FinTech, DLT and regulation

by Gabriel Callsen

Introduction

Distributed ledger technology (DLT) or blockchain technology has attracted increasing attention from regulators and supervisors in recent months. Both European and other international regulatory bodies have published a series of papers on DLT and its implications for securities markets, in particular the BIS, ECB, ESMA, FINRA, and IOSCO. This article seeks to provide a high-level, albeit non-exhaustive, overview of the potential benefits and challenges from a regulatory perspective.

The fundamental concept of DLT or blockchain is explained in a previous article, in Issue 39 of ICMA's Quarterly Review. In brief, a distributed ledger is a shared database which is accessible to multiple users or participants. One of the key characteristics is that the distributed ledger is maintained by its participants, and not by a central database administrator or party. Every participant can have an identical copy of the ledger. Based on a consensus mechanism and encrypted technology, additions to the database such as new transactions are grouped together and validated by a network of participants ("nodes").

Probably the most prominent application of DLT, known as blockchain, is the virtual Bitcoin currency. Transactions in Bitcoins are aggregated in "blocks", and appended to existing records in a decentralized network or "chain" (hence the name blockchain). An encrypted signature is used to validate any transactions. The underlying operating model is open by design and allows anonymous parties to interact without any access restrictions, also referred to as "permissionless". While blockchain is one variation of DLT, regulators have focused on the broader concept of "distributed ledger technology" (DLT).

Considering the highly-regulated nature of the financial industry, the use of DLT has mostly been tested in a restricted or "permissioned" environment where participation and validation are governed by rules. In such an environment, the operator of a DLT network is able to create known or "trusted parties", differentiate levels of access for participants and thereby satisfy potential safety requirements. To ensure resilience of DLT networks, specific mechanisms are used to validate new transactions. These are described in more detail in published papers, eg those by the ECB or BIS.

Potential benefits

As the majority of securities exist in digital (or dematerialised) form, DLT lends itself to be applied at different stages of the securities trade lifecycle. While there is an exponentially growing number of industry initiatives, regulators have identified post-trade processing of securities as a particular area of focus.

Straight-through processing (STP) of securities transactions is currently hampered by the existence of a disparate number of applications and intermediaries. The combination of trade confirmation, affirmation, allocation and clearing on a distributed ledger has the potential to accelerate the settlement process significantly. In theory, settlement could be completed nearly instantly.

While instantaneous settlement would require significant changes to current market practices, and may not be suitable for certain types of transactions,

a reduced settlement timeframe could generate a number of benefits, such as reduced counterparty risk, enhanced reconciliation and lower collateral requirements. Consequently, the reduction of collateral demand could contribute to market liquidity if applied on a sufficiently large scale.

So-called smart contracts have been identified as another potential source of efficiency gains. Encoding the terms of bonds into DLT would allow the automation of a number of transactions during the security lifecycle, such as calculating and crediting coupon payments, or executing margin calls in response to particular corporate actions or market events.

The current market practice is for the different sides and intermediaries of a trade to maintain separate records of asset holdings and transactions. The use of a distributed ledger would enable participants to share a digital database of assets. DLT could provide an audit trail spanning issuance, trade execution, clearing and settlement. Thus, DLT has the potential to render the recording of ownership of securities and traceability of transactions more efficient. Furthermore, shared information stored in distributed ledgers could be leveraged by multiple participants for Know-Your-Customer (KYC) and Anti-Money Laundering (AML) purposes.

In the same vein, market participants and regulators may benefit from having access to a single, accurate source of information in real time for regulatory reporting and risk management purposes. Under separate levels of access, firms and authorities could collect, consolidate and share data.

DLT could provide an audit trail spanning issuance, trade execution, clearing and settlement.

Considering records on DLT are by design distributed and shared, data and processes affected by a cyber-attack could be recovered more swiftly, provided not all ledgers are impacted simultaneously. In addition, the use of encryption techniques in the validation process and immutability of recorded data may increase the level of protection of the stored records.

Notwithstanding the potential benefits, the use of DLT raises a number of challenges and concerns from a regulatory perspective.

Challenges and risks

A major challenge for the financial industry, notably in the current post-trade space, resides in the lack of technical standards and harmonised rules. This is a critical aspect for the adoption of any emerging DLT solution in a "network industry" such as finance. In light of the increasing number of industry initiatives, it is deemed decisive for the adoption of DLT solutions whether these are established by one single party or a wider group of interested parties. Additionally, it is anticipated that any new DLT system would be adopted gradually, which requires interoperability with existing systems.

Governance of DLT networks in securities markets is a key concern. ESMA highlights the importance of suitable governance arrangements, and in particular "provisions on the liability of the respective parties, rules to approve/reject authorised participants, correction mechanisms, and applicable law in case of disputes". How to address conflicts of interests in operating and participating in a DLT network is one of the questions raised by FINRA. In the same vein, protecting privacy and confidentiality of sensitive data is considered critical.

Further concerns revolve around cybersecurity of distributed ledgers, both inside and outside the network. Despite the use of encrypted technology and decentralised mechanisms to validate new securities transactions or amendments of records, it must be considered how fraudulent transactions could be captured and reversed. In particular, the theft of private keys, which are used to access and control digital assets, is a key concern, according to IOSCO.

From an operational perspective, the use of DLT poses a number of potential risks. Given the distributed nature of records, erroneous entries disseminated across the network would have a significant impact. Once validated, transactions are irrevocable which is one of the key

features of DLT. In the absence of recourse mechanisms, a reverse transaction would have to be validated. IOSCO highlights the need for further consideration of this potential issue. Coding errors in smart contracts may lead to similar complexities.

Legal challenges arise in various areas of DLT application, notably with regard to cross-border transactions. Records of ownership of securities are held by various entities (custodians, registrars, depositories etc) at different levels (issuer, investor). In the absence of a harmonised framework at cross-border level, applicable rules are governed by national legislation. In addition, determining the applicable law for records located in a DLT network across jurisdictions may prove to be difficult.

In terms of market structure and systemic risk, the application of DLT may give rise to monopolistic structures. Early adopters might create barriers to new entrants and thereby undermine fair competition and well-functioning markets. Similarly, transparency and the shared information of trades or inventories can potentially be exploited to "front-run competitors or manipulate prices", as pointed out by ESMA. On a systemic level, the use of smart contracts might reinforce market volatility under market stress.

DLT within the EU regulatory framework

Generally, the current framework continues to apply. With regard to clearing, ESMA stresses that OTC derivative transactions which are subject to the CCP clearing obligation would have to meet requirements under EMIR in a DLT environment. This implies "that a CCP would still be needed, ie, the network would need to meet the definition of a CCP under EMIR and obtain a CCP authorisation or an existing CCP would need to join the network." For non-centrally cleared OTC transactions, it is stated that the exchange of margin on a bilateral basis may be permissible provided risk mitigation requirements are adhered to.

As for settlement, any functions in scope of the CSD Regulation (CSDR) performed on a DLT network, such as acting as "settlement internaliser"[46], would require compliance with CSDR and international requirements. Key challenges include how to ensure settlement finality, and provide delivery-versus-payment, notably in central bank money. While it is uncertain whether central bank money will ever become available in a DLT environment, the ECB points out that DLT solutions have not sufficiently demonstrated to date how the cash leg of securities transactions can be combined with the securities leg.

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Conclusion

These challenges and risks are by no means exhaustive, and reflect regulators' views at an early stage of this emerging technology in financial markets. The precise benefits and risks will, however, depend on the purpose, governance arrangements and technical design of DLT.

Generally, there is consensus that it is premature fully to appreciate the potential benefits and challenges of DLT at this stage. Nonetheless, regulators and supervisors point out that the implementation of DLT in securities markets has the potential to increase efficiency, enhance post-trade processes, and reduce costs of financial services, both for providers and users. At the same time, major concerns revolve around interoperability, governance arrangements and security of DLT.

While it is anticipated that DLT will be applied incrementally, regulators stress the importance for potential DLT solutions of complying with the current regulatory framework. ICMA will continue to monitor closely the evolution of DLT in financial markets, as well as regulators' and supervisors' responses. Additionally, policy makers' views, and other initiatives in terms of technical standardisation, deserve further attention.

Contact: Gabriel Callsen
gabriel.callsen@icmagroup.org

46. CSDR defines a "settlement internaliser" as "any institution, including one authorised in accordance with Directive 2013/36/EU or with Directive 2014/65/EU, which executes transfer orders on behalf of clients or on its own account other than through a securities settlement system".