Distributed ledger technology in debt capital markets, an issuer’s perspective

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Speeches

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Good afternoon,

I would like to thank ICMA for the invitation today to discuss a topic that is increasingly shaping the financial landscape - Distributed Ledger Technology, or DLT, and its implications for issuers.

While still a nascent field in our industry, digital bonds have this year again seen a number of issuances that each provided their lot of learnings. At the same time, blockchain has moved down the hype cycle and many applications have entered the trough of disillusionment[1]. DLT bonds have been tested for a while now, and the technology has not yet delivered the potential it promised. The scandals around FTX have not helped either, and DLT now seems to have disappeared from board room conversations.

This being said, the technology can have several merits for issuers.

BENEFITS OF DLT FOR ISSUERS

The first promise of DLT is Transparency and Trust.

One key innovation promised by DLT is the transparency of records at any point along the process. Immutability of records ensures that transparency cannot be blurred by retroactive interventions.

Transparency and immutability provide a remarkably high auditability of the code and the process.

A potential and specific new use for digital bonds lies in the transparent use of proceeds from Environmental Social and Governance-related (ESG) bonds. An end-to-end on-chain bond lifecycle would allow for the programming of the intended use of proceeds directly within the features of the bond. The use of funds as committed by the issuer could be traced on-chain, and technically linked to auditable data sources. This would mitigate risks of green washing, improve reporting and thus support trust and transparency in the labelled ESG bond market.

Last year, the Japan Exchange Group issued such a digitally-tracked green bond to finance its transition to 100% renewable electricity consumption. Solar panel outcome is used for reporting, linked to the green bond token [2].

Two other significant initiatives are the Monetary Authority of Singapore’s work on Purpose-Bound Money[3], and Project Genesis by the BIS Innovation Hub and the Hong Kong Monetary Authority[4]. This project has demonstrated how a private

permissioned DLT network can help build an environment that offers investors a way to easily invest in green bonds.

The second benefit is speed of execution.

DLT can significantly accelerate settlement times.

In an ESM Discussion Paper[5] I wrote earlier this year with two colleagues, we explored the idea of adopting DLT not only post-trade, but also pre-trade for primary issuance. We explained in the paper that a key step for bidders was locking funds into a smart contract that would automatically execute upon the closing of a deal. These funds would be either transferred to the issuer, or released should the bid be too low. This resolves the counterparty risk of bidders failing to stand by their bid, at limited cost. Both issuers and investors can trust in a smooth operation governed by the smart contract, which is transparent to everyone and executed by a trusted system.

Third benefit resides in scalability and interoperability.

Smart contracts, given their generalist scripting language, are the means to ensure forward compatibility and scalability of DLT-based platforms.

In a world where euros, pounds and other major currencies are tokenised on programmable DLTs, interoperability features would allow two actors to exchange these tokens using different platforms without exchanges or intermediaries. This would allow, for instance, to automatically enter into interest rate swaps, to hedge a transaction in a foreign currency. Though, there are some specific risks arising from timeouts in smart contracts unlocking interoperability – such as when one party could have both the asset and cash available – and those require proper management built into the system[6].

Last benefit I will mention today is risk reduction.

Several DLT specific features would reduce risks existing in the current financial market infrastructure.

First, the immutability of on-chain records, including their payment legs, would protect against intentional or unintentional changes to records without the consent of parties concerned.

Second, automation reduces the risk of human error in daily operations. DLT potential to accelerate automation through smart contracts and digital assets would reduce the number of manual operations.

Third, T+0 settlement removes overnight open positions between legal commitment and execution, reducing the implied market risk and required hedging that adds counterparty risk. Although DLT is not the only technology to allow for T+0 settlement, it could be an accelerator.

However, on-chain financial transactions and payments also incur new risks and challenges.

RISKS AND CHALLENGES FOR ISSUERS:

The first challenge I will discuss is liquidity, in the meaning of tradability.

For the moment, the DLT bonds that were issued offer very limited liquidity. This is a real concern for issuers and investors alike. Three main issues hamper liquidity in the current situation.

First, listing of digital securities on exchanges is very recent, and even more so for tradability. The Luxembourg Stock Exchange admitted this year digital securities to the Securities Official List, with indicative pricing shown, but that were not tradable. Recently, a security was not only listed but also admitted for trading[7]. This was a first in Europe, and it is progress in the direction of more liquid digital securities.

A second aspect of liquidity resides in the risk of market fragmentation. If too many solutions arise, this would add a burden on the investor even if they are interoperable. This is a challenge today but also for the immediate future and represents a risk for issuers who want their instrument to meet a liquid market.

The third aspect that is currently penalising liquidity of digital securities is the lack of collateral eligibility. It is absolutely crucial that collateral eligibility exists for this asset class to take off. We've seen this year that a bond issued on-chain by the City of Lugano in Switzerland is now eligible for collateral[8].

Further work will be needed to explore whether it will be possible to enhance secondary trading of tokenised securities.

The second risk relates to regulatory uncertainty.

One of the biggest risks for issuers using DLT is navigating a rapidly evolving regulatory landscape. Regulations vary across jurisdictions, and issuers need to stay vigilant and adaptable to ensure compliance with the law.

Uncertainty stems from the fact that tokens can be used for several purposes and it may also be challenging to fit traditional private law concepts into a DLT environment. Some countries have enacted laws to clarify the classification of these instruments through different approaches. For example, Luxembourg chose to clarify how these fit within the existing framework, and issued this year Luxembourg Blockchain III Law [9]. France and Germany provide a specific framework for these instruments. Since these laws are relatively recent and untested, it is difficult to assess at this stage which one works better and whether harmonisation of such laws is achievable.

The third risk comes from the technical side.

A number of security concerns come with DLT and require meticulous analysis and mitigation.

The risk of a faulty smart contract, is specific to DLT and needs to be addressed by any DLT-based capital market infrastructure. A poorly written smart contract, considering the amount at stake in wholesale capital markets, could lead to huge losses. This risk of a faulty smart contract could be mitigated through classic information security measures. It would also be easier to be put under control in a private permissioned environment, rather than a public blockchain for instance.

Another, less discussed, risk resides in malicious actors developing so-called metamorphic smart contracts. Metamorphic smart contracts allow the developer to change the code in a smart contract after it has been deployed, thus undermining one of the fundamental expected benefits of DLT, which is immutability of code and transactions. Some methods do exist to detect such metamorphic smart contracts [10].

The last challenge I would like to mention today is the availability of settlement instruments.

Tokenised commercial bank money aims to offer value stability for the cash leg of transactions. These are issued by commercial banks and backed by assets held by the issuer of the token, but credit risks remain given the liability to the commercial bank issuing it.

Synthetic Central Bank Digital Currency is another option that private actors may offer to facilitate digital asset transaction settlements. This involves a financial institution issuing an on-chain token backed by reserves it holds at a central bank, though counterparty performance risks would remain.

Finally, a form of a central bank money settlement instrument that allows programmability for all transactions that are settled in central bank money is key to enable this market to grow. As such, the outcome of Eurosystem's exploratory phase on New Technologies for Wholesale central bank money[11] settlement will be much observed.

CONCLUSION:

Distributed Ledger Technology offers the prospect of significant benefits for issuers, including transparency and trust, speed of execution, scalability, and reduction of existing risks. However, it is essential to approach DLT with an awareness of the risks and challenges it currently presents to issuers, such as lack of liquidity, collateral eligibility, risk of market fragmentation, and availability of settlement instruments allowing for programmability.

The good news is that none of these are insurmountable. Embracing DLT can be a strategic move to stay competitive and relevant in the evolving financial landscape. It is a journey that requires careful planning, continuous learning, and adaptability.

Thank you for your attention.

Footnotes

[1] Hype Cycle for Blockchain and Web3, 2023 (gartner.com)

[2] Launch of Website for Visualization of Greenness Indicators of Digitally Tracked Green Bond

[3] Purpose-Bound Money is a "protocol that specifies the conditions upon which an underlying digital currency can be used". Purpose Bound Money (PBM) Technical Whitepaper (mas.gov.sg)

[4] Genesis 2.0: smart contract-based carbon credits attached to green bonds (bis.org)

[5] Wholesale central bank digital currency – the safe way to debt capital market efficiency | European Stability Mechanism (europa.eu)

[6] Bech, M. et al. (2020). On the future of securities settlement. Bank for International Settlements.

[7] LuxSE welcomes first digitally native security admitted to trading in the EU

[8] First digital bond approved for SNB General Collateral Basket - SDX

[9] https://www.luxembourgforfinance.com/en/news/luxembourg-blockchain-iii-law-to-strengthen-dlt-activity/

[10] A Tool for Detecting Metamorphic Smart Contracts

[11] Eurosystem to explore new technologies for wholesale central bank money settlement (europa.eu)

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