Natural Progression: *Why tokenization really could be the next big thing*

With the volume of conversation around tokenization becoming ever louder, anyone would be forgiven for thinking the corporate adoption tipping point has already been reached. But with many businesses seemingly uncertain as to what it is, let alone actually using it, the reality is somewhat different. TMI called upon Tony McLaughlin, Managing Director Emerging Payments & Business Development, Citi, to unlock tokenization's meaning, purpose, and potential value.

The regulated financial system today is, by and large, siloed. At the very least it is split by product, bank, and jurisdiction. Certainly, these silos can be made to talk to each other, but it's often a workaround that involves multiple parties, complex systems, and an element of uncertainty every time a transaction takes place. Arguably, it could be so much better. This is where tokenization could step up as the next big thing.

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Of course, aspects of tokenization need improvement and development before it could be adopted as the natural successor to the current regulated financial system. That said, as it stands today, with background work ongoing, tokenization represents an excellent opportunity to deliver more efficient global, 24/7, secure, real-time financial transactions. And for corporate treasurers, the potential of tokenization should at least place it high up on the list of serious homework topics.

Back to school

"Leaving financial services and blockchain aside, a token is simply a representation of something else," explains Tony McLaughlin, Managing Director, Emerging Payments & Business Development, Citi. Generally, it is a stand-in that holds the same value, but is not the same as, the artefact it represents. A cloakroom ticket, for example, is a temporary stand-in for the theatergoer's coat; it is not the coat but is redeemable for that specific item and no other.

As a practice, tokens of this nature have existed for millennia. But a token in the blockchain world removes the tangibility of "one thing representing another," occurring (as opposed to existing) entirely in the digital domain. But a digital token is nonetheless a representation.

To help further understand the idea, McLaughlin harks back to the original 2008 bitcoin whitepaper by Satoshi Nakamoto. This describes a peer-to-peer (P2P) electronic cash system, based on an electronic representation — a token — of a coin. That electronic coin (bitcoin, as it is now known) is defined by a unique string of digital signatures, captured within a blockchain.

"The blockchain is a means of unambiguously determining who owns what, and it does this through public key cryptography, involving a public and private key pairing," explains McLaughlin. Bitcoin can be transferred only by the private key holder of that coin signing their ownership over to the beneficiary's public key. The moment that exchange is written into the bitcoin network, the new owner unambiguously has control of it. The coin can then only be transferred using the new owner's private key, to which they have exclusive access (assuming its security has not been compromised).

The crucial difference between bitcoin and other tokens, such as the cloakroom ticket, is that bitcoin is not a representation of anything other than itself; there is no underlying asset for which it is a stand-in. This is both its strength and weakness, of which more later.

When Ethereum emerged, it enabled digital tokens to assume a far more general representative status. This meant digital tokens could now stand in for literally anything, from cryptocurrencies to artworks to cloakroom tickets. "The question then comes down to the utility of representing many different financial assets on a common computer system, and whether or not those tokens really represent the movement of underlying assets with legal certainty," suggests McLaughlin.

Accepting the idea

As mentioned, bitcoin tokenization is self-referential: there is no "bitcoin" external to the network itself. Ethereum's utility means it can represent self-referential tokens such as cryptocurrencies, but it can also represent anything else, including real-world financial assets.

"The supposition is that if a token is transferred in the blockchain, then the real-world ownership of its underlying asset is transferred too," says McLaughlin. "Proponents of tokenization suggest that the financial world could be made considerably more efficient if there were a venue where all manner of different tokens [financial or otherwise] could be exchanged, with a legal framework outside of that platform that would provide certainty of such transfer or settlement."

Legality arguably should not be an issue. This modern take on representation should in effect be no different to the paper-based expression of, for example, debt instruments or equities, which have been accepted in law for a long time. The digital tokenization

(or dematerialization) of these paper-based representations of real-world "promises to pay" — and the conferring of ownership rights to the ascribed owner is a great leap forward in terms of enabling new efficiencies and protections. As such, their acceptance should indeed cause no more psychological discomfort than any traditional tokenized equivalent.

Dematerialization in finance started with the computing boom of the 1960s and took off following events such as the Big Bang of 1986 when the UK financial markets were deregulated. It's hardly a new idea, then, so what does the blockchain form of tokenization offer above and beyond existing digital records that makes it an interesting proposition?

To understand this, McLaughlin says it's important first to note two fundamentally different ideologies of tokenization that set up a disagreement between the crypto view of it and that of the regulated financial world.

"Blockchains were created as the antithesis of the regulated financial system," he explains. "Both bitcoin and Ethereum sought 'trustlessness,' censorship resistance, and a permissionless world of P2P transacting, without the intermediation of centralized issuers and regulated financial institutions."

The "money" (or cryptocurrencies) in these networks is unlike traditional money in that it is not issued by a nation state and is not a promise-to-pay. Bitcoin has no intrinsic value and therefore its price can often be perceived as arbitrary and often volatile. An essential feature of this "permissionless economic system" is therefore its "proof-of-work" mechanism.

In the absence of centralized issuing and governing authorities, this structure must confirm, record, and ensure the integrity of all new transactional data added to a blockchain. In a trustless environment, where transaction anonymity is a feature and not an issue, proof-of-work is one means of establishing consensus around ownership.

"But these core pillars of blockchain and tokenization [including the anonymity, decentralization, unregulated digital 'money,' etc.] apply only to the crypto community view," says McLaughlin. "And they are generally not acceptable to regulated financial services." This is why a fundamentally different view of blockchain tokenization has developed; one that is able to leverage its benefits while overcoming its unacceptability.

Uncovering blockchain value

Ethereum's capacity to run 24/7 is a distinct advantage over the regulated world, where "always on" is rare (faster payments systems and card schemes are exceptions). But 24/7 capability is not exclusive to blockchain structures.

However, Ethereum's blockchain structure does have that facility to create and exchange, within its network, tokens representing literally any arbitrary real-world asset. It is perhaps this "general purpose means of representing digital assets" that sets it up as a uniquely useful proposition, McLaughlin hypothesizes.

Here's why. The traditional financial system forces upon the world a series of special purpose proprietary infrastructures, where each performs only one task (in the UK's CHAPS RTGS system, for instance, the only asset is central bank money in GBP). Ethereum, on the other hand, enables the creation of multi-asset settlement venues, where all types of tokens can be represented and exchanged on a common platform. "And underpinning all of this," notes McLaughlin, "is the fundamental purpose of blockchain, and that is to be a 'who-owns-what' machine."

Enabling this "unambiguous view of asset ownership" is as essential in crypto as it is in a regulated financial services context. But while crypto is self-referential and needs proof-of-work (or any other equivalent trustless consensus mechanism) for validation, in the regulated space almost every financial instrument represents a legal claim of some sort that must be verified. Blockchain obliges in both cases, but in the latter instance needs to be nested within an established legal structure.

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What's mine is mine

In the regulated space, a bank deposit represents a claim by the depositing client against its bank's balance sheet. Making a payment, for example, is simply transferring claiming rights. The traditional financial system is what McLaughlin refers to as a "machine for moving different kinds of claims from one balance sheet to another."

The banks in that traditional transaction must keep track of the claim to that money as it moves around the banking system. But the system's ability to track those claims is less effective than it could be. One reason for this, notes McLaughlin, "is that the primary mechanism we use today to track the balance sheet movements of the world's institutions — whether it's money, securities or equities — is messaging."

The system itself has worked well for many years but controlling the flow between different banks and central-bank-owned settlement systems, just to update the relevant balance sheet (and thus ownership), is a monumental task. With banks and clients needing more immediate information, it is often not possible within the current system.

A message is sent, but the sender cannot immediately tell if it has been received or acted upon. If there are multiple parties in a transactional chain that uncertainty is amplified, and the chances of tracking transaction progress are limited. "Many of the reconciliation challenges we have in traditional financial services stem from that mode of sending messages to each other," says McLaughlin.

Blockchain offers a new way. Organizing a group of people via a group chat system such as WhatsApp — where the participants can see at once message status and individual responses — is far more efficient than individually emailing participants and waiting for, then coordinating, separate replies. In much the same way, with blockchain, every participant has a real-time status update of ownership.

The ability for participants to simultaneously know what's going on is referred to technically as a "state machine." Blockchain can thus be described as a 24/7, multi-asset state machine; it is capable of keeping track of who legally owns what, in real time. Of course, it's vital that across the regulated financial space, blockchain tokens are able to confer the same legal rights to ownership as the existing paradigm based on messaging. If the technology is separated from the legal instrument, it's easy to see why this flow is maintained.

Just as paper documents have represented legal title to assets for many hundreds of years, so digital documents in the dematerialized world could be unambiguously their equivalent. It follows that blockchain representations should carry the same legal weight for an existing legal instrument. While the technology used to record legal title changes — whether using a paper ledger, an IBM mainframe, a blockchain or any other means of recording title — it's an arguable proposition that the underlying legal instrument it represents remains the same.

Gaining wider acceptance

The theoretical conditions for adoption of tokenization by the regulated financial sector, and indeed corporate treasury, seem to have been established. But achieving it in the real world generates a few more challenges, notes McLaughlin.

The first hurdle is using public blockchains, such as Ethereum, in the regulated space. "They would need to pass third-party risk management tests," he explains. Enhanced due diligence is demanded of all external providers seeking to work with a regulated body such as a bank, and public blockchain ownership is difficult to assess.

Private-permissioned blockchains offer a more controlled environment, but this too presents issues, notes McLaughlin. "In today's world, the model is fragmented, with individual banks or a few sub-scale consortia building their own structures, each using different blockchains that don't necessarily talk to each other."

While individual banks, with individual blockchains, can still enhance money movements within their own closed systems, it's still suboptimal for the typical multi-banking corporate. For the whole notion of tokenization to be optimized for corporate treasury, McLaughlin says there is a need for a network that is usable by multiple banks, or at least interoperability between multiple subnetworks.

The idea that in the future everything will be tokenized is, he feels, "somewhat polluted by the conflicting interpretations of tokenization adopted by the crypto and the regulated industries." While that confusion remains, proprietary bank-driven blockchains, and those of existing consortia, are generally finding it difficult to scale up. "What we are missing is that consensus to build something at industry scale."

Pushing for progress

This calls into play the idea of the Regulated Liability Network (RLN). This is a collaborative effort between several stakeholders intent on exploring the likelihood of achieving consensus toward a new blockchain-driven financial market infrastructure.

In its own words, RLN is considering "the technical, legal and business characteristics necessary to provide on-chain, 24/7 programmable, final settlement in sovereign currencies, consisting of the liabilities of both public and private regulated financial institutions."

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In 2023, phase one of RLN established a proof-of-concept in the U.S. that looked at the potential to upgrade international payments using deposit tokens settled in a wholesale central bank digital currency (CBDC). A project run by UK Finance is currently examining the feasibility of commercial bank digital money sitting alongside a retail CBDC. Other entities are set to kick off shared or unified ledger projects in 2024. It's worth noting too that the BIS unified ledger is closely related to the RLN concept.

"The driver for these collaborations is not in finding a single technology but about moving regulated financial market participants toward a consensus on building a new tokenized infrastructure," comments McLaughlin. "Without consensus and industry adoption, the silos will remain." In the regulated space, the main risk around tokenization on the private-permission side really is lack of consensus around the big picture of what tokenization can deliver — a picture that goes beyond existing silos. This, warns McLaughlin, will lead to the persistence of silos, defeating one of tokenization's main benefits.

RLN is making a bold effort, but it sounds like a steep mountain to climb. However, there is precedent. When electronic banking was first introduced, every bank created its own proprietary system. Over time, corporate clients, wearied by multiple different systems, pressed their banks into finding a multi-bank solution, culminating recently in the roll-out of ISO 20022 messaging.

"We're at the stage now," notes McLaughlin, "where we are seeing proprietary tokenization solutions emerge. The best advice for corporate treasurers would be to start encouraging their banks to begin working on multi-bank solutions." Of course, proprietary electronic banking still exists alongside ISO XML, and for large corporates, host-to-host, multi-bank connectivity. But, states McLaughlin, "I cannot imagine that blockchain will remain at the stage of proprietary electronic banking for very much longer. It needs to move toward multi-banking to be useful to corporate treasurers."

Harnessing the power

The positives of tokenization are manifold. It facilitates simultaneous and indisputable settlement; it simplifies reconciliation; it enables programmability, which in turn opens up a much wider domain of functionality and innovation for banks and clients. It even lessens the need for financial intermediaries.

To reap these benefits, the best plan of action for a treasurer, advises McLaughlin, is to embark upon "a learning journey," to understand the technology and its use cases. Here, the role of an already-engaged bank such as Citi is to clearly articulate to clients tokenization's objectives, purpose, and advantages.

At a practical level, alongside its broader regulatory engagement, Citi is enhancing its existing internal risk and control framework, aimed in part at informing its own journey. The bank is already building out proprietary Distributed Ledger Technology (DLT) solutions: the recently launched Citi Token Services, for example, enables clients to facilitate money movements across the Citi branch network.

However, mindful that collaboration is essential to move beyond a fragmented market, McLaughlin reveals that Citi is simultaneously working with the RLN community. Doing so demands the parking of self-interest, as it is ultimately seen as a "major test of the thesis that the future of the financial system exists in the emergence of a 24/7, multi-asset, state machine." If the industry decides to build it, he believes it will offer a "significant platform for innovation."

Keep moving

In the coming months and years, McLaughlin is expecting to see some interesting developments around tokenization. One to watch for late 2024, he says, is Bank of Korea's pilot that is targeting a network of CBDC and commercial bank money tokens. "Market participants are getting proof-of-concept fatigue and now want to build something," he comments. "And in five years' time, we'll have a much clearer picture as to whether this vision of tokenization can be delivered and if we have industry consensus."

Ultimately, most corporate treasurers care about the outcomes and their own objectives more than they do about the tools used to achieve them. If they can manage liquidity 24/7 without friction, and their bank is using a blockchain to enable it, then so be it. Indeed, technology to most is a means to an end, albeit in this case a rather useful and valuable one. But that, notes McLaughlin, "is just as it should be."

A recap on tokenization's value

So, what are some of the game changers that tokenization delivers?

- Enables global, 24/7, secure, real-time financial transactions.
- Can be applied to any real-world financial asset.
- All transactions are settled instantaneously.
- Blockchain unambiguously determines token ownership, in real time.
- Multi-asset settlement venues are possible.
- Simplifies reconciliation.
- Enables programmability of payments.
- Opens up a much wider domain of functionality and innovation.
- Lessens the need for financial intermediaries.

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[1]https://treasury-management.com/articles/natural-progression/

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