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Blockchain's wheel of fortune

How DLT could transform wholesale financial markets

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Beyond the blockchain buzz

Despite much excitement about technology's potential to transform payments, opinion is split as to whether innovation will lead to revolution, writes Philip Middleton, chairman of the Digital Monetary Institute.

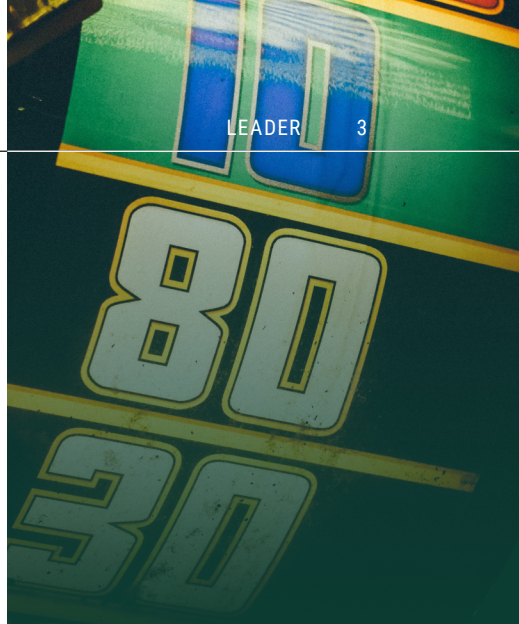
IT WAS NOT SO long ago that the ether of the payments world and the rostra of conference platforms crackled to the energy of the blockchain/distributed ledger technology payments revolution. The new technology was set to eviscerate payment and settlement infrastructures and usher in cheap, efficient, atomic, anonymous and perfectly secure transactions. Bitcoin and its cryptocurrency emulators would elbow aside state-controlled cash in retail payments. In capital markets, centuries-old exchanges with central counterparties would be rendered redundant by the democracy of DLT.

Financial services companies and technology pioneers jostled to announce spectacular new projects. And then it all went suspiciously quiet. The predicted revolution has not yet happened.

In this issue of the DMI Journal, we apply our loupe to capital markets and exchanges and ask whether blockchain, tokens and DLT could facilitate extensive repairs to the shattered post-Covid landscape. By and large, existing exchanges work very well in delivering complex trading networks with transparency, liquidity and security.

To be sure, it is not all barren wastelands, with several discrete applications having seen the light of day. The Banque de France has run a successful pilot with BNP Paribas to pioneer a blockchain-based application to the trading of covered bonds. The experience of digital asset trading in the Nordics is described in this edition with an account of Project Glacier. Significant advances are being made in the deployment of smart contracts in fields as diverse as trade finance and insurance, as Amarjit Singh of EY reminds us. There are many others, including the ground-breaking JPM Coin permissioned network. Central banks around the world – at the last count about 86 of them – are evaluating the potential of all things digital to address everything from cross-border payments to small and medium enterprise finance.

This is all encouraging amelioration, but is it the revolution we were promised? Mondex founder and payments guru Tim Jones begs to differ, and argues that the new technologies have proven both unreliable and underwhelming. Other contributors counsel that we need legal, regulatory and policy frameworks in place before we can fully explore and benefit from the new technologies. As ever, we hope our readers will enjoy the views on offer in this edition of the Journal. •



In this issue of the DMI Journal, we apply our loupe to capital markets and exchanges and ask whether blockchain, tokens and DLT could facilitate extensive repairs to the shattered post-Covid landscape.

Reserve Bank of Australia kicks off wholesale CBDC project

The RBA is collaborating with the Commonwealth Bank, National Australia Bank, Perpetual and ConsenSys to explore the potential use of a blockchain-based wholesale CBDC. This involves developing a proof of concept for the use of CBDC for interbank funding and tokenised loans, working on an Ethereum-based DLT platform. The project is expected to be completed by the end of the year.

Cash payments drop to 4% of transactions in Norway

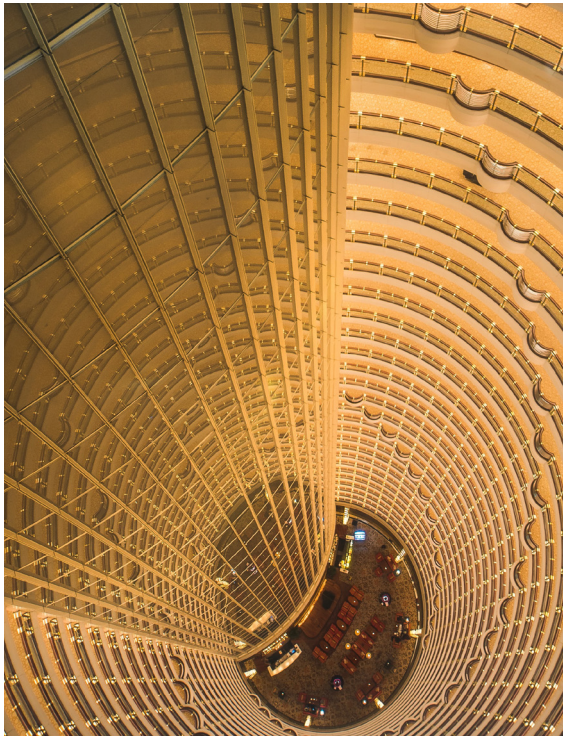
In a speech at a payments conference in Oslo, Ida Wolden Bache, deputy governor of Norges Bank, said, 'Only 4% of payments are now made using cash. This share is considerably lower than before the pandemic.' Cash use is lower in Norway than in any other country, but Norges Bank has no intention of exploring digital currency.

WhatsApp to launch payments service in India

The National Payments Corporation of India has given WhatsApp approval to go live on the country's United Payments Interface. WhatsApp began testing peer-to-peer payments in India in 2018. WhatsApp is likely to expand its UPI userbase gradually, starting with 20m users.

ECB's Target-2 experiences system failure

The European Central Bank's Target-2 experienced an 11-hour outage on 23 October due to a defective third-party network device. The backup site failed to boot up and central banks and financial institutions across the euro area were unable to process transactions, transfer liquidity, or settle securities transactions. The glitch resulted in a €416bn drop in the use of the central bank's deposit facility.



China Construction Bank to raise $3bn blockchain bond

CCB is working with the digital securities exchange, Fusang to raise $3bn through a blockchain-based debt security. Retail investors will be able to purchase tokens (backed by CCB deposits) using dollars or bitcoin, with investments of as little as $100. The bond gives retail investors access to previously illiquid investments, while also bringing legitimacy and investor confidence to the world of cryptocurrency and decentralised finance.

FURTHER READING

A collection of research, reports and white papers from central banks and the industry over recent months, showing how the narrative is evolving in the payments sector. These documents outline current views on designs and experiments in digital currencies, as well as the concerns and challenges that lie ahead.

Central bank digital currencies: foundational principles and core features
Bank for International Settlements, October
https://bit.ly/35OvClh

Report on a digital euro
European Central Bank, October
https://bit.ly/35LXruE

Digital money across borders: Macro-financial implications
International Monetary Fund, October
https://bit.ly/397enOp

The Bank of Japan's approach to central bank digital currency
Bank of Japan, October
https://bit.ly/2UKckar

Regulation, supervision and oversight of 'global stablecoin' arrangements
Financial Stability Board, October
https://bit.ly/2IPfDuh

The role of blockchain in banking
OMFIF, March
https://bit.ly/36STjZ8

Central bank digital currencies and blockchain: Exploring new technologies
OMFIF, August
https://bit.ly/36X7cVY

Mastercard adds account-to-account payments for businesses

This feature builds on the company's multi-rail strategy to upgrade business payments, solving pain points for buyers and sellers. The account-to-account functionality allows firms to exchange data with greater efficiency across multiple rails, including real-time payments and the US' automated clearing house.

Promising applications of blockchain and DLT include the automation of fixed-income bond markets, the ability to digitally represent and tokenise financial instruments, assets and securities, as well as optimising the post-trade clearing and settlement lifecycle within financial markets.

Banking on blockchain

The financial sector has adopted a more realistic view of the potential for distributed ledger technology to transform payments and is exploring more targeted applications, write Bhavin Patel, senior economist and head of fintech research, and Brandon Chye, economist at OMFIF.

SECURITY AND TRUST are essential to the global financial system's plumbing and capital market infrastructures. The trade of stocks, bonds, derivatives and other financial instruments is pegged at nearly $3,000tn in transaction value each year. However, ensuring trust between banks, brokerages, custodians and clearing houses using multiple ledgers requires all actors to have full confidence in the market infrastructure. The financial sector was once abuzz with the potential for distributed ledger technology or blockchain to profoundly change the architecture of global financial services and capital markets.

In particular, major wholesale and investment banking activities were allegedly about to be transformed. At the fore, central banks were exploring methods to adopt DLT for wholesale and interbank operations for trade and settlement. The technology promised to make infrastructures more efficient, productive and resilient. The most prominent of these initiatives were the Monetary Authority of Singapore's Project Ubin and the Bank of Canada's Jasper. More recently, central bank efforts have shifted towards DLT-based retail central bank digital currency.

Concurrently, the private sector has developed more specific use cases for blockchain and DLT. Legacy manual operations and the need for data reconciliation between different parties mean that many financial transactions processes are costly and ineffective.

Promising applications of blockchain and DLT include the automation of fixed-income bond markets, the ability to digitally represent and tokenise financial instruments, assets and securities, as well as optimising the post-trade clearing and settlement lifecycle within financial markets. Several financial intermediaries are exploring the possibilities, including commercial banks, stock exchanges, and even at times in collaboration with central banks.

Blockchain systems could facilitate the issuance of primary

A shared ledger could expedite the clearing and settlement of assets where large and complex multiparty transactions occur regularly.

securities such as corporate bonds. Currently, issuance and payment of cashflows are largely tracked and performed manually. The immutable nature of blockchain transactions can help automate certain procedures in the bond life cycle via pre-determined smart contracts. For instance, issuance of bond proceeds can be done on a parametric basis, which is instantaneously activated once specific trigger conditions are met. In 2018, the World Bank issued bond-i, the first public bond created and managed via DLT. The Commonwealth Bank of Australia, which managed the two-year blockchain bond, raised $80m in its first issuance. There is likely to be similar issuance in the future.

For banks, the tokenisation of securities could significantly reduce global trade costs. A tokenised economy offers the potential for a more efficient system with frictionless creation, buying and selling of tokens. This could lower costs and make the financial industry faster and more accessible, unlocking trillions of dollars in illiquid assets and vastly increasing the volumes of trades.

In an effort to keep pace, some central banks are aligning their research into wholesale CBDC with these use cases. In November, the Reserve Bank of Australia began collaborating with commercial banks to explore the viability of wholesale CBDC. It intends to enable the funding, settlement and repayment of tokenised syndicated loans using an Ethereum-based DLT platform.

In the coming years, traditional players will have the opportunity to meet the demands of a token economy by providing a platform for storing tokens, or assuming the role of a trusted intermediary if a decentralised solution is not enough. In the near term, there is a need for appropriate regulation, and for it to be aligned across jurisdictions.

Banks see clearing and settlement as another important use case. A shared ledger could expedite the clearing and settlement of assets where large and complex multiparty transactions occur regularly. Stock exchanges and other financial institutions dealing in frequent, high-volume exchanges of securities and derivatives have experimented with blockchain platforms in their settlement process. In 2017, Goldman Sachs was granted a patent for SETLcoin, a transaction settlement system based on blockchain. The Nasdaq stock exchange successfully completed the first blockchain-based securities transaction platform via Linq in 2015.

Current real-time gross settlement systems have limited operation hours. Continuous-Linked Settlement, a platform operating as an international multi-currency clearing system on a payment-versus-payment settlement mechanism, is limited by the fact that transactions can only occur in specific time windows, such as when two countries' central bank RTGS systems are running concurrently.

Using DLT would allow for continuous PvP and delivery-versus-payment settlement globally. The reduction of intermediaries such as correspondent banks or central agencies can help minimise charges incurred along the payment chain. Currently, transaction settlement relies on financial intermediaries and service providers. As a result, post-trade processes require a considerable amount of reconciliation. A peer-to peer model reduces the need to update and reconcile multiple accounts in the post-trade cycle. Enabling direct transmission of information and assets between parties could optimise the operational costs of cross-border payments, as any lack of standardisation can be minimised.

However, the industry cautions that this is still in the early stages. There are many policy issues to address. This application of DLT would significantly de-risk payment settlement, although it would probably create pressures in other places, such as liquidity management. This is one other area in which banks expect significant progress over the next five years, conditional on productive engagement with regulators and other policy-makers.

The private sector is starting to take a more realistic view of blockchain's potential, and has a better grasp of implementation issues. The public and private sectors have many common goals, with major benefits for both sides if they are able to overcome certain blocks. There is growing consensus among leading central banks that wholesale CBDC could make the financial sector more effective and innovative. A range of sandbox experiments and pilots is set to emerge, involving private sector consortia, central banks and securities exchanges.

Applications of blockchain and DLT in capital markets

■ Securities and stock exchanges

Securities and stock exchanges are key capital market intermediaries that facilitate the transfer of financial resources between buyers and sellers. They manage the orderly and fair execution of trades and post-trade activities such as clearing, settlement and custody. Traditionally, exchanges act as central counterparties to minimise systemic risks of default by transacting parties. Blockchain and distributed ledger technology could revamp clearing, settlement and custody processes by reducing the presence of a central counterpart with peer-to-peer mechanisms, promoting higher efficiency, shorter durations and cost reductions.

Nasdaq launched its Linq blockchain platform in 2015 intended for the issuance and trading of private company securities. Since 2016, the Australian Stock Exchange has worked with blockchain start-up Digital Asset to create a DLT-based replacement for its legacy settlement system, CHESS. This is scheduled to go live in April 2023. In 2019, Deutshce Börse announced its intention to use DLT to develop a digital asset ecosystem to support trade in tokenised assets.

■ Commercial banks and B2B trading through tokenisation

Commercial banks are exploring how blockchain and DLT can diversify their business models. Tokenisation can provide banks with the capacity to enhance their roles as trading venues for corporate clients. In October, DBS revealed plans to develop the DBS Digital Exchange and a corresponding custody service that will cater to institutions and businesses.

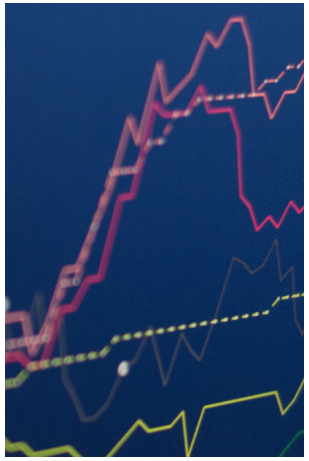
■ Foreign exchange, cross-border payments and liquidity

Blockchain and DLT could optimise back-office processes for key financial institution operations. The technology could result in considerable cost and time savings in cross-border payments. This field typically involves multiple intermediaries, each with potentially different payment infrastructures, internal procedures and systems. The shared nature, immutability and transparency of blockchain can help streamline and meet compliance requirements and reduce reliance on manual procedures. HSBC FX Everywhere, a blockchain-based platform, has reduced the bank's foreign exchange trading costs by 25% and enhanced its risk management processes by permitting real-time monitoring of its exposure across multiple balance sheets between its different country offices.

■ Bond markets

Blockchain and DLT could facilitate the issuance and maintenance of primary securities such as corporate bonds. Issuance and payment of cashflows are largely tracked and performed on a manual basis. The immutable and programmable nature of blockchain transactions can help automate certain procedures in the bond life cycle via pre-determined smart contracts. Since 2019, Temasek, SGX and HSBC have explored the use case for DLT for bond issuance and servicing. In September, they completed a pilot digital bond issuance for Olam International using Digital Asset's DAML smart contract language to program the debt issuance workflows.

Blockchain and distributed ledger technology could revamp clearing, settlement and custody processes



The biggest challenge right now for DLT projects is business case justification

What matters for capital markets

The International Securities Services Association's digital ledger technology working group surveyed market participants to get a grasp of how DLT is working, write Colin Parry, chief executive officer of the International Securities Services Association, Glen Fernandes, senior member of the group strategy team at Euroclear, and Urs Sauer, SIX, co-chairs of the ISSA DLT working group.

THROUGH ITS working groups, the International Securities Services Association is actively contributing to promoting forward-thinking solutions. The DLT working group, established in 2015, brings together influential securities services leaders, experts and industry stakeholders. It represents the views of more than 50 global market actors, helping guide the development of an exciting and innovative technology.

The rise of distributed ledger technology and digital assets has been a major innovation for financial markets and central banking. To market professionals not involved in cryptocurrency or DLT developments, it is unclear how much has really been achieved. Hence beginning 2020, the distributed ledger technology working group, under the auspices of the International Securities Services Association, embarked on surveying the industry, to help bring deep and meaningful insights to the wider market community.

The survey garnered massive support, with 145 actors from across different industry institutions, such as banks, market infrastructures and fintechs, providing their views.

The primary reasons for exploring and developing DLT are the efficiencies it can offer to big banks and the innovations that smaller houses can take advantage of. DLT development is being led by fintechs and brokers, with much of the activity taking place in the Americas. Investors are focused more on cryptocurrencies rather than tokenised securities. With just 5.7% of projects having fully graduated from the development process, DLT is still a cutting edge and emerging technology. It has not yet been incorporated into widespread operations.

For those that have graduated, many DLT projects are focused on solutions in securities issuance, the mobility of collateral and asset servicing. Most respondents prefer investing in start-ups (57%) or participating in market utilities over buying DLT or building it themselves. Still, enthusiasm for this technology is high with a large majority (79%) of respondents indicating they have dedicated resources to it. The biggest challenge right now for DLT projects is business case justification.

It has always been the ambition of the DLT working group to bring material insights to key questions that could drive the evolution of digital assets and DLT. Our next focus will be to explore three specific themes that are crucial to the industry.

First is to see what customers, such as investors and buy-side firms, want out of digital assets. Answering how users benefit from this technology is vital for its successful development. Next we have to ask what the implications of a central bank digital currency and stable coins are for securities services. Finally, we have to pay attention to the development of standards, which would allow for interoperability between emerging systems. •

Exploring the benefits of further digitalisation

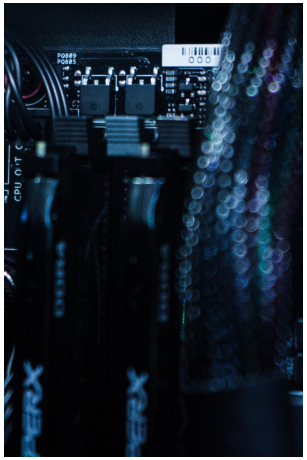
Digitalisation has the ability to hasten settlement in public equity markets and compliance enforcement in private ones. Two projects explore this potential, writes Jennifer Peve managing director, business innovation at the Depository Trust and Clearing Corporation.

THE DEPOSITORY Trust and Clearing Corporation's innovative work exploring the benefits of distributed ledger technology and digitalisation builds upon its history of using technology to transform market structures while providing the highest levels of risk management. Digitalisation can be defined as the application of coded instructions to assets maintained on a blockchain that automatically execute actions based on predefined conditions. Today, DTCC is advancing several initiatives that further the use of digitalisation, strengthening the post-trade processes, including Project Ion and Project Whitney. These projects are part of a broader effort by DTCC to continue modernising the critical infrastructure that underpins American capital markets.

Project Ion is focused on exploring whether digitalising assets on DLT can accelerate settlement for the American equity market and also reduce costs, as well as risks, for market participants. To test its hypothesis, DTCC is developing a prototype with enhanced functionality on a permissioned DLT-based platform. The feedback and lessons learned from this experiment will inform DTCC's assessment of a potential new accelerated settlement service option. In parallel, the team has been gathering feedback from industry participants to inform the design and assess market demand for an option to settle on one day after a transaction and, ultimately, on the same day.

Project Whitney, which was developed into a functional prototype, explores the potential for digital infrastructure to support private market securities that are exempt from registration with the Securities and Exchange Commission. While public markets are highly efficient, the private market remains very much hands on, with few digital solutions available. DTCC is analysing if the tokenisation of traditional assets – as one component of this broader digital infrastructure solution – can help create an efficient and secure approach to private market offerings in the US. Whitney's services are focused on compliance enforcement of eligible securities through a dynamic rules engine that enables issuers and investors to comply with regulatory and issuer-specific considerations, an authoritative stock record and asset lifecycle management. Working with industry, DTCC is also experimenting with different integration options for the prototype, including integration via application programming interfaces, public blockchains and private ledgers.

Innovative technology has the potential to modernise and enhance post-trade activity. Projects Ion and Whitney represent the next steps in DTCC's digitalisation journey to help build a more resilient, secure and efficient post-trade infrastructure. •



While public markets are highly efficient, the private market remains very much hands on, with few digital solutions available

Next step for bond markets

Charlie Berman, chief executive officer of Agora, talks to Chris Ostrowski, commercial director at OMFIF, about how distributed ledger technology and other advances are changing the bond market.

Chris Ostrowski: The bond market is centuries old. Have you found any cultural resistance to the concept of fully digital debt capital markets?
Charlie Berman: Global bond markets have experienced extraordinary growth since their early days. The 80s and 90s saw a wave of global deregulation culminating in the repeal of the Glass-Steagall Act in 1999. That year also saw the introduction of the euro which gave birth to a European credit market. Global credit markets expanded in all asset classes and the bond market was a notable beneficiary. Annual primary issuance moved into the trillions of dollars with a secondary market measured in tens of trillions. Issuers were able to issue in ever increasing volumes and investors readily absorbed this supply even during multiple and varied periods of crisis, instability and volatility. Despite this massive increase in activity, much of the market infrastructure remains largely the same as it was thirty years ago. Crucially, despite increased levels of automation, many processes still rely on the movement of structured data between silos which requires reconciliation. This involves the maintenance of significant infrastructure merely to check whether different version of the same event match. The markets are most certainly not broken, look how well they have coped with Covid-19, but time and resources are now being devoted to how they can function better. Few would argue that no change is necessary but there is uncertainty about what tactics and tools should be applied.

CO: How can distributed ledger technology change the bond market?
CB: I would contend that intelligent digital transformation is now not only possible but necessary and entirely consistent with the history and evolution of our markets. In their day immobilisation and dematerialisation were radical concepts. Similarly, the introduction of the global bond in 1989 (which built a settlement bridge between the US domestic and international central securities depositories) was initially met with resistance by many. Today, no one argues that these evolutionary steps did not benefit the vast majority of participants.

CO: The life-cycle of a bond includes many participants and complex chains of events. What are the biggest risks and pain points when adopting new technology?
CB: The drivers of digital transformation are many, but cost, resilience, regulation, speed and efficiency are often cited. It is happening now because digital technology has advanced to a level where it can be safely and confidently adopted by major market participants and applied to their mainstream activities. Confidential, permissioned DLT, when utilised by the existing market members, has the potential to reduce or eradicate the need for the constant reconciliations inherent in a system where everyone has their own version of structured data locked in a silo behind a firewall.

CO: What is the current regulatory approach to DLT in debt capital markets?
CB: The existing market functions on legacy technologies built up over decades. It is naïve to believe this can be swept away overnight. New systems need to be tested rigorously before their introduction. Inevitably, this will involve the running of parallel processes and a transition period. There are different challenges for those that create the securities, the investors who hold and trade them and the service providers who make these processes possible and manage the lifecycle until redemption. Each participant seeks better ways of dealing with their specific challenges. Creating 'golden source' data, where the accuracy is unquestioned and which can flow smoothly with minimal human input through the different service providers will eliminate errors and

delays. By also adopting smart contract technology, repetitive calculations can be automated with the outcome disseminated over ledgers to all those requiring and authorised to see that information.

CO: What policy changes are needed to make digital debt capital markets a reality?
CB: Regulators and legislators throughout the world have already recognised how a carefully managed introduction of new technology can substantially improve not just the efficiency of markets but also their resilience, security, transparency and scalability. Proposed legislation tabled in Germany in August is a leading indicator of the extent that regulators understand that wet-ink bearer pieces of paper are no longer required. The European Central Bank has formed powerful a committee to address central bank digital currencies and create a strategy for European fintech. Real digital transformation is now taking place because we see many critical market participants, including regulators and legislators, willing to listen, educate, change, collaborate and invest.

PROFILE

Education:
Charlie Berman has a Bachelor's degree in Laws from the University of Manchester.

Career:
Charlie Berman is chief executive officer of Agora, which he helped found in 2018. He has worked at Barclays, Citigroup, Solomon Brothers and Bank of America, among others, during his 40-year career.

The logic of fintech is that the elements of banking are information problems. Banks provide payment services. This is primarily about sending secure messages

Legal framework needed for digital assets

When lawyers and bankers talk about digital assets, they are talking about different things. The law has not been able to keep up with rapid developments around new assets, but that is changing, writes Charles Kerrigan, partner at CMS.

SINCE ALL companies are now self-confessed technology businesses, it makes sense that their assets would be digital. Further justifications for digitalisation are often touted in commercial presentations and the business press.

Evidence that software is eating the world now also comes from markets. The contrast between the share prices of banks and technology companies illustrates this. Tech valuations price in future scale and network effects. Embedded finance, where the consumer of a financial product is primarily a client of an online business, tends to displace banks as the holders of customer's financial relationships.

The logic of fintech is that the elements of banking are information problems. Banks provide payment services. This is primarily about sending secure messages. They provide intermediation services for capital. This is about having and processing information on market participants.

Since this is well-known, there is an assumption that relevant legal systems have tracked this progress. This is not the case.

Lawyers don't mean the same thing as commercial parties when they talk about digital assets. In the commercial sense, a digital asset is an asset that is represented electronically. An English lawyer will categorise an asset as tangible or intangible. Intangible assets are categorised as either documentary intangibles or pure intangibles. Each of these categories has subcategories (where we find intellectual property rights for example) and so on. A 'digital' asset doesn't have its own category.

Some important digital assets will be new and sui generis. Andrew Bailey's 'Reinventing the wheel' speech and the Bank of England's March discussion paper raise the possibility of central bank digital currencies as new digital assets.

Not all jurisdictions recognise digital assets, such as cryptoassets. The legal statement on cryptoassets and smart contracts published last November by the UK jurisdiction taskforce of the LawTech delivery panel found that cryptoassets can be property under English law. This conclusion, however, had to take account of the fact that, under English law, assets are either 'things in possession' or 'things in action', depending on whether you can possess them or merely bring an action to assert a right to them. Many native digital assets are capable of neither.

Legal definitions may deliberately exclude certain assets that would be recognised as a commercial matter. Under most legal systems information is not property. This flows naturally from the importance that the law attaches to the concept of possession

and the related point that the transfer of title to property that can be easily copied is conceptually problematic.

Traditional credit finance business models do not support digital assets. Bank lending and security documents and methodology were built for an economy with value in tangible assets. The October 2018 joint report of the UK Intellectual Property Office and the British Business Bank on 'using intellectual property to access growth funding' remains accurate despite considerable efforts on this topic. This has been a challenge for banks as more and more value has shifted to intangible assets (84% of the market value of the S&P500 as calculated by Ocean Tomo a few years ago, and likely higher now). New techniques, such as revenue-based lending and business-to-business embedded finance, may see the technology sector solve its own problem here. However, it will mean that a generation of finance lawyers have been trained to do lending transactions using models that are redundant.

Tokenisation has many supporters but legal requirements lag commercial adoption in many jurisdictions. The widely reported benefits include improved liquidity (from 24/7 platform-based trading of assets that can easily be split into smaller units), transparency (through shared infrastructure allowing visibility, thereby aiding operational resilience for regulators and better price discovery for market participants) and efficiency savings (from automated infrastructure and fewer intermediaries). Under many legal systems, however, tokenisation of conventional assets still requires some workarounds. English company law and rules for registering ownership of land both assume the continued existence of analogue processes, such as paying transfer duties and registering no more than four owners. Other countries, such as France and Luxemburg, have introduced new laws.

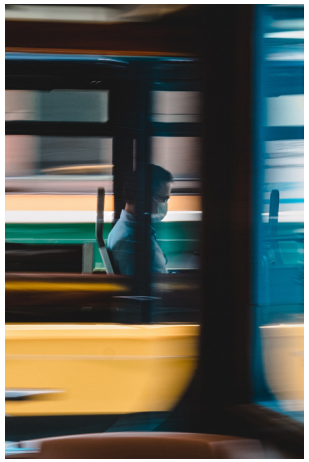
It is with good timing, then, that the Law Commission has launched two new projects to 'ensure that English law can accommodate two emerging technologies that could revolutionise commerce.' The schemes will run concurrently, reviewing the law on smart contracts and digital assets. For the latter, the aim is to set up the law to deal with electronic documents, cryptoassets and other digital assets. In Europe, the proposed markets in cryptoassets regulation aims to bring legal clarity, support for innovation, consumer and investor protection, and market integrity to a subset of digital assets.

This work is greatly welcomed. However, we should realise fintechs are not waiting around for it. If you can use technology to reduce your costs and improve your service faster than your competitors, that will drive your strategy. You don't need a lawyer to tell you if you are achieving this. Legal clarity is important, but we have quite a lot of catching up to do. •

New techniques, such as revenue-based lending and business-to-business embedded finance, may see the technology sector solve its own problem

Blockchain could be solution to Covid disruption

New technologies could help fill connectivity and data gaps in global supply chains, writes John Ho, head of legal, financial markets at Standard Chartered Bank.



Standard Chartered Bank has successfully completed its first cross-border live transaction on Trusple, AntChain's newly launched digital international trade and financial service platform

THE COVID-19 crisis made clear the lack of connectivity and data exchange built into global supply chains. The disruption caught many suppliers off guard, and exposed gaps in their ability to track purchasers or stocks in trade finance sector.

There is a need for fully developed, scalable tools and technologies to connect and track goods, each with a unique digital identity. Innovations like the internet of things, blockchain and distributed ledger technology present a potentially compelling solution. Blockchain and DLT could improve efficiency, automation, traceability and transparency across supply chains. Future resilience will depend on building transparent, interoperable and connective networks.

Initiatives are already underway to address the market's pain points. Contour, a blockchain-based open industry platform, is focused on digitally creating, exchanging, approving and issuing letters of credit on R3's Corda platform. In October, Contour announced it was entering live production following an extensive period of design, development and testing by over 80 banks and corporates. Trials took place in 17 countries, with transactions spanning commodities, petrochemicals, energy, metals, retail goods and textiles.

Standard Chartered Bank and Linklogis recently completed their first joint deep-tier supply chain transaction for Digital Guangdong, which carries out digital government services and transactions for the residents of Guangdong, a province in South China. Linklogis is China's leading supply chain financing platform. By leveraging Linklogis' 'WeQChain', a platform based on Tencent's blockchain technology, it gave Digital Guangdong full transparency on its supply chain beyond direct suppliers, as well as cheaper and more convenient access to credit for its upstream suppliers. Standard Chartered Bank has also successfully completed its first cross-border live transaction on Trusple, AntChain's newly launched digital international trade and financial service platform. It allows participants to offer buyers and sellers – typically SMEs – easier access to trade finance. AntChain is Ant Group's blockchain-based technology solution.

The adoption of digital trade finance is driving down transaction costs while improving the transparency of the entire supply chain, resulting in increased trust amongst trade participants. Regulators are encouraging digital transformation. There has been much collaboration including between the Bank for International Settlements Innovation Hub and the Hong Kong Monetary Authority. The use of new technology will improve the efficiency and resilience of trade finance. This is critical in helping the sector recover. Co-operation between the public and private sectors will spur innovation and benefit trade finance as a whole. •

Smart contracts propel financial industry, on one condition

To fully reap the benefits of innovative technology, the financial sector needs new tools to manage the risks, writes Amarjit Singh, blockchain assurance partner at EY.

AMERICAN financier Warren Buffett once called derivatives 'financial weapons of mass destruction'. They have many important uses but beware those who do not understand their risks and downsides. Smart contracts should be handled with such care too.

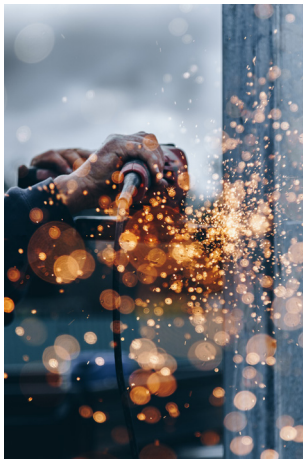
As we move into a world of blockchain, distributed ledgers and digital money, the rise in smart contracts is helping propel the industry to the next level of utility. China leads in the digital currency space, and many countries are quickly trying to catch up. In September, the European Union proposed regulations to the new framework for crypto-assets. In November, the UK government announced plans to introduce legislation covering stablecoins and digital money.

With firms now starting to use smart contracts across trade finance to settle trades automatically, move money, pay out insurance claims and automate and enforce (legal) obligations, there will be a potential risk to monitor. Smart contracts are supposed to be autonomous and fast, but there is a need to ensure they are accurate.

As with any innovation, some existing risk management tools will help, but in most cases new tools are necessary to match new risks. As these contracts have the power to settle and transact with (legal) certainty, firms need to be clear that they have considered their security and efficacy. There are standards and tools in place to assess smart contracts, but they all come with one big caveat: Firms must still fully grasp the logic with which their smart contract will act.

Businesses must understand their distributed ledger technology and smart contract implementations to identify similarities and differences with regards to risk and control considerations. Safekeeping risks must be factored in, but the risk of loss for digital assets is different to traditional financial assets. Risks are likely to arise from asset servicing and reconciliations, but these might be forks, votes or airdrops versus more traditional corporate actions.

Overall, the reap the full benefits of this technology, second and third lines of defence need to 'knowledge-up' to address the risks appropriately. With the right framework in place, smart contracts should not turn into financial weapons of mass destruction. •



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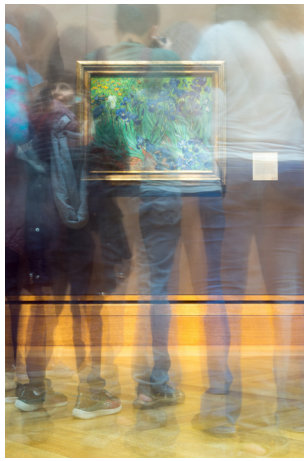


At the 2020 World Economic Forum, there was talk about what assets might be tokenised. Examples ranged from property to fractions of an Andy Warhol piece

Time has come for tokenisation to take over

Outriders have long predicted that soon we will be exchanging digital assets without the need for clearing or settlement. They are being joined by more and more people, writes David Birch, member of the OMFIF Digital Monetary Institute Advisory Council.

YOU DON'T have to be a cryptocurrency believer to think that its underlying technology is going to change finance. That technology will mean current cryptocurrencies will never catch on, since more general digital asset transfer platforms will supplant them. These platforms, which enable the exchange of digital assets (let's call these tokens) without clearing or settlement have real potential.

Jonathan Larsen, chief innovation officer of Ping An Group, on stage at Money20/20 Asia said, 'Tokenisation is a massive trend… a much bigger story than cryptocurrencies, initial coin offerings and even blockchain.' Denis Beau, first deputy governor at Banque de France, said that tokenisation could be a way to, 'Answer the market's demands'.

At the 2020 World Economic Forum, there was talk about what assets might be tokenised. Examples ranged from property to fractions of an Andy Warhol piece, although the ones that attracted the most discussion were future crop yields, enabling farmers in emerging markets to raise finance, and rights to the future income of sports stars.

This chorus of voices, including mine, predicting the inevitability of tokenisation is one thing. But when Jay Clayton, chair of the Securities and Exchange Commission, says database entries have replace stock certificates and that, 'It may be very well the case that those all become tokenised', it's time to take tokenisation seriously.

The tokenisation of financial assets is a much broader topic than central bank digital currency. We should explore the concept of CBDC as simply one kind of asset, albeit one bound to risk-free central bank money. In this new world, one might use a cryptocurrency platform to trade tokens, with one of these being digital currency and one issuer being a central bank.

Huw van Steenis, of UBS and previously the Bank of England, predicts a three-horse race around the future of money, with private tokens and CBDCs developing in parallel with efforts to improve the current system. Competition here could stimulate innovation in the short-term. In the longer-term, however, we may see a convergence as platforms allow both private and public ones, including CBDCs, to be exchanged.

In this vision of the future, there is no technological difference between public and private currencies: one will be backed by risk-free central bank money, the other backed by corporate goods and services. But they will both be tokens, exchanged without clearing or settlement through the same secure global digital asset platform. •

Project Glacier: A real-world use case for digital assets

Tokenisation is an exciting prospect for real estate investments, and could help the buildings meet its sustainability challenges, writes Nicole Anderson, managing partner at Redsand Ventures.

FROM 2018-19 Redsand Ventures developed a digital asset platform to address the investment friction associated with real estate and property project finance. Project Glacier, based in the Nordics, aimed to facilitate greater transparency in construction supply chains. To date, this platform has onboarded more than 500 retail and professional investors in a combined portfolio of commercial and residential property.

The buildings sector consumes more than 55% of global electricity demand. Over the next 40 years, it will grow by nearly 230bn square metres – equivalent to adding the surface area of Japan to the planet every year until 2060. Energy demand in the buildings sector could increase by 30% by 2030.

Much has been made of real-world assets and their digital asset application. Real estate is a viable use case, especially given the sector's sustainability challenges.

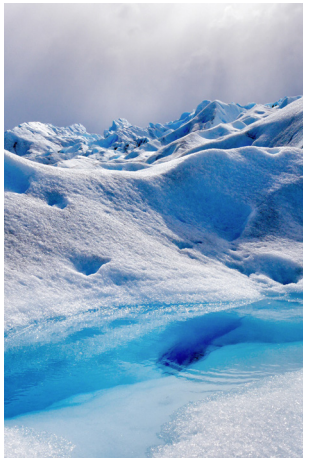
Tokenisation allows for the securitisation of an asset and its conversion into a tradable commodity. It enables individuals to co-own assets that were not previously available to purchase.

Project Glacier uses smart contracts, enhancing cashflow transparency with key suppliers,

optimising profitability. These efficiencies were modelled into the forward overall cost of capital over the lifetime of the investment, providing investors with insight into how the money was being put to work. Token allocations can be traded via a 'closed' secondary market between investors. This effectively releases investment return at any point where demand matches supply.

Tokenisation offers exciting possibilities for real estate investment. However, the market is inherently fragmented. Unless the land ownership, development and even operation of a property project are unified, it will be difficult to apply the Project Glacier model. The fractionalisation of single assets, for which demand may be limited, makes for unconvincing economics as the obstacles are significant. It is unclear whether broader liquid markets for such assets, in the form of independent tokenised or digital asset exchanges, can result in lower issuance costs. In addition, there is a need for harmonised regulation of digital asset holdings.

Tokenisation has the greatest chance of making progress in the world of funds in asset classes where the cost of entry is high, retail demand is likely to grow, and transparency of how that asset is performing is in line with environmental, social and governance monitoring requirements. •



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If DLT isn't a silver bullet, how then are we to modernise financial exchanges? The answer lies in the basics of how you design successful systems

DLT's broken promises

Distributed ledger technology has failed to live up to its hype. But there is still may be a way for capital markets to use it, writes Tim Jones, executive director at the Tata Group.

The recent interest in modernising capital markets is motivated by the benefits of faster trading, lower costs and greater flexibility. Major financial exchanges are critical pieces of infrastructure, so security, resilience and availability feature highly on wish lists too. Many see distributed ledger technology as having the potential to underpin future exchange designs.

Debuting in 2008, DLT promised a system where non-trusting counterparties could trade without a central authority. Assuring the validity of transactions was to be open to any actor, not just those involved in the underlying transaction.

Bitcoin achieves this by using a 'set and forget' public transaction assurance mechanism where miners compete to assure a block of transactions. Each subsequent block carries an element of the previous block, creating a blockchain. This makes it effectively impossible to cheat.

This works. But the assurance mechanism stops evolution. With nobody in charge, nothing can change. Businesses have responded to these shortcomings by creating permissioned blockchains. Permissions managers can adapt the transaction assurance method, while competition is managed.

But there's a problem. The addition of a permissions manager destroys the notion that there's no central authority. A permissioned blockchain leaves you with the complexity, price and speed costs of having multiple actors involved in transaction assurance but takes away the distribution of trust that lies at the heart of DLT.

Twelve years have passed since DLT emerged. It has failed to deliver anything of real value. Perhaps it will one day. However, that you need to give up on distributed trust to control and evolve your environment seems pretty unsurmountable.

If DLT isn't a silver bullet, how then are we to modernise financial exchanges? The answer lies in the basics of designing systems.

You start with a customer value proposition, a statement that sets out what you're trying to achieve. This is then turned into a set of business requirements. These have nothing to do with technology choices – they describe what the platform needs to deliver.

These requirements feed into technical ones, which are measured against available technologies. It's normal to go back and forth along this series of steps, getting answers that may confound your requirements. Centralised and distributed systems should both be considered. Now business requirements are leading technological considerations, not the other way round. That's how things should work. •

Overcoming the three major roadblocks to CBDC

When it comes to the introduction of digital currency, it is no longer a question of 'if', but 'when', but major issues still need to be addressed, writes Wolfram Seidemann, chief executive officer of G+D Currency Technology.

THE COVID-19 CRISIS has made clear that a digital and universal means of payment, issued by a public institution, is needed. European Central Bank President Christine Lagarde outlined this during her speech at the Deutsche Bundesbank's conference in September, saying that central bank digital currency as a complement to cash would 'support financial inclusion and offer a choice to consumers.' CBDC could significantly strengthen digital financial inclusion and boost global prosperity – the key motivation for many central banks in emerging markets.

According to the Bank for International Settlements, more than 80% of the world's central banks are now engaged in CBDC, and 10% have already launched pilot projects. It is not a question of whether there will be public digital currencies in the foreseeable future, but when.

I see three major challenges that need to be overcome before CBDC can be introduced. First, there needs to be broad acceptance of a public digital currency among the population. In today's digital world we all leave traceable footprints, and there is no such thing as an anonymous means of payment. All existing digital payment schemes require the exchange of privacy and anonymity for service and convenience. There is concern that a CBDC could lead to a more exposed society. Therefore, we are convinced that data protection and anonymity must be key features of digital currency.

The second challenge is the impact of CBDC on the financial system and wider economy. Sceptics argue that it could encourage bank runs since depositors could easily transfer bank deposits directly to the central bank. To mitigate this risk, a well-designed CBDC should imitate cash as closely as possible, ensuring all players in the financial industry keep their roles, and customer relationships remain intact. Commercial banks would not be jeopardised, and could continue to serve as the interface for customers in the issuance of digital cash.

The third major challenge lies in ensuring the highest security standards. CBDC would not only attract the attention of criminal hackers, but would also be a target in a potential cyber war.

Certain critical infrastructures are of such vital importance to a nation's society and economy that their failure would result in significant disruption to public security. Public payment is critical infrastructure. As is the case with banknotes, it is up to central banks to continuously uphold the security of CBDC, in partnership with agile digital security technology leaders. •

Data protection and anonymity must be key features of digital currency

Institutions must prove to investors and stakeholders that blockchain and DLT make commercial sense and can make processes more efficient

Three barriers to liquid markets

As blockchain and distributed ledger technology gain prominence in the financial industry, but there are still issues to address in global digital asset markets, writes Benjamin Nadareski, responsible for global corporate development at SIX Digital Exchange.

BLOCKCHAIN-BASED assets are increasingly popular, but there is a major hurdle to their adoption: liquidity. Financial institutions are looking at three ways to break through this barrier.

Now that leading enterprise blockchains such as Corda, Ethereum and Fabric are becoming established names in the institutional world, many financial institutions are looking to bring their blockchain-based products and services into market. Several applications have been introduced since 2018, including digital bond issuances. For securitised listed products to enter the marketplace, regulated and institutional grade trading and custody venues are required.

Several exchanges and venues have launched, focusing on cryptocurrency, crypto-based assets and non-financial retail-based products and services such as loyalty points. However, these do not fulfil the demand by institutional financial clients for marketplaces for the billions of dollars invested into digital asset products. Regulated exchanges are needed to break the liquidity barrier.

Another problem is regulatory uncertainty. One of the primary developmental hurdles is how to properly account, track and verify a digital asset. The industry may never achieve global standards, but collaboration between countries is essential. Leading distributed ledger companies around the world are developing taxonomies, definitions and token contracts.

Institutions must prove to investors and stakeholders that blockchain and DLT make commercial sense and can make processes more efficient. In the early days of enterprise blockchain (2014-17) the primary focus was on technical readiness for issues of trust, security and performance. Firms must be prepared to commit real assets and resources to launch products into the market. This includes business sponsors, corporate teams, and continued software development to package these new assets into attractive client offerings. Ensuring a business is ready and capable to transact and deal with digital assets will quickly move from a ‘strategic priority’ to a ‘client requirement’.

Blockchain adoption is contingent on financial institutions overcoming these barriers. The marketplace is on the verge of solving issues of digital market infrastructure and liquidity in digital assets. •

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Meetings highlights

22 October

Rise of the CBDC: policy approaches and technologies

Virtual roundtable with Raphael Auer, Bank for International Settlements

As digital currency has captured global attention, central banks have intensified their research and experimentation. Technical designs, policy choices and motivations vary across countries. This session explored global trends in the design choice of architectures, infrastructure and access, reflecting on the main challenges ahead and the potential for international standards.

23 November

Digital operational resilience in the financial sector

Virtual panel including Brent McIntosh, Under Secretary of the Treasury for International Affairs, US Department of the Treasury, and Kenji Okamura, Vice Minister of Finance for International Affairs, Ministry of Finance, Japan

Arthur Lindo, deputy director for policy in the Federal Reserve Board's division of supervision and regulation, Peter Kerstens, adviser in the European Commission's directorate general for financial stability, financial services and capital markets union, and Rahul Prabhakar, principal and global industries lead at Amazon Web Services, discussed recent regulatory initiatives in financial services.

25 November

Enabling financial inclusion in APAC through the cloud

Virtual roundtable

For the launch of a joint OMFIF DMI and Amazon Web Services report, a panel discussed the role of cloud architecture in financial inclusion and what regulators and policy-makers must consider to overcome cloud adoption challenges.

To register visit omfif.org/dmi

For programme queries and requests please contact katie-ann.wilson@omfif.org

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Meetings spotlight

10 December
Virtual panel on future of payments

The pandemic has made clear the bottlenecks within current payment systems. As cash use declines, governments are seeking ways to bolster consumer demand and prop up businesses. Alongside this, more than 1bn people remain outside the formal financial system. Policy-makers are more aware than ever of the need for more efficient digital payments systems. There have been notable innovations in electronic payments, including mobile banking and other fintech platforms. There is also increasing interest in central bank digital currency as a new form of fiat money, though there are still many practical considerations to address. A panel discusses these initiatives, outlining next steps for national and cross-border governance frameworks. It assesses when and how differing payment innovations are necessary, the role of technologies such as blockchain and the challenges ahead for public-private partnerships.

Speakers:

Tomer Barel, vice-president and chief operating officer, Novi

Raj Dhamodharan, executive vice-president, blockchain/digital asset products and digital partnerships, Mastercard

Sky Guo, chief executive officer, Cypherium

Henry Holden, adviser, Bank for International Settlements Innovation Hub

Manish Kohli, global head of payments and receivables, Citi

Steve Kokinos, chief executive officer, Algorand