

NEW TECHNOLOGIES IN SECURITIES MARKETS: USE CASES AND POLICY IMPLICATIONS

1. Opportunities and challenges related to the use of new technologies in securities markets

1.1 Progress in the use of new technologies (cloud, AI, DLT) in securities markets

A regulator stated that when the impact of distributed ledger technology (DLT) was first discussed five years ago, the usual assumption was that uptake would be rapid in centralised securities markets and that DLT would replace conventional technologies in most of post-trade operations. While changes have not gone that far, the direct and indirect impact of DLT on securities markets is quite significant. In the US the decision by DTCC to move to a T+1 settlement delay by 2023 is partly a response to the increased credibility of the DLT settlement process. Shortening the settlement process is a welcome decision because it reduces risks and frees collateral, making the settlement process more efficient.

More changes will come, the regulator believed. There will be an increasing recourse to DLT in securities markets in the coming years and the recent involvement of central banks in this area, with the ongoing development of DLT-based settlement systems allowing payment in central bank digital currency (CBDC), is a game changer. If this can be done effectively, supported by adequate changes in the regulatory framework, this will change central banks' perception of these systems, triggering radical change. Several EU central banks are already experimenting with major commercial banks the issuance of bonds settled in digitalised central bank money. The next step is trying to address the secondary market. At this stage experimentation is limited to pilot projects but, at some point, the European Central Bank (ECB) will need to be involved in these initiatives in relation to the digital euro project.

An industry representative observed that the uptake of technologies such as artificial intelligence (AI), cloud, DLT and digital assets, which can be used in combination in securities markets, is progressing at different speeds. AI and machine learning in particular are already being used at a significant scale by many financial organisations for activities such as trade processing. An industry representative noted that the uptake of new technologies is faster than is probably thought. This is an electronic age and has been for more than 20 years. The industry is probably six to seven years into the DLT journey, for example.

A second regulator agreed that the use of new technologies is progressing in securities markets. Over the past six years, more than 700 firms have used the FCA's regulatory sandbox, with a progressive shift towards sophisticated cryptoasset usage. While blockchain is still the most frequently tested technology in the sandbox, AI and machine learning are becoming equally prevalent. Incumbent fintech firms are also attempting to shift customers towards

open banking payments, although consumer adoption is expected to lag in this area.

1.2 Use cases of new technologies in securities markets and related opportunities

Several panellists highlighted examples of the use of new technologies in securities markets. An industry representative agreed with a previous speaker that the implementation of DLT systems is taking longer than anticipated in core securities markets, but it is easy to identify the potential benefits that DLT-based systems can provide in terms of reduced reconciliation and frictionless settlement. Risk controls for calculating net asset values (NAVs) on portfolios is also an area where technologies such as AI can easily be adopted and quickly generate cost and risk reductions, since embedding the regulatory framework in these processes when automating them is relatively straightforward. Custodians currently have to calculate hundreds of thousands of NAVs of various portfolios all to different standards. AI models can be used to predict the extent to which the output is correct and prompt a manual check if there is an error, while the rest of the work is done automatically. Cloud is another key area that is developing at present. One of the areas of focus is trying to make applications cloud-native over time, particularly for digital assets. Cloud solutions also make the deployment of blockchain solutions easier. The tokenising of securities is a further area in which developments are underway.

A second industry representative outlined examples of applications of DLT in the securities and derivatives markets developed by banks. A first example is Paxos, a DLT-based application based in the US, which achieved T+1 settlement earlier in 2021. It has not been fully implemented yet but demonstrated that T+1 can be a reality with DLT technology. Paxos also solves problems in other areas such as clearing, helping to optimize variation margin calculations (VM) and to reduce fails associated with collateral chains. Another example of an application of DLT which has been successfully implemented, is the High-Quality Liquid Assets Exchange (HQLAx) platform based in Luxembourg, which aims to eliminate the cash leg on certain transactions, supporting delivery versus delivery (DVD) transactions as opposed to having a delivery versus payment (DVP) creating intraday cash.

A third industry representative stated that the buy side is also actively using various technology tools. AI is used on the front-office side to analyze trades, volumes and prices and also in the legal department to screen external documents. There are also various DLT projects in which asset managers are participating, such as the bond issuance initiative mentioned by a previous speaker led by the Banque de France and which is settled in central bank digital currency. DLT will bring much value in the investment fund market on the asset side, because it will help to speed up and reduce the cost of settlement and also increase competition

among trading and post-trading market participants. It will also help to accelerate the distribution of fund units. Cloud services are also increasingly being used by asset managers for achieving economies of scale. Cryptoassets are not yet being invested in by the industry representative's asset management company but this cannot be excluded in the future – in particular once the regulatory framework will have been consolidated by legislations such as MiCA.

1.3 Challenges related to the use of new technologies in securities markets

An industry representative emphasised the importance of clarifying expectations related to new technologies. There is sometimes an expectation that they will suddenly replace legacy systems in banks, but change will be more gradual. Existing services and platforms will continue operating and new capabilities will incrementally be added to these systems, which means having for some time a parallel operation, which will increase costs and complexity for financial institutions and their clients in the short term. One element hindering progress in some cases is the ecosystem if all partners are not ready at the same time. This is partly a question of interoperability, which is needed not only between different blockchain protocols but also data layers. Solutions exist to tackle these issues, but the digital and blockchain spaces do not have the same level of agreed market standards or interoperability protocols as the traditional market and so further progress is needed on this.

A second industry representative agreed that interoperability of DLT systems is critical as it will not work if there is no connection between DLT participants and traditional ones. This is partly in the hands of the participants themselves, but a pan-European regime or cross-border minimum convergence framework would facilitate interoperability legally speaking for centralised and decentralised DLT systems. Afterwards, market players will need to agree among themselves to interoperate, otherwise there will be no secondary market for exchanging what has been subscribed on the primary market on the DLT. France has a DLT regulation at domestic level, but it is taking time to achieve interoperability in practice. Concentration in the cloud services market is a further issue. In effect, there is an oligopoly of cloud providers which are mainly non-European. This creates key issues regarding the relationship between those cloud providers and users such as asset managers: the relationship is not in favour of the users because oligopolies always have the power to impose their conditions, either in terms of fees or regarding contractual obligations. Claims vis-à-vis non-EU cloud providers might also pose legal issues. There are also major security issues with cryptoassets and stablecoins that need to be addressed.

A third industry speaker agreed that developing interoperability in the DLT space at the legal, data, technological and cross-border levels is essential. Once that level of interoperability has been reached, Europe will have at its disposal a DLT environment that should benefit banks, infrastructures and also the customers that they serve.

A regulator stressed the cybersecurity and data protection risks that the increasing use of new

technologies involve. For that reason, the latest sandbox cohort in the UK is encouraging solutions targeted towards fraud and scam detection and widening access to these solutions for small and medium-sized enterprises (SMEs). Data protection and ethics are other potential areas of concern with the developing use of AI and machine learning systems. Firms are collecting an ever increasing amount of data about customers and so they must be transparent with them about how the data is used and also ensure that consumers are aware of this and sufficiently protected. Data is central to the regulators' work in this area, with the development of analytical and data science capabilities and a cloud-based unified intelligence environment, to programmatically detect risks of harm. Further thought and collaboration are needed on those issues going forward.

A fourth industry representative agreed that while new technologies provide opportunities, they come with new risks. It is crucial not to reduce the level of security and investor protection achieved with existing systems and embedded in existing processes.

2. Regulatory and supervisory implications of the development of technologies in securities markets

An industry representative emphasized that technologies evolve quickly, and it is almost impossible to predict what the possibilities will be in the future, so it is complicated for regulators to be fully up to date with market evolutions. The question is how to regulate the unknown and find a balance between protection and innovation. The extremes are clear. It is easy to clamp down on innovations or to let them develop freely, but neither option will help to move things forward in a proper way, so balance must be found. Pragmatic approaches are needed in regulation and supervision, which means acting in a fast and flexible way. There is already a high regulatory pressure in the financial sector, the industry speaker added, so although new measures may be needed with digitalisation, care must be taken not to discourage the emergence of new players and business models. It is vital to avoid unnecessary additional regulatory burdens and to analyse the result of existing regulation via key performance indicators (KPIs) and monitoring and to verify whether the goals are being met. Continuous and factual reviews of regulations are required so that they can be updated according to new developments in the market. The final goal is to maintain a high level of safety in the financial market, while allowing innovation and growth.

A regulator acknowledged that the pace of change is increasing and that it is challenging for regulators to keep track of innovations and find the right balance, but this is essential as digitalisation will continue to change business models and impact people's personal lives. Regulators are supportive of new technologies that bring a benefit to businesses and consumers, but market integrity, financial stability and investor protection must also be preserved. The National Competent Authorities (NCAs) and the European Supervisory Authorities (ESAs) have to continuously update their knowledge and the skills of their personnel in these areas, as well as their technical possibilities in order to be able to conduct fit-for-purpose oversight.

The market is also becoming more complex from a regulatory perspective, the regulator felt. Cloud service providers (CSPs), which are providing new forms of infrastructure are operating remotely and the cloud market is concentrated. Regulated financial firms are using fintechs for part of their business in niche areas and outsourcing services to tech companies, increasing interconnections, and these services cannot easily be substituted once they are in place. The datacentric nature of business models is another issue, with an accumulation of huge amounts of data which raise potential privacy and reliability questions. There have also been many changes in distribution, including the emergence of 'neobrokers,' operating in securities markets, but it is not always clear who the contractual partner is and whether consumers understand what they are buying. These rapid changes mean that regulation has to evolve accordingly. Even though two of the frameworks of the Digital Finance Package are not yet agreed in Council, there is a call for the ESAs to provide the Commission with new evidence on digital developments in the financial markets and their policy implications which will help to adjust the framework if needed.

A second regulator highlighted that some changes are blurring regulatory boundaries. The platformisation of markets (i.e. the expansion of digital platforms such as bigtech or equivalent platforms in different economic sectors including financial services) is a general trend and is attracting a large number of new retail clients with new investing patterns. This may have significant consequences for the functioning of financial markets. Effects have not all been seen yet in the securities markets, but these evolutions could potentially challenge existing price formation and product commercialisation patterns. This issue has been highlighted by ESMA in a recent report on organised trading facilities (OTFs).

A third regulator stated that when it comes to innovation and the balance that is needed with ensuring safety, regulatory sandboxes are an appropriate response, allowing firms to experiment and test new solutions with real customers in a safe environment. A regulatory scalebox is also being introduced in the UK in addition to the sandbox, aiming to help growing fintech firms to scale up their operations and continue testing new technologies. The sandbox and scalebox also allow the FCA to have an accelerated view of how new technologies and firms are developing, as well as create a regulatory nursery environment where firms can experiment new concepts while getting used to operating with regulatory requirements and oversight. Another area of focus concerning fintech is the transition to net zero, since sustainability and climate change initiatives are also being looked at with a tech approach.

3. Expected impacts of EU digital finance policy proposals on securities markets

The panellists were generally favourable to the Digital Finance Package proposed by the Commission aiming to support digitalisation in the European financial sector, while ensuring that the necessary protections are in place and that European players are provided with a market environment where competition can develop in an appropriate way. Some fine-tuning of

these different initiatives was however proposed by the panellists.

3.1 DLT pilot regime

An industry representative stated that blockchain is the most disruptive technology in securities markets, so the DLT pilot regime is a step in the right direction. It is a technology-neutral sandbox, which will help regulators to define the right policy approach and should help DLT to develop in a flexible way. The 'same business, same risk, same rules' principle should be applied in order to avoid the creation of a new specific framework for DLT-based operators and markets. Common regulation is indeed essential to provide a level playing field between DLT and non-DLT infrastructures and avoid market fragmentation and regulatory arbitrage or loopholes. A European approach is also urgently needed in this area in order to avoid some countries advancing alone, as is the case at present. This may mean having less flexibility in the regulation than some stakeholders would want, but this will help to reduce complexity.

A regulator agreed that the sandbox approach of the DLT pilot regime is an interesting proposal. While the DLT pilot regime is an adequate starting point, the regime for DLT will need to be adjusted because DLT is normally decentralised, so it is awkward to have a DLT pilot regime that only covers centralised business. 'Decentralised finance' (DeFi) business models and the issues they raise will need to be added to this approach, as that is a completely different world.

A second industry representative agreed that the current DLT pilot regime is too narrow, focusing solely on centralized models. Regulators should not be afraid to disrupt the existing system and entities. A centralised system around market infrastructures was created because that was the most appropriate organisation at the time and what corresponded best to existing technology. The new DLT regime needs to reflect on-going changes with an evolution towards more decentralised systems which can be beneficial in terms of efficiency and cyber-security in particular.

A third industry representative also felt that the DLT pilot regime as proposed does not go far enough and will not bring sufficient disruption in the market. While regulators may generally prefer to preserve the present centralised infrastructure for financial stability and level playing field reasons, it is also necessary to consider the initial objective of the pilot regime, which is to foster innovation in the EU securities market. The right balance therefore has to be found and it would be detrimental to Europe if the scenario observed in the cloud space with the EU being reduced to a consumer of digital solutions provided by third-country players was reproduced for DLT because of a lack of innovation.

A fourth industry representative was favourable to the DLT pilot regime as it will facilitate DLT interoperability at the pan-European level. Some issues remain to be clarified such as the responsibility of fund depositories if the settlement of assets through a DLT system goes wrong.

A regulator stated that a fully-fledged market infrastructure based on DLT cannot be developed in the current European regulatory environment, which

is why the DLT pilot regime is needed now. The end of the trial period is relatively close and discussions in Council and Parliament have significantly improved the initial Commission proposal in line with remarks made by previous speakers on the panel. The pilot regime has been opened up to new entrants, systems based on public DLTs will be accepted and the thresholds have been raised. Some further amendments could be considered, such as keeping the role of ESMA in issuing recommendations in order to speed up the process and eliminating the need to negotiate an exit strategy before entering the market.

3.2 The Digital Operational Resilience Act (DORA)

An industry representative emphasised that cloud is another important technology that helps financial institutions to be innovative, flexible and to scale up, while saving costs with pay-per-use models. ESMA's cloud outsourcing guidelines and the DORA proposal are useful to support the uptake of this technology, as well as the on-going work to define minimum regulatory standards for third-party providers. It is important however that the European market remains open to non-European service providers in order to maintain its competitiveness at the international level.

A regulator welcomed the oversight regime proposed in the context of DORA for critical ICT third-party providers (CTPP). Some issues still need to be considered such as the potential challenge for the ESAs of sharing responsibilities and working together effectively in the supervision of CTPPs. Providing sufficient proportionality in the DORA framework is also essential.

A second industry representative supported the DORA proposal. One important area is the due diligence to be carried out by users over third-party providers. If cloud providers do not want to collaborate, this may create a legal risk for user, and therefore it is hoped that DORA will help end users to ensure that due diligence can be actually performed.

3.3 Markets in cryptoassets regulation (MiCA)

A regulator considered that MiCA is welcomed because, with the development of tokenisation, cryptoassets must be regulated, both from an industry and an investor protection perspective. A certain number of problems need to be addressed, in particular where to draw the line between a financial instrument under MiFID and a cryptoasset covered by MiCA. Furthermore, capital market regulation, such as the Alternative Investment Fund Managers Directive (AIFMD) also needs to be reconsidered in the context of MiCA.

An industry representative agreed that, as long as they are not regulated, cryptoassets will not be invested in by the industry representative's asset management company and so MiCA will be beneficial. An industry representative added that it is vital to have a clear definition of securities and non-securities in MiCA, rather than just a definition by exclusion.

3.4 White paper on AI

An industry representative considered that the White Paper on Artificial Intelligence and upcoming regulatory proposals in this area are important steps. The contribution of the White Paper on ethics and the

elimination of biases are valuable points, but more can be done to help break the current fragmentation within the EU, where some jurisdictions have developed detailed regulation of AI, whereas others only have limited rules. It is necessary to align European approaches before embarking on more ambitious initiatives. The US and Asian countries are ahead in this area, as the model they have chosen is to foster market leadership rather than safety and consumer protection. If Europe only focuses on regulating AI, it will not make sufficient progress in this area. There needs to be a clear ambition for leadership in AI with financial aids, the promotion of best practices and guidelines that can help an effective ecosystem to emerge.