the approvals of US spot bitcoin exchange-traded funds in 2024, we've seen tremendous retail and institutional demand marking the fastest growing ETF launch in the history of financial markets. Since inception, we've witnessed a net inflow of \$30.7bn just in a single year.

Key market use cases of crypto include bitcoin as a store of value and hedge against inflation – more than \$2tn is held in bitcoin globally. Stablecoins, like USDC, offer simplified payments, lower transaction costs and global marketplace access – more than \$200bn is held in stablecoins globally. Decentralised finance, which has more than \$250bn across hundreds of protocols and on-chain applications, promises to bring financial services to every person in the world, no matter where they are or how much money they have.

OMFIF: How will the new US administration's first 100 days impact cryptoasset policy?

AB: From day one, Coinbase has advocated for regulatory clarity and fairness for the crypto industry and we believe that US regulation will most likely flip from headwind to tailwind in 2025. Under the Donald Trump administration's executive order 'Strengthening American Leadership in Digital Financial Technology', we anticipate a major step forward for crypto's presence in the US.

Additionally, with the creation of the new crypto task force, the Trump administration has made it clear that crypto rules are a priority as it transitions into office. We anticipate that these initiatives will establish a regulatory framework for crypto, evaluate the creation of a national digital asset stockpile and protect banking services for 'all law-abiding individual citizens and private-sector entities', among other priorities. These developments point towards a clearer framework in 2025.

OMFIF: What will the US's role be in the promotion of a new phase of global financial markets powered by Web3 technology?

AB: The maturation of crypto as an asset class has presented an appetite for global regulatory progress. This technology allows for truly global and connected infrastructure where all assets move on the same rails in real time. On a macro level, the developments in regulatory clarity in 2024 laid the foundation for thoughtful conversations around international regulation in 2025.

However, the differing viewpoints on closed, permissioned CBDCs versus open, permissionless stablecoins will convey a striking difference on how the US will continue to lead with innovation and open, competitive markets as its moat. The US is also likely to shift further towards open, permissionless and decentralised blockchains to power global financial markets, rather than closed, isolated markets.

For example, the Markets in Crypto-Assets Regulation in the European Union is being rolled out in phases, providing additional clarity for the industry across the EU. For crypto, MiCA marks the start of the journey for clarity on token listings, stablecoin issuers and decentralised applications across public blockchains. It is important to recognise the relevance of stablecoins for on-chain cash

Under the Donald Trump administration's executive order 'Strengthening American Leadership in Digital Financial Technology', we anticipate a major step forward for crypto's presence in the US.



settlement for cross-border transactions, alongside wholesale central bank digital currencies and tokenised deposits.

However, the EU DLT Pilot Regime, which ultimately governs tokenisation of securities on blockchains in the region, needs to be refined to improve the viability of participating in this regime. The Basel Committee/EU prudential requirements for tokenised securities need to be reviewed, in line with actual risks and use of legal and operational mitigants, to enable the use of permissionless systems as a foundational layer for financial market infrastructure.

OMFIF: What are the technical or legislative prerequisites for the next phase of adoption that we are still missing?

AB: Although the industry has made significant progress, there's still work to be done in scaling blockchain technology, reducing costs, improving user experience and enhancing regulatory clarity.

Technological adoption can be accelerated by creating faster, cheaper payment rails and making crypto more mainstream with improved user experiences. For example, Base, a low-cost, builder-friendly ethereum L2 incubated within Coinbase, offers practical on-chain payment rails and supports a variety of applications such as social media, gaming and entertainment. Base aims to make the blockchain experience as seamless for users as sending an email by abstracting away the complexities of blockchain technology.

From a legislative perspective, strides have been made in recognising crypto as a critical voter issue, especially with over 52m Americans holding crypto in 2024. The Financial Innovation and Technology for the 21st Century Act created a solid foundation on market structure that protects consumers and

unlocks innovation within the crypto economy. In the coming years, we hope to see law-makers align with the evolving demands of this influential voting group, and we think the odds of this occurring are strong. We need well-crafted legislation that caters to all users, from banks to retail, ensuring healthy financial markets.

OMFIF: The demand for tokenised financial products is largely led by those who have tokenised infrastructure, i.e. those who interact with cryptoassets. How can tokenisation grow beyond this?

AB: Currently, less than \$15bn of traditional assets are tokenised on the blockchain. Although small now, we anticipate all asset classes will evolve from paper markets to electronic markets, and ultimately fully connected global blockchain markets. Innovations in tokenised money markets and Treasury bills are already underway, with major institutions like BlackRock, Franklin Templeton and WisdomTree participating on permissionless open blockchains.

Tokenisation spans various sectors including equities, carbon markets, real estate, credit, lending and hedge funds, with rapid growth expected. Growth around tokenisation can lower transaction and operation costs, improve use of capital across markets and democratise access to diverse asset exposures.

In the future, assets will ideally be issued natively on-chain, rather than as digital twins of off-chain records. This shift will enable assets to move on blockchain rails, independent of central repositories or banks. Changes in laws and regulations in the EU, as well as Switzerland, and anticipated updates in the US will support these significant growth areas, redefining concepts of property and self-custody across all asset classes.

A new generation of yield opportunities

Tokenising asset classes with complex and inefficient processes has the potential to revolutionise global financial markets.

GLOBAL financial markets are going through a period of drastic upheaval. Distributed ledger technology has the capacity to rewire financial markets and create a new paradigm. We are in a liminal space: we can see the shape the future is likely to take, but it has yet to fully arrive.

Cryptoasset markets have shown us a glimpse of what is possible: immediate settlement, 24 hours a day, 365 days a year. Seamless mobility and instant accessibility were already powerful tools for cryptoassets. Unlocking these for traditional markets offers a revolution for the liquidity and functionality of even well-established asset classes.

Collateral mobility is at the heart of this revolution. Many well-established asset classes, though they have excellent track records of maintaining a stable or increasing value, have trading processes that are not efficient enough for them to be swiftly mobilised for the purposes of using them as collateral and borrowing against them. Removing the frictions inherent in trading these assets makes them useful for a broader range of activities and therefore more liquid and more valuable.

But changing the way a market operates is time-consuming and difficult. Even when there are benefits to be accrued by changing, the status quo has inertia and often the benefits only appear when a critical mass of participants has moved and the network effects begin to kick in.

Fractionalisation is another potential benefit of tokenisation. By lowering the marginal cost of issuing and servicing securities, smaller denominations become economically viable, broadening the universe of potential investors, improving liquidity. This will also improve access for small and medium-sized enterprises for whom capital markets access is prohibitively expensive, expanding their range of options for market-based financing.

Adoption trajectory

The adoption trajectory of tokenisation as a trading infrastructure for traditional assets is inextricably linked to the adoption of cryptoassets as a mainstream investible asset class. The first group of investors with appetite for tokenised versions of traditional assets is the community that has already built their systems to interact with tokens: the crypto

investor community.

Equally, as tokenisation of traditional assets takes off, the technical barriers limiting mainstream investment in cryptoassets will disappear. The growth of tokenisation as a medium for traditional assets and the institutional adoption of cryptoasset investment are therefore linked.

The process of tokenising traditional assets will vary in complexity and speed depending on the different features of each asset class. Here, we examine three different asset classes, laying out the impact that tokenisation is likely to have on them and the different challenges that must be overcome before adoption can be widespread.

Commodities: digital gold

Commodities trading is perhaps the oldest financial market of all. Its nominal value is projected to reach \$123tn in 2025. A vast array of financial products already exists to give investors exposure to the performance of a price of a commodity without ever taking ownership.

Tokenisation is entering that arena with a simple model: a prospective issuer acquires a commodity, takes physical custody of it, then issues tokens representing legal ownership of that commodity as a reserve. If the technical and legal infrastructure is effective, then the token price should track the commodity price accurately.

Gold is the best-established market for tokenised commodities. The market cap of the gold tokens currently trading was a little over \$1.2bn in January 2025, according to Coinmarketcap, supporting a daily trading volume of \$26.4m. The World Gold Council estimates the daily trading volume of gold at \$162.6bn so, although gold tokens are an established product, they are still a tiny fraction of overall gold trading.

To examine why this proportion may grow, we have to assess the value that tokenising commodities can bring. For spot trading of commodities, there are simple operational benefits. As a digital token is unlikely to be a substitute for those who want to buy physical gold, tokenisation is therefore primarily in competition with other methods of taking financial exposure to gold, principally exchange-traded funds.



\$1.2bn

The market cap of the gold tokens currently trading was a little over \$1.2bn in January 2025, according to Coinmarketcap, supporting a daily trading volume of \$26.4m.

A token-trading infrastructure should be able to operate on a 24/7 basis. Public blockchain infrastructure should also enable greater transparency, since the smart contracts facilitating the issuance and trading of tokenised assets are typically visible on the blockchain, as well as the history of transactions. While less transparent protocols do exist and, even in transparent systems, obfuscatory techniques may be used, in general public blockchain infrastructure should deliver a more transparent marketplace.

Gold is frequently purchased as an investible asset that is likely to maintain a stable value. Many other commodities have no such role in portfolios. However, tokenisation may prove valuable for them as well. Creating a means of efficiently trading ownership can allow such commodities (often agricultural produce) to be mobilised as collateral. This could improve the access to credit for their producers and broaden the universe of potential lenders or investors prepared to finance the commodity production value chain.

The spread of tokenisation through commodities will be limited by the cost to issuers. The cost of issuing a token is likely to come down, but the cost of physical custody of a commodity is unlikely to change substantially. For a high-value commodity like gold, physical custody is a small cost relative to the value of the asset, but for lower-value commodities, custody can become prohibitively expensive.

For commodities where there are already financial products like ETFs offering exposure, the ETFs themselves can be tokenised in order to achieve faster settlement, improved transparency or 24/7 trading. Alternatively, the physical reserves can be tokenised directly. This might cater to a different audience that prefers tokenised gold to tokenised ETF shares.

Real estate tokenisation

The potential of tokenisation to impact an asset class is related to the friction inherent in trading. In this respect, real estate is well-placed to benefit from tokenisation since transactions are so costly,

paper-based and time-consuming. To the extent that these processes can be digitalised and automated, the liquidity and trading of real estate can be revolutionised by tokenisation.

The first potentially beneficial aspect of tokenisation would be fractionalisation. Real estate is a classic example of assets with high individual prices, which, if subdivided, might attract a broader audience.

But real estate assets are not like commodities, which can be digitalised and treated as essentially fungible. Many of the frictions entailed in real estate trading relate to the physical realities of management and verification. The digitalisation of property registrations and the associated permits and checks is a valuable but long-term process.

In the UK, the Regulated Liability Network experiments explored coordinating the purchase of a home with a shared ledger, modelling all the related payments (mortgage, transfer of deposit funds, payments to conveyancers, estate agents and stamp duty) along with the transfer of property title with a shared ledger platform. However, at this phase, only the cash elements of the transaction were tokenised, rather than the real estate asset.

Even so, it demonstrated that several of the sources of inefficiencies in real estate transactions – manual errors, a lack of transparency (for instance, in ensuring that the purchasing client has sufficient funds and visibility of those funds as they are transferred) – can be improved via tokenisation.

A more immediate prospect is the tokenisation of real estate funds. Tokenising real estate investment trusts or private real estate funds – frequently offering exposure to the performance of portfolios containing multiple properties – would yield similar benefits to the tokenisation of other types of fund: 24/7 trading and greater secondary market liquidity.

Tokenisation, particularly when costs begin to fall, may lower the cost of setting up a private real estate fund, broadening the range of real estate assets that can be financed and creating a new, broader group of assets for investors. As tokenisation becomes more widely accepted, it

As well as opening up opportunities for new investor types to get exposure to real estate performance, tokenisation can offer a new way to finance real estate projects.

is likely that new REITs will be set up using token-based infrastructure, and that existing REITs will be converted to tokenised instruments in order to benefit from the operational advantages.

As well as opening up opportunities for new investor types to get exposure to real estate performance, tokenisation can offer a new way to finance real estate projects. In Japan, REIT tokenisation has already broken through and is a major tool for funding real estate projects.

Tokenising private assets

Fewer and fewer companies are going public. The pool of money available to fund companies in private markets is now so large that, for many companies, the administrative headache involved in the additional disclosures required of those that trade in public markets is unnecessary.

While many companies are able to effectively fund themselves in this way, it means that public markets represent a decreasing proportion of economic activity. Many investors, both retail and institutional, are prevented either by regulation or their mandates from gaining exposure to private asset markets.

There is clearly substantial demand from many types of investors to get exposure to alternative assets that are not available on public markets. As with real estate, rather than tokenising the underlying assets themselves, which may prove complex from a regulatory standpoint, the main approach is likely to be tokenisation of funds that are invested in alternative assets.

Funds offering this exposure to investors are becoming increasingly popular, with private equity ETFs springing up to offer a broader range of investors the opportunity to participate. As with the other asset classes, tokenisation offers the benefits of faster settlement and 24/7 trading as well as a potentially broader range of participants.

The entry costs are typically high – the price of participating in private entry is generally millions of dollars and often requires personal relationships with involved parties. Since the relevant information is not disclosed publicly, distributing it becomes a more complex task as additional investors are involved. This can tip power in favour of investors, since a relatively small number of players has outsized influence over transactions. Private markets are also characterised by a lack of liquidity. There is no industry-wide platform for the trading of private assets.

But can tokenisation actually change these features of the market? A trading infrastructure might create an opportunity for the more rapid and seamless exchange of private assets, but it is important to remember that private assets are difficult to hold for many investors from a regulatory perspective, not just an operational one. The absence of disclosures and the frequent complexity and variety of private deals makes them

difficult to value and therefore unsuitable for all but the most sophisticated investors.

Using tokenisation to create a trading infrastructure and developing a platform for the efficient dissemination of information might bring down the costs of transactions and expand the investor base slightly, but it will not turn the market into something more similar to its public counterparts. The absence of liquidity in private assets is baked into the business models of the participants since private assets are not marked to market. Creating a tokenised infrastructure to enable the simpler exchange of assets will not change the way these market participants operate.

It is also worth noting that, even if tokenisation does not create a lively market for private assets with daily trading flow, liquidity can still be improved in important ways. By creating a trading infrastructure, it might become possible for private assets to be mobilised as collateral and borrowed against, including with the central bank when it is fulfilling its role as the lender of last resort.

There are circumstances in which firms might be solvent but illiquid because they have valuable but illiquid assets. Borrowing against these, particularly on the very short notice sometimes required to avert bankruptcy, is difficult without an infrastructure for the rapid and cheap transfer of assets. Tokenising private assets might well be a way to improve financial stability by rendering the portfolios of private equity investors more easily pledged as collateral.

Tokenising funds

There are several different avenues that offer investors tokenised exposure to the performance of funds. First, the fund can convert entirely to a digitally native format. This is the most radical option and might require work with custodians to ensure that no existing investors are alienated by the new form factor.

Second, in parallel with traditional shares, funds can issue tokenised shares with equivalent rights. While this should provide a good solution for all investors, the legal equivalence of the tokenised and conventional shares is a potentially complex matter and, unless rigorously proven, it is possible that they might trade differently, creating an arbitrage between the different forms.

Third, funds may create a secondary 'feeder fund', funded entirely by the sale of tokenised units. The proceeds would then be invested in traditional shares of the original fund, held in trust for the owners of the tokens. This might eliminate concerns among holders of traditional fund shares that a new class of tokenised shares might affect their holdings, but it does not eliminate the risk of an arbitrage being created between the two methods of offering exposure to the fund. This can only be eliminated by a solid legal and technical connection between the tokens and the underlying fund shares.

REAL-WORLD ASSETS WILL DRIVE NEXT WAVE OF GROWTH

David Rutter, chief executive officer of R3, explains why complex asset classes like real estate investment trusts can benefit from tokenisation.

OMFIF: In which asset class do you think tokenisation could have the most transformative impact?

David Rutter: Tokenisation offers the greatest opportunity in asset classes currently encumbered by complex or manual processes. While highly liquid and digitalised asset classes like equities can benefit from moving on-chain, tokenisation promises extraordinary benefits for asset classes that are more difficult to manage, price and trade due to their structure, necessary risk or monitoring assessments, or the complexity of associated legal documentation.

While there are many examples of this, one we can consider is real estate investment trusts, which are notoriously complex due to the need to track numerous underlying legal contracts, as well as sustainability-linked loans and bonds. Their valuation, risk management and pricing rely on the real-time performance of underlying environmental projects, which are difficult to track in real time using traditional instruments. The introduction of smart contracts linked to data feeds, real-time sensors and other monitors would make this considerably easier.

OMFIF: Are there technical hurdles that still need to be overcome for tokenisation to achieve more widespread adoption?

DR: Regulated institutions face a dual challenge. First, as asset issuers, they want to ensure that any

network they issue onto has great enough adoption to provide the necessary liquidity for their products and can benefit from liquidity existing on public ledgers.

Second, they want and need to maintain control and governance over their respective products, in part to meet necessary compliance and regulatory requirements. To overcome this challenge, the market needs to take a 'network of networks' approach with interoperability at its core. Robust interoperability solutions ensure financial market infrastructure is built for the future, creating multi-asset, multi-network and multi-platform opportunities.

OMFIF: What about regulatory challenges? How are these unfolding?

DR: Rather than viewing the regulatory landscape as a series of challenges, we prefer to look at it as a series of tailwinds. Regulators have been understandably cautious in developing regulatory frameworks for distributed ledger technology's use in financial markets. However, 2024 brought many collaborations between regulators, central banks and industry associations, giving us confidence that regulators recognise its transformative potential.

From the UK's Digital Securities Sandbox to the Bank of International Settlements' Project Agorá and the European Union's DLT Pilot Regime,



‘Settlement has been a longstanding pain point, and the market has recognised – and made clear to regulators – that tokenised assets, most likely a CBDC or regulated stablecoin, will be key to achieving this.’

public and private institutions are exploring the use cases of DLT. Looking ahead, we predict a shift to production-grade implementations, particularly in the US, where a new administration could provide valuable regulatory clarity and unlock significant market potential.

OMFIF: From where does the main demand for tokenised assets come? Will this broaden and how?

DR: The efficiencies that can be achieved by tokenisation are broadly understood by the financial industry. Further tokenisation can expand the customer base for many of the more complex financial products that are currently available only to institutional investors and high net worth individuals.

At present, a new source of demand for tokenised assets is driven by decentralised finance protocols, which use collateral and assets as the basis for increasingly innovative DeFi products. Interestingly, this demand is driving a more rapid than expected convergence between DeFi and TradFi issuances, with tokenised traditional assets, like money market funds, Treasury bills and bonds, used by DeFi protocols.


There is already significant interest from financial

market infrastructure, central banks and other TradFi players. Settlement has been a longstanding pain point, and the market has recognised – and made clear to regulators – that tokenised assets, most likely a CBDC or regulated stablecoin, will be key to achieving this. As the market evolves and confidence in tokenisation and DLT grows, we anticipate greater demand from buy-side firms, who are already recognising their operational and cost efficiencies.

OMFIF: What is R3's role in this?

DR: R3 was an early leader in digital currencies and tokenisation and has a track record of working with institutions across financial markets. The R3 Digital Lab leverages Corda, R3's tokenisation platform, to help firms fast-track the development of digital use cases. With the largest number of production-ready applications and robust interoperability supporting distribution across a range of networks, we are advancing global financial market infrastructure with future-proof solutions.

The future of crypto is clear: real-world assets will drive the next wave of growth. With trillions in untapped value sitting in TradFi markets, the opportunity is massive. The firms that bridge this gap will define the next era of financial innovation.



The state of play in digital asset infrastructure

While central banks are still hesitant about stablecoins, experiments in blockchain bonds are becoming more ambitious, meaning capital markets could become more open and flexible sources of funding.

THE performance of the cryptoasset class, though inconsistent, has been the envy of many participants in traditional financial markets who are prevented by their mandates or regulation from accessing them. This is changing gradually and, with the election of US President Donald Trump, the pace of change is expected to accelerate. One of the key innovations has been the creation of exchange-traded funds tracking the performance of cryptoassets.

As well as offering exposure to the bitcoin performance to investors who do not wish to purchase bitcoin directly, ETFs create a vehicle that enables market participants to easily hedge cryptoasset positions. This allows bitcoin to satisfy the Basel Committee’s hedging recognition criterion, which makes the capital charges for taking positions far less onerous.

ETFs offering exposure to other cryptoassets are emerging and this will gradually give banks more

opportunities to invest and offer clients services related to cryptoassets. This will make cryptoassets more valuable, since they will become eligible for use as collateral to borrow from traditional banks.

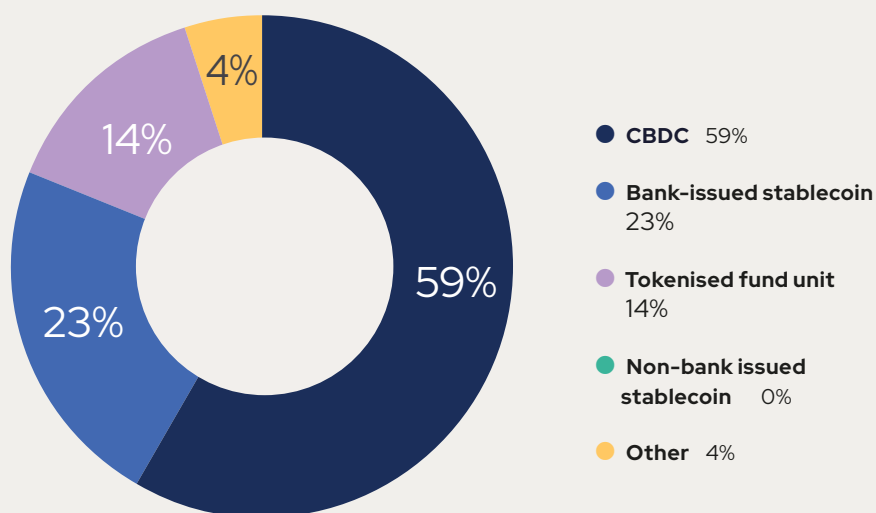
Unlocking stablecoins

The cryptoasset market rapidly spawned stablecoins as a utility to provide traders with an on-chain instrument free from the 24/7 whirlwind of crypto volatility. But as more and more assets come on-chain, the need for on-chain cash settlement solutions will only grow.

However, market participants are not yet fully comfortable with moving away from central bank money for securities transactions. According to OMFIF’s 2024 survey of debt issuers and market participants, wholesale central bank digital currencies are the preferred solution for settling the cash leg of securities transactions (Figure 3.1).

3.1. Market participants prefer CBDCs for cash settlement of securities

What do you favour as a solution for cash settlement in financial market transactions involving tokenised assets? Share of respondents, %



Source: OMFIF Digital assets 2024

By lowering the cost of issuance and opening capital markets to a new community of borrowers, capital markets can become a more valuable and flexible source of funding.

Stablecoins are also carving out a niche for themselves in cross-border payments. At present, this is fairly disconnected from the conventional payments system, since most merchants do not accept stablecoins and generally only individuals who are already stablecoin holders will accept payments in stablecoin. Connecting stablecoins to banks will be an important part of improving the popularity of stablecoins and broadening their appeal as a payments instrument.

If banks provide a means for their customers to be paid in stablecoins and receive commercial bank money, then stablecoins will become a more important vector of retail payments and will grow in financial markets. As yet though, central banks are hesitant to accept stablecoins. In OMFIF's 2024 survey of central banks, no respondents selected it as the most promising avenue for the improvement of cross-border payments, preferring the interlinking of instant payments systems or CBDCs (Figure 3.2).

Upgrading debt market infrastructure

Within financial markets, the benefits that token-based infrastructure can offer are increasingly understood. Experiments, particularly with blockchain bonds, are becoming more commonplace and more ambitious (Figure 3.3).

Market participants are hoping that tokenisation will speed up settlement, reduce counterparty risk, offer new functionality and enable more flexible use of collateral. But delivering this requires more substantial changes to infrastructure than the simple creation of blockchain bonds. Key market

utilities like central securities depositories and central counterparty clearing houses will have to update their infrastructure or, in some cases, may be rendered unnecessary by new technological paradigms.

Lowering barriers to access

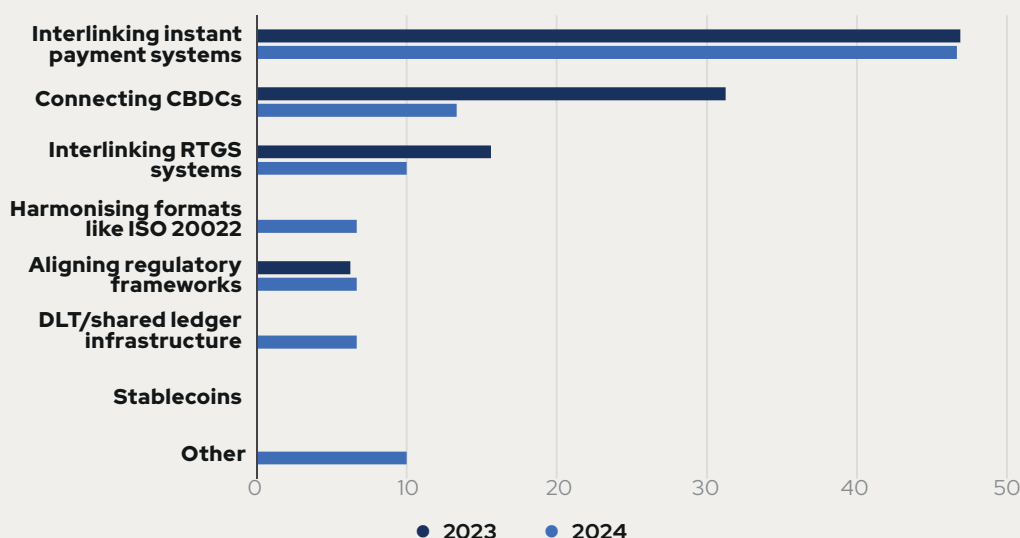
Tokenising bonds requires that issuance – the creation of the security – becomes an entirely digital process. Traditional bond issuance involves the collaboration of several different parties, all of whom must manually reconcile changes from the other parties. This process is time-consuming and creates the possibility of human errors.

In theory, tokenisation should streamline this process and provide a platform for all of the involved parties to collaborate seamlessly on a single 'golden record'. At present though, each tokenised issuance is a more complex and time-consuming process than conventional issuance, so cost savings will only come once the process has become standardised.

However, the implications of reduced costs are profound. The high cost of bond issuance means that it is only worthwhile for borrowing substantial amounts. The effect of this is that many small and medium-sized enterprises struggle to access capital markets because their borrowing needs are smaller, and capital markets are not an economical way of meeting them. This leaves them reliant on bank lending, venture capital, private equity or crowdfunding, sometimes via tokens. By lowering the cost of issuance and opening capital markets to a new community of borrowers, capital markets

3.2. Interlinking IPS most promising avenue for improving cross-border payments

What do you think is the most promising avenue to improve cross-border payments?
Share of respondents, %



Source: OMFIF Future of payments 2024

0%

In OMFIF's 2024 survey of central banks, no respondents selected stablecoins as the most promising avenue for the improvement of cross-border payments, preferring the interlinking of instant payments systems or CBDCs.

can become a more valuable and flexible source of funding.

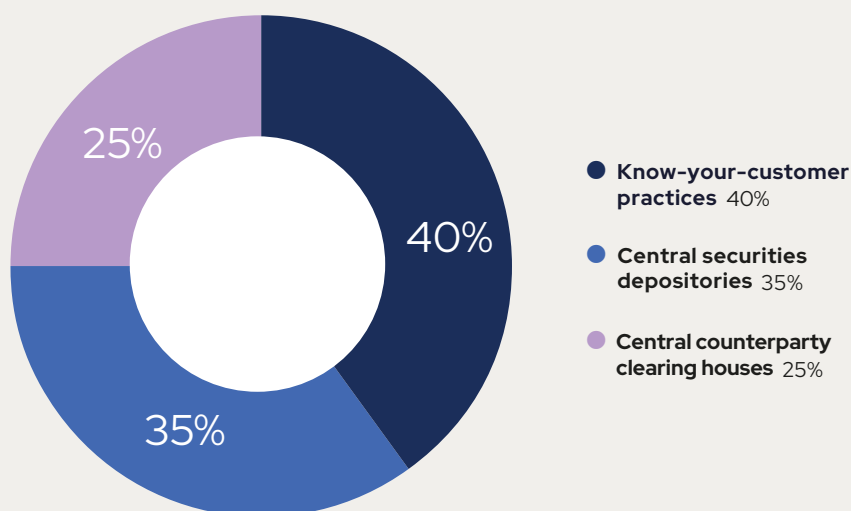
This might also be combined with a reduction in denomination size to enable retail investors to participate. The costs of managing the administration of retail-level debt products can be prohibitive, particularly given the low individual value of each holding. But tokenisation is designed to provide a platform for handling this challenge and fractionalisation projects have already given retail investors economically sustainable exposure to high denomination assets.

This is primarily a benefit for smaller borrowers for whom retail investors might prove an important source of funding. For the major supranational issuers who are leading the way with blockchain bond experiments, high denominations make sense. They have extensive access to a large community of committed institutional investors and banks eager for syndication mandates. This means they have no need to undertake the additional work required by regulators to sell investment products to retail investors.

However, even for frequent borrowers, lowering the minimum issuance size that makes economic sense can make capital markets a more flexible and useful funding facility. Lowering the cost of issuance also enables borrowers to serve particular needs more easily, responding to specific investor demand for a given tenor. Creating small low-value instruments like this would be uneconomic with other forms of issuance, but with tokenisation lowering the marginal cost of issuing a new bond, this kind of demand-driven borrowing becomes more feasible.

3.3. Blockchain bond experiments becoming more ambitious

Which areas of the bond market would be most improved by decentralised infrastructure? Share of respondents, %



Source: OMFIF Digital assets 2024

THE TIME IS RIPE

Marcelo Prates, policy director, Stellar Development Foundation, spoke to OMFIF about why securities are ready for tokenisation and the benefits of public blockchains.

OMFIF: In which asset class do you think tokenisation could have the most transformative impact?

Marcelo Prates: After the tokenisation of money, notably the dollar, the time is ripe for the tokenisation of investments. Stablecoins in circulation have surpassed \$200bn, and 99% are denominated in dollars. They effectively became the 'digital dollar' and are easily and instantly available almost anywhere. But although they can be used to protect against depreciating local currencies, their low-to-no-interest income makes them less appealing as an investment.

Securities are therefore the natural next step in the asset tokenisation journey. Contrary to assets that cannot be fully brought on-chain because of their physical presence and complex ownership rules, like real estate and vehicles, securities can be more easily tokenised with immediate benefits for issuers and investors.

For issuers, the reduction in bookkeeping and reconciliation costs is real. With its on-chain money market fund on the Stellar blockchain, Franklin Templeton, a global investment firm, cut its reconciliation costs for every 50,000 transactions from \$50,000 to \$120. With that, they could reduce the initial investment required for the on-chain fund to \$20, greatly improving financial access.

In turn, investors not only gain increased access to investments not typically available at the retail level but can also trade shares instantly, 24/7. For some on-chain funds, like Franklin Templeton, institutional investors can even transfer fund shares directly between them, peer-to-peer, facilitating liquidity management and reducing intermediation costs.

OMFIF: Are there technical hurdles that still need to be overcome for tokenisation to achieve more widespread adoption?

MP: The biggest technical hurdle for widespread

tokenisation is interoperability. Converting rights to an asset into a digital token on a blockchain opens up a world of possibilities, giving consumers more options to invest their savings and issuers, public or private, more options to secure funding.

If, however, issuers are using different blockchains to tokenise assets that cannot be easily and securely traded on other blockchains, consumers are forced to have multiple blockchain addresses and wallets. The process gets complex and costly, leading to increased risks (such as numerous private keys) and fragmented liquidity.

The problem is exacerbated with private, permissioned blockchains. These closed networks are created and controlled by a single party that can unilaterally define the applicable rules and arbitrarily decide what can be built on it, who can do so and whether there is any degree of interoperability with other networks. Public blockchains, in contrast, favour openness and interoperability, guarding against entrenched forces driving out competition and interconnection. Much like the internet, public blockchains are based on standardised protocols that facilitate the interaction between different systems.

While more work needs to be done to improve the development of cross-chain communication solutions, using public blockchains like Stellar is still a decisive step towards a more widespread and seamless adoption of tokenisation.

OMFIF: What about regulatory challenges? How are these unfolding?

MP: The tokenisation of securities in the US is already happening in a regulated way under the supervision of the Securities and Exchange Commission. In 2023, Franklin Templeton launched on Stellar the first US-registered blockchain-based fund. WisdomTree also has 13 blockchain-enabled mutual funds running on Stellar.

Tokenised assets on Stellar are added to a global network of exchangeable tokens with over 475,000 crypto-to-cash ramps in 180 countries, making assets on the network globally accessible and useful.



All these funds are registered with the SEC and governed by the same rules and regulations as other SEC-registered investment products. Moreover, Staff Accounting Bulletin 121, which effectively prevented banks from providing crypto custody, was recently rescinded. Despite these positive signs, a significant regulatory challenge for widespread tokenisation is the international standards developed by the Basel Committee on Banking Supervision for banks' exposures to cryptoassets.

The standard is set to be implemented globally by the end of 2025 and explicitly applies to tokenised securities. However, the standard leaves a lot of room for financial supervisors in each jurisdiction to decide the risk profile of each cryptoasset based on a varied and subjective set of requirements.

Therefore, applying the standard could lead to some financial supervisors treating tokenised securities as riskier than their traditional (non-tokenised) counterparts and requiring banks to raise additional capital in the same amount of their holding of tokenised securities. So, for each \$1 in tokenised securities held, banks would have to add \$1 in capital.

The fear of facing this highly punitive capital requirement could force banks to avoid any exposure to tokenised securities until they have more clarity on how supervisors will treat tokenised securities. Holders of tokenised securities could then have trouble using them for basic financial operations, like posting margin or collateral. This regulatory threat could slow the pace towards broader tokenisation.

OMFIF: What is Stellar's role in this?

MP: Stellar can be seen as the 'batteries-included' network for asset tokenisation. From the beginning, it was optimised for asset issuance and payments. So much so that asset issuance is native to the protocol. Instead of needing to use smart contracts to issue assets, as happens on Ethereum, asset issuance is just a basic functionality of Stellar. In practice, this means shorter development times, lower counterparty risk and less room for error, allowing tokenisation to happen quickly, safely and at a lower cost.

The Stellar protocol also comes with built-in features and controls for approving, revoking and freezing assets, ensuring precise asset management and distribution. Again, without resorting to smart contracts or additional coding, issuers can use trustline configurations to add business processes into the life cycle of the asset – like requiring users to get know-your-customer or anti-money laundering clearance before they can hold an asset.

So, while Stellar is an open and public blockchain, issuers can fully customise their assets and choose the degree of control they have over them according to compliance needs and regulatory requirements. And this is all transparent to users, who can view the profile of each asset and decide which ones they are willing to hold or use.

Finally, tokenised assets on Stellar are added to a global network of exchangeable tokens with over 475,000 crypto-to-cash ramps in 180 countries, making assets on the network globally accessible and useful.



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Audience

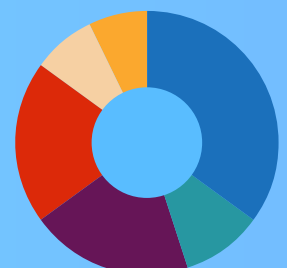
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- 35% **Central banks**
- 10% **Policy-makers, regulators and government officials**
- 20% **Commercial banks**
- 20% **Fintechs**
- 8% **Investors**
- 7% **Professional services**





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Giesecke+Devrient

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