DIGITAL TRANSFORMATION OF SECURITIES MARKETS

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How to foster new technologies in EU securities markets

The rise of new technologies will change securities markets in the EU profoundly. It will affect the entire value chain in securities markets, from pre-trading to trading all the way to post-trading. Technological innovations have the potential to reshape European post-trading infrastructure significantly. Tokenisation can play a special role in this regard.

Tokenisation can be defined as the digitalised representation of an asset, including the rights and obligations attached to the asset. To function as a security, transferability and tradability must also be possible. The use of tokenisation could lead to significant efficiency increases in post-trading. It is conceivable that the long custody chains that currently exist between issuers and investors could be significantly shortened in the future through tokenisation. In addition, smart contracts could be used to execute corporate actions more efficiently. By using distributed ledger technology (DLT), investors and issuers would have a common data repository, which would reduce the need for reconciliation in general and lower the error rates that occur during reconciliation. The tokenisation of securities through DLT therefore has the potential to reduce some of the costs and complexities in post-trading and minimise risks at the same time.

However, the specific solutions on the financial market have not yet exhausted the enormous potential promised and are often still at an early stage. To foster the development and adoption of promising new technologies in securities markets, such as tokenisation, it is crucial that policymakers, regulators, central banks, and the financial industry cooperate closely. In the EU, both European and national policymakers are responsible for drafting the necessary laws and regulations to create a secure and trustworthy space in which financial firms can develop and launch services based on new technologies such as tokenisation.

Jointly developing new technologies in EU securities markets is key to their adoption.

The EU DLT Pilot Regime, for instance, allows operators of market infrastructure to test distributed ledger technology in the issuance, trading and settlement of tokenised financial instruments. As part of the DLT pilot regime, shares, bonds and other debt instruments can be traded and settled directly using DLT.

The EU and Germany are among the leaders concerning the tokenisation of financial assets. In many European countries it is now possible to issue securities in purely digital form without the need for physical documents, potentially also via DLT infrastructures. In 2021, the Electronic Securities Act (*Gesetz zur Einführung elektronischer Wertpapiere – eWpG*) came into force in Germany. This new legal framework regulates the issuance and the transfer of certain securities in dematerialised electronic form including DLT-based assets and will therefore significantly facilitate innovation. This is important because it is not technology alone that determines the success of an innovation but also the legal framework and the overall ecosystem's ability to absorb new technology.

The German development bank KfW and large German corporations have already used this new legal framework to issue DLT-based digital bonds. In addition, cooperation between Deutsche Börse, the Deutsche Bundesbank and the German Finance Agency has enabled the issuance of a German government bond entirely in digital form.

The Eurosystem and the Bundesbank are aware of market participants' keen interest in trying and testing tokenisation for securities issuance and settlement. One major pillar in this respect is the Eurosystem exploratory work on new technologies for wholesale central bank money settlement. From a financial stability perspective, it is of particular importance for central banks that wholesale transactions can be settled in risk-free central bank money. Therefore, the Eurosystem has a strong interest in exploring how DLT-based financial market transactions could be settled in central bank money. Through practical work with interested market participants, the Eurosystem is expanding its exploratory work in this area, which has thus far mainly been restricted to conceptual activities. The Bundesbank actively supports the Eurosystem's exploratory work by providing its DLT-based Trigger Solution, which links market DLT platforms to the Eurosystem's traditional TARGET payment system. Using this set-up, three market participants have jointly issued two tokenised bonds using DLT settled in central bank money. In a longer-term perspective, the Eurosystem has to assess the opportunities and challenges related to the unified ledger approach proposed by the Bank for International Settlements.

The Eurosystem's exploratory work shows that when market participants, central banks and policymakers cooperate in a constructive fashion, important innovations can be achieved. Jointly developing new technologies in EU securities markets is key to their adoption.

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Harvesting the full potential of tokenisation in tomorrow's capital markets

It has been a long-standing goal of European policy makers to move towards the capital markets union – with all the benefits that would entail. Most agree that progress has been painstakingly slow – and regular attendees at Eurofi would have noticed a certain fatigue creeping into CMU discussions. However, all is not lost – and on the infrastructure-side not the least, we see light ahead.

One such light is the use of distributed ledger technology (DLT). DLT brings the promise of increased efficiency, transparency and accessibility for investors. However, so far, progress has been slow – perhaps not surprising in an infrastructure market characterized by strong network effects.

Enter the *DLT Regulation* (DLTR), the aim of which is to facilitate the testing of DLT in capital markets without compromising investor protection, market integrity, financial stability, or transparency. This visionary pilot regime exempts DLT market infrastructures from certain regulatory requirements, looking to foster the development of innovative solutions for trading and settling securities on DLT. By doing so, the DLTR provides a sandbox environment where these technologies can be tested and refined.

The DLTR enables DLT-based systems to integrate trading and settlement activities within a single legal entity. This is significant because current regulations prevent investment firms offering a Multilateral Trading Facility (MTF) from engaging in securities settlement and, similarly, Central Securities Depositories (CSDs) are restricted from providing trading activities. In Denmark, for instance, securities settlement involves a collaboration between Danmarks Nationalbank and the Danish CSD, Euronext Securities Copenhagen (ES-CPH). The securities leg is settled through ES-CPH while the cash-leg settles on accounts with Danmarks Nationalbank.

The clearing of net positions in securities settlement systems significantly impacts the need for liquidity. In 2022, Denmark's securities trades averaged DKK 255 billion daily, resulting in a net cash settlement of DKK 19.2 billion. This net settlement approach drastically reduces liquidity requirements compared to gross settlement. This highlights the efficiency of current systems, yet also sets the stage for understanding whether DLT could further optimize these processes.

The Danish FSA carried out a test of a system developed by Deon Digital, which allows securities trades to be entered into and settled simultaneously and in real times, using so-called smart financial instruments (SFI) to enable increased automation and transparency in the lifecycle of financial contracts.

The conclusion of the test was very clear! DLT systems that support simultaneous trading and settlement with direct investor participation can streamline many "back-office" tasks that arise out of the step-by-step design of the securities settlement systems currently in use. For instance, if the ledger serves as the definitive record of ownership and specifications of securities, it can mitigate the need for ongoing reconciliation and reduce the risk of settlement suspensions due to discrepancies. This enhanced transparency benefits investors and minimizes the need for extensive monitoring systems for settlement fails, as simultaneous settlement eliminates the possibility of non-delivery affecting subsequent trades. The reduction in these tasks can lead to significant cost savings and operational efficiency.

However, transitioning to real-time gross settlement poses challenges for investment firms. While real-time settlement eliminates the need for clearing net positions, it demands scalable and swift settlement systems.

The use of DLT brings the promise of efficiency gains in the capital markets.

The full potential of DLT in capital markets can only be realized if either credit institutions or central banks make themselves available to support DLT-based capital markets. The DLTR gives credit institutions exclusive rights to offer e-money in such systems, while central banks can issue Central Bank Digital Currencies (CBDCs). This currently creates barriers, and a liberalization of the provisions allowing e-money institutions to also issue e-money tokens for settlement on DLT-based systems would further unlock the transformative capabilities of DLT. The DLTR also gives rise to other issues. The requirement to develop an exit strategy for example basically means that new actors would need to enter into agreements with existing infrastructures they compete with.

Despite such challenges, the test showed that adoption of DLT in capital markets infrastructure offers substantial efficiency gains in back-office processes through the potential for DLT to eliminate settlement fails and automate numerous operational tasks, significantly reducing costs and manual interventions. The potential for such automation and error reduction can transform how capital markets operate. But to succeed, it is still necessary to iron out the obstacles standing in the path of further progress down this road.

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Tokenisation - Solving the EU's capital markets puzzle

As part of its 'tokenisation' agenda, the European Commission is making efforts to further promote the integration of distributed ledger technology (DLT) in market infrastructures. The Commission should take advantage of the full possibilities offered by the underlying technology, such as Decentralised Finance (DeFi) enabled by smart contracts as this will be instrumental in supporting further digitalisation of the securities market and the much broader market of real world assets. This is one route to enabling the EU's Capital Markets Union objective.

The DLT pilot regime was a forward-thinking initiative aimed at evaluating the technical obstacles to utilising DLT in securities markets. However, more than one year into its application, the DLT pilot faces significant challenges. The volume caps and high entry requirements have deterred both large incumbents and new players, stalling progress on tokenisation within the EU. While the idea was commendable, the approach has proven too slow as the market moves on. As a result, the crypto-asset markets and trading platforms under the MiCA framework have the possibility to advance rapidly, while innovation in traditional markets run the risk of lagging behind.

Meanwhile, other jurisdictions are quickly catching up and, in some cases, moving beyond the EU's initial crypto-asset framework, having had more time to observe and adapt. To ensure global competitiveness, the EU must continue to innovate. The regulatory framework needs to support this. So it is crucial that incumbents do not work in silos to meet existing and sometimes anachronistic requirements, keeping proprietary information to themselves. Indeed the opposite – open collaboration and shared standards – will drive the entire industry forward.

At Uniswap Labs, we have long believed the integration of DeFi technologies, such as Automated Market Makers (AMMs), into traditional markets offers a path to greater efficiency and innovation. As the Commission prepares the next regulatory cycle, it is vital to improve on the DLT pilot by lowering entry barriers, increasing volumes, adjusting the time frame, increasing the availability of tokenised cash and rethinking the transitional measures. In fact, perhaps it is time to leave the DLT pilot behind and focus on promoting innovation in capital markets in more permanent ways building on the principle of technological neutrality.

Tokenisation must be a core component of the EU's digitalisation and Capital Markets Union (CMU) agendas. By creating a legal framework that encourages the use of blockchain for securities markets, the EU can address the limitations of the DLT pilot and foster a more dynamic and integrated capital market.

Tokenisation has the ability to move financial markets entirely onchain, increasing liquidity by maximizing the number of potential counterparties. Especially as onchain markets are global and unrestricted by geographical boundaries. Relatedly, AMMs naturally support better liquidity by separating the tasks of liquidity provision and pricing compared to Central Limit Order Books (CLOB). This division of labor simplifies the process and typically results in more stable and consistent liquidity. This mechanism is particularly beneficial for less liquid markets, providing a continuous source of liquidity and thus enhancing overall market efficiency.

This technology creates new possibilities, and any regulatory attention should take that into account. Any overhaul of the DLT pilot or a revamped push for tokenisation to promote a deeper and unified capital market in the EU must also build on real industry practice, for example by allowing the use of public permissionless systems and open protocols as the infrastructure.

Intermediaries will still play a crucial role, especially in protecting retail investors. While DLT and DeFi can streamline and automate many processes, both traditional and new intermediaries are necessary to ensure compliance, perform due diligence, and safeguard investor interests. The challenge lies in integrating these new technologies with existing structures to enhance, rather than replace, the roles of intermediaries.

The future of the EU's capital markets depends on its ability to adapt and innovate. By making tokenisation and automation cornerstones of not only the digitalisation but also the CMU agenda, the EU can lead the way in creating a more efficient, inclusive, and competitive financial system.