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**EACH response to the ESMA discussion  
paper on 'Distributed Ledger Technology  
Applied to Securities Markets'**

**September 2016**

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## 1. Introduction

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The European Association of CCP Clearing Houses (EACH) represents the interests of Central Counterparties Clearing Houses (CCPs) in Europe since 1992. EACH currently has 20 members from 15 different European countries and is registered in the European Union Transparency Register with number 36897011311-96.

EACH appreciates the opportunity to provide feedback to the ESMA Discussion Paper 2016/773 Consultation Paper ‘The Distributed Ledger Technology Applied to Securities Markets’ which discusses how Distributed Ledger Technology (DLT) could be applied to securities markets. In general, we agree with ESMA’s analysis, and would like to highlight the following points:

- Market Demand – CCPs currently support technology that has been proven sufficiently robust to navigate recent crises and market stress events. While we agree that DLT is an innovative technological advance whose benefits demand thorough evaluation, the extent of its applicability to the market has not been established. If and how DLT can or should be implemented across the market should therefore be subject to further research.
- DLT benefits and key risks – We broadly agree with ESMA’s lists of benefits and key risks given the current understanding of DLT, which is not necessarily consistent across the industry. At this time of the development of DLT, it would obviously be difficult to find solutions to confirm challenges and shortcomings. In particular, the challenges and shortcomings identified by ESMA, such as scalability and ease of interoperability, will become more apparent or possibly discarded as proof of concept and use cases are fully explored over the next few years.
- FMI’s role - We believe that DLT is unlikely to lead to short or mid-term disintermediation of FMIs. Instead, we expect FMIs to remain the point of trust in the market and to leverage the efficiencies of DLT to enhance their value-added role as service providers. FMIs will likely take the role of regulated providers of new DLT system governance/network management, dispute resolution and regulatory monitoring.
- DLT in the clearing space - We generally recognise the benefits that DLT may bring to CCPs’ operations (e.g. reduction of reconciliation processes and costs). We also believe that a comprehensive approach which carefully weighs the challenges and benefits of using DLT should be adopted when assessing how this technology could change the way CCPs operate. For instance, DLT may lead to a reduction of counterparty risk. However, this will only be true if DLT is implemented in a way that successfully reduces the settlement cycle, whilst preserving existing benefits relied on by market participants, including multilateral netting of positions. Netting reduces

both counterparty and operational risk, especially in spot markets where volumes of transactions are high. We note that ESMA recognises that CCPs perform unique functions of ensuring safe performance of clearing and risk management that may only be currently provided by EMIR-authorized entities (section 6.1). In order to contain the risk of creating ‘unregulated areas’ where entities could operate under lower standards, these requirements must be applied by any other entities performing them. We further note that CCP’s use of DLTs to perform functions in addition to clearing (e.g. Transaction Reporting) would be required to comply with the relevant regulatory requirements.

- Automation of the clearing process – We believe that it would be unlikely to achieve a full automation for all post-trade services, in particular of the clearing process, given the regulatory and business complexity of automating some services and essential functions. Hybrid models are likely to be first developed for products and services where automation will create greater efficiencies. Application to large scale and heavily regulated activities will take more time. There are some crucial aspects to the clearing process that will remain outside of automated processes, including default and crisis management as well as key functions of risk management.
- Timing – It is likely going to take a significant amount of time for industry-wide DLT adoption, if the market indeed decides to pursue this. Potential barriers to adoption may include the cost of conversion, interoperability between multiple DLT standards by multiple infrastructure providers, data and systems; fragmented regulatory policies, political timetables to fulfil regulatory changes required and competing non-DLT technology.
- Minimum industry standards/standardisation - As with all technological advances, EACH would support the move towards DLT to be driven by industry and business needs, rather than regulatory edict, to ensure the technology meets the needs of market participants. If the industry moves in this direction, common principles and minimum industry standards should be established when it comes to setting up and operating distributed ledgers. The risk of multiple digital ledgers lacking any interoperability at a technical and business level as well as any potential operational fragmentation of the securities market should be considered as and when the industry decides to execute a DLT solution.
- Security – While it is a widely held assumption that DLT is sufficiently secure to be used in financial markets, we would encourage that this assumption be tested and verified prior to the productive use of DLT. During the course of the implementation of DLT, it is key to have an agreed industry and international standard for data protection and confidentiality options for market participants. It is crucial that the high level of transparency provided by DLT does not conflict with the confidentiality obligations required for financial market participants.

## 2. Response to specific questions

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**Q1: Do you agree with the list of possible benefits of the DLT for securities markets? Please explain, e.g., are these benefits unique to the DLT, are some more important than others, are some irrelevant?**

EACH generally agrees with ESMA’s analysis of the benefits of DLT. However, we would like to express our ideas on some of the benefits listed below:

- DLT could make it easier for parties to transact with one another across borders – paragraph 11

We cannot see concrete elements to state that the technology will make it easier for parties to transact with one another across borders. The ease of settling across border is based on elements such as market practice, legal jurisdiction and taxation rather than technological restriction.

- DLT could also make the reconciliation process faster and more efficient - paragraph 11

We believe that DLT may not only make the reconciliation process faster and more efficient but it may potentially make it unnecessary since the records are shared among participants. It currently seems unclear what the impact would be on the current value chain of market infrastructures: trading venues, CCPs, CSDs, CSD participants, final beneficiaries, etc. While every actor of the value chain currently plays a very specific role, market infrastructures are in constant evolution as a result of innovation and client demand, and therefore changes to the value chain as we know it cannot be discarded. CCPs have a proven track record of market adaption as shown by the constant evolution of their risk management techniques subject to client demand and in line with regulation.

It is important to remember that DLT is fundamentally a communication tool, relying on existing structures to transfer funds and securities in response to changes to the ledger. Whilst there may at some point exist the capability within DLT to provide instruction to prompt the exchange of margin or collateral between counterparties, at this stage the actual transfer must be performed via an underlying payment system (i.e. an interbank system), which operates outside DLT arrangements. We believe that it will eventually be the market itself that will decide if such a change to the value chain is worthwhile.

- DLT could potentially facilitate the collection, consolidation and sharing of data for reporting, paragraph 19

We generally support DLT as a potential benefit to facilitate the collection, consolidation and sharing of data for reporting. We understand however that paragraph 19 assumes that all transactions for an asset would be recorded on the

DLT. We have to take into consideration that during any implementation and transition phase, DLT would operate in parallel to other systems, thus requiring reference to multiple sources in order to maintain complete oversight. Even assuming full deployment of DLT where applicable, certain processes or asset classes may not be suited to a DLT environment and may operate on separate systems, thus requiring again multiple sources to be consulted in order to maintain a complete picture. Moreover, a single source of truth implies a single DLT system in use. After consideration by the industry, it may be determined that there is not a single DLT that will serve all of the needs of the market, requiring multiple DLTs to be deployed and more than one record to be monitored. Further, generally we question some assumptions that DLT can handle a theoretically unlimited amount of information at an increased speed. Currently, the technological capabilities can be increased by sufficient investment by the respective market participant. Therefore, the collection, consolidation and sharing of data for reporting, risk management and supervisory purposes appears to be self-limiting via DLT.

Additionally, risk management, particularly as performed at CCPs, in and of itself requires dedication of significant technological and data resources, most of which is developed and operates outside of a DLT. This is necessary to run the various risk management functions, such as stress testing, backtesting, and model development. These functions are critical to the smooth functioning of markets and are unlikely to be directly replaced by DLT. The optimal outcome would be complementary service offerings between CCPs and DLTs.

While a DLT can be offered as an open technical environment (e.g. public technology), it is, as ESMA notes in the Discussion Paper, highly likely that distributed ledgers, as applied to securities markets would be permissioned, ensuring only permissioned parties have access to data in applicable distributed ledgers. Nodes might have specific roles for respective functions (e.g. participating node or view-only node, such as regulatory bodies, supervisory authorities, etc.). Oversight could be hence ensured, provided that specific access rights are put in place, and particular participants are granted such privileged access.

Regulatory reporting, as structured today, may be required to adapt to widespread implementation of DLT. If supervisory authorities have a direct access as an observing node to all information relating to their regulated entities on the DLT available, additional investment in technology on the recipients' side may be necessary to ensure they can collect and analyse the data directly from the Ledger. The manner in which regulators, trade repositories and other entities engage in regulatory reporting may need to be reconfigured in order to assist such bodies in parsing the available information efficiently and at sufficient speed. We further note that reports designed for audiences that do not have access to the DLT (e.g. public audiences) or that follow templates not supported by DLTs would continue to require reporting services.

- DLT could reduce the counterparty risk of certain securities transactions, paragraph 20

DLT presents the possibility to reduce the settlement cycle, thus reducing counterparty risk. It should be noted however that shorter settlement cycles (and even T-instant) are not a unique advantage of DLT, and indeed could be performed on many current systems. In the case of CCPs, DLT may indeed eliminate the counterparty risk of certain transactions (e.g. securities and repos) and remove the need for CCP clearing for some contracts, but this is only in those instances where the trading is either on DLT or can be transferred to the clearing system in real-time (if outside DLT), e.g. T-instant. In other cases, CCP clearing would still be required, specifically for derivatives contracts where the risk to the counterparties extends beyond initial execution of the trade and requires management and maintenance of margin throughout the life of the contract.

As long as DLT works on full pre-funded basis, the DLT can indeed eliminate the counterparty risk of certain transactions. However, the benefits of CCP clearing go beyond settlement. DLT does not reduce the risk of a bilateral counterparty defaulting on obligations to its trading partners, a risk that CCP clearing reduces by guaranteeing performance of trades. CCPs additionally perform a series of risk, collateral, and default management processes that cannot be directly replaced by DLT.

The reason why T-instant is not currently widely adopted is mainly due to market practice, and since instant settlement also entails its own issues, as ESMA summarises correctly in paragraphs 34 and 35.

- CCP clearing’s benefits for derivative instruments are likely to remain unchanged, paragraph 21

We concur with ESMA that the benefits of clearing transactions through a CCP will prevail in the future. In particular, we note that certain functions of the CCP, including multilateral netting, which cannot be applied as effectively or across multiple counterparties in a distributed ledger, will remain unique features of central clearing even if the industry moves to a distributed ledger.

- Efficient collateral management, paragraph 22 to 24

ESMA raises the question of whether DLT technology could enhance the performance of collateral management services, and rightly differentiates between the collateral needed to support spot transactions from the collateral needed to support the longer maturities of derivatives contracts. For derivatives contracts, we cannot see how the real-time data available through DLT will reduce the need for robust collateral management and the human element of defining monitoring processes and haircutting levels. CCPs or their parent companies would continue to provide highly efficient collateral management services to meet the needs of these longer and more complicated contracts, which include reuse functionalities at a global level, where

available and allowed by regulation. If DLT will be used for collateral management purposes, DLT should comply with the relevant regulatory requirements (e.g. SFTR, FCD etc.).

The overall efficiencies brought by DLT to collateral and counterparty risk management will depend on the number of asset classes (market segments) made available on the DLT (transaction type bundling), which in turn will depend on the appropriateness and applicability of DLT for each asset class and the ability of each participant to support the DLT connections. Particular benefits (such as netting and the resulting decrease of collateral requirements) will be impacted by the scope of assets available on the ledger. Several questions remain open in this regard, such as how exactly the right of pledge will work under DLT going forward.

- DLT available on a continuous basis, paragraph 25  
An important risk to be considered for DLT operating on a continuous basis would be the process applied for system updates. Considering that changes would require propagation across the nodes, and this would entail a certain time lag, solid governance principles would be required to avoid risks.
- Security and resilience, paragraph 26  
We agree that DLT appears to be a secure technology, however we have to take in consideration that no technology is infallible. Recent events have shown that DLT could also be hacked (e.g. smart contracts on Ethereum). Illicit access to keys, or peripheral systems interacting with the DLT would continue to present security risks. The potential risk of human error in writing the code and deployment of smart contracts, may also lead to vulnerabilities. A recognised concern about the widespread adoption of permissionless DLT systems is the risk of a 51% attack, where a single entity contributes the majority of the network’s mining hashrate and, thus, gains full control of the network and can manipulate the DLT. A permissioned private DLT might perhaps be in the position of overcoming such a stumbling block.
- Reduction of costs, Paragraph 27  
A variety of new technologies present possibilities for cost reduction and reduction in the need for manual processes, and these benefits are not solely limited to a DLT environment. Cost efficiencies in DLT depend on whether the proposed advantages can be effectively achieved, which is already a challenge for the current generation of financial technology innovation, including robotics, cloud computing and so on. As mentioned earlier, we believe that the reduction of intermediaries appears to be mainly theoretical in the present market conditions. Potential cost efficiencies could moreover only be achieved in the long-term perspective.

DLT technology will likely have to be run in parallel to legacy systems to meet business and data security needs. Long-term, it may prove necessary to permanently

maintain some data in parallel systems. At this point, it is unclear to say that DLT is guaranteed to reduce costs for participants.

As much as DLT may have the potential to advance business efforts, it cannot be a substitute for business continuity plans (BCPs), particularly for market participants and CCPs. BCPs may benefit from the timely data provided by DLT, but many business functions will still require trained staff and physical, remote offices to perform, even post-DLT. BCPs are crucial tools to ensure the smooth functioning of businesses and markets in the event of significant disruptions. The cost of building and maintaining these plans, including remote servers to secure back-up systems or store data not absorbed by DLT, will likely not be impacted by the implementation of DLT.

**Q10: Which solutions do you envisage for these challenges and where do the current initiatives stand in terms of practical achievements to overcome them?**

First and foremost, the industry will need to reach consensus on if and how to deploy DLT technology if it determines that the technology is beneficial to its markets. It could be difficult to define solutions until the market determines that DLT is a necessary and beneficial step for its participants. We would expect to build a dialogue between market participants to determine if DTL rules would be appropriate or necessary.

With regards to ESMA’s points on recourse mechanisms and position netting in paragraphs 33 and 34, this will be highly dependent on the design of the DLT platform and the market practice governing its operation. While many of the points indicated in these paragraphs are accurate for current implementations, this does not mean that DLT necessarily has to operate in the way currently implemented. We could easily imagine validation and governance steps being built in to avoid the impact of mistakes and errors, or indeed a delayed settlement latency to allow for time to revoke instructions.

**Q11: Do you agree with the analysis of the key risks? Please explain, e.g., are some risks more important than others, are some irrelevant in your view.**

EACH agrees with the majority of the risk analysis; however, we would like to raise the following issues:

- Operational risk, paragraph 49 and 50  
EACH concurs with ESMA’s assessment in paragraphs 49 and 50 that glitches and failures in a DLT solution could potentially have far more wide-ranging consequences than currently faced by the industry, considering that DLT solutions are shared between a greater number of participants. Additionally, the interconnected and continuous nature of the system could create operational risks during deployment of system updates.

- Migration to a new environment, paragraph 57  
ESMA refers to change risk during the implementation phase of DLT solutions and the costs of running parallel systems. We consider this an on-going risk rather than a risk that is solely limited to a transition phase. It is unclear if DLT platform could cover the entire lifecycle of securities, and if any DLT solutions will have to continue to interoperate with other systems (which may in turn be based on DLT or other technology).

**Q14: Do you think that the DLT will be used for one of the scenarios above? If yes, which one(s)? If no, please explain?**

EACH believes that, in theory, all scenarios are potentially possible, if market participants expect that adopting such models will be beneficial. However, based on current possibilities for using DLT we would like to highlight the potential for each scenario:

- Scenario 1 ‘OTC Derivatives’ - With respect to OTC derivative transactions which are subject to a clearing obligation, ESMA confirms that clearing services can be provided only by an EMIR authorised entity. As already outlined by ESMA, the DLT or one of the entities “operating it” would also qualify as a CCP within the meaning of EMIR with the consequence that all requirements under EMIR regarding CCPs need to be complied with by the DLT.  
With respect to OTC derivative transactions which are not subject to the clearing obligation, the DLT could indeed be used in a way to ensure the compliance with the risk reducing measures stipulated by Art 11 EMIR.
- Scenario 2 ‘Exchange Traded Derivatives’ - The scenario for ETDs is the same as OTC derivatives. MiFIR makes clear that ETD clearing must be performed by an EMIR authorised CCP, as described in paragraph 75. EACH believes that the clearing of exchange-traded derivatives would still require a CCP.
- Scenario 3 ‘Transactions of other Types of Assets’- In this scenario, the use of DLTs could be agreed to by the industry, though EACH believes that the broader benefits of CCPs would not be fully replaced by DLT, as risk management, counterparty credit reviews, and default management would still be required. In this context the role of the CCP should be preserved by ensuring that any entities performing clearing and risk management functions for types of assets other than derivatives are subject to the same requirements, otherwise the risk is to create ‘unregulated areas’ where entities could deliver similar activities under lower standard of soundness.

**Q15: If the DLT is used for one of these scenarios, how compliance with the regulatory requirements attached to each scenario could be ensured?**

With respect to OTC derivative transactions which are not subject to a clearing obligation, DLT could be used to achieve compliance with the confirmation and reconciliation requirements of Art 11 EMIR.