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Association of National Numbering Agencies
Derivatives Product Committee Secretariat
Via email: DSB-TO-secretariat@etradingsoftware.com

Re: ANNA-DSB Technology and Operations Consultation Paper

Dear Sir or Madam:

State Street Corporation ("State Street") appreciates the opportunity to comment on the Association of National Numbering Agencies' ("ANNA") Derivatives Service Bureau ("DSB") Product Committee's consultation paper ("consultation paper") on the technology and operational aspects of the DSB's initiative to develop global, permanent and timely International Securities Identification Numbers ("ISINs") for over-the-counter ("OTC") derivatives.[1] Specifically, the consultation paper details the key operational and technical aspects including: operational processes or business use-cases; availability and conditions for FIX connectivity to the DSB Demo; proposed approach for on-boarding into the user acceptance testing ("UAT") environment; capacity; performance and throughput; availability; security; connectivity; storage and disaster recovery; and implementation steps.

Headquartered in Boston, Massachusetts, State Street specializes in providing institutional investors with investment servicing, investment management, data and analytics, and investment research and trading. With $29.178 trillion in assets under custody and administration and $2.446 trillion in assets under management as of September 30, 2016, State Street operates in more than 100 geographic markets worldwide. State Street is organized as a United States ("U.S.") bank holding company, with operations conducted through several entities, primarily its wholly-insured depository institution subsidiary, State Street Bank and Trust Company. Our perspective in respect of this consultation paper is broadly informed by our State Street Global Markets ("SSGM") division, which plans to operate two multilateral trading facilities ("MTFs") and one systematic internalizer ("SI").

State Street does not opine on all aspects of the consultation paper, but instead has chosen to focus on availability, demo connectivity, UAT on-boarding; minimum capacity; cloud infrastructure and data centers; performance and throughput; connectivity; disaster recovery; and the proposed implementation steps. Our main recommendations are:

- ISIN availability should be twenty-four hours a day/ six days a week ("24 x 6"), including all holidays;

[1] ANNA- DSB Product Committee- "Technology and Operations Consultation Paper 1- 19 December 2016", available at *http://www.anna-web.org/wp-content/uploads/2016/12/DSBTO-CP001-Consultation-Paper-TechOps.pdf.*

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- Minimum capacity should be increased;
- "Cloud" infrastructure should be further defined;
- Data centers should be extended beyond Europe;
- Latency threshold and maximum time-lag should be reduced;
- Connectivity should be through BT Radianz or through a direct cross-connect;
- Recovery time should be two hours to align with regulatory requirements; and
- "Certified user" criteria should be provided along with a self-certification option.

Availability (Questions 2, 3, 20 and 21)

The DSB proposes that availability for ISINs should initially be only sixteen hours a day, five days a week ("16 x 5"), with the starting point being 0500 UTC and the ending point being Friday 2100 UTC. The DSB proposes these system availability hours as the initial focus is on European regulatory requirements, and by focusing on the European time zone, it may be possible to reduce start-up operating costs and hence, user fees. Question 2 asks whether 0500 UTC is the correct starting point for new subscriptions and questions 20 and 21 focus on whether these hours should be extended.

State Street strongly believes that ISIN availability should be twenty-four hours a day, six days a week ("24 x 6") with downtime on Saturday, and the starting point should be 0001 UTC. As is the case for many trading platforms, State Street's MTFs[2] are open for trading on Sunday (2200 UTC) to Friday (2200 UTC). In order to support trading of OTC derivatives globally, ISINs should be available during most trading hours. Additionally, although the Markets in Financial Instruments Directive II / Markets in Financial Instruments Regulation Regulatory Technical Standards 23 Annex 1 ("MiFID II / MiFIR RTS 23 Annex 1") regulatory requirements mainly affect European Economic Area ("EEA") entities, it has cross-border implications and therefore will affect non-EEA branches of MiFID II / MiFIR RTS 23 eligible entities. The DSB system must therefore be available during the non-EEA branches' local business hours for critical requests. Moreover, as previously mentioned in our response to the first ANNA consultation, State Street believes that other regulatory and business requirements should be taken into account to facilitate end-to-end servicing of OTC derivatives as opposed to solely focusing on MiFID II / MiFIR RTS 23 requirements.[3]

Also, question 3 discusses how the DSB will roll at the end of each day to perform housekeeping tasks, meaning that all subscriptions and connections will need to be re-established each day, and asks whether this model will affect any key business requirements for industry. The MiFID II /MiFIR RTS 23 requires an ISIN to be available for trading on venues. The period of time when this roll occurs could potentially make it impossible to offer new instruments during the "roll" period, which could be problematic in fast paced markets such as foreign exchange ("FX"). As such, we would expect connectivity during the time period when most FX platforms operate and therefore recommend availability 24 x 6 with the starting point being 0001 UTC.

[2] A multilateral trading facility ("MTF") is a European regulatory term for a non-exchange financial trading venue. MiFID Article 4(15) defines an MTF as a "multilateral system, operated by an investment firm or a market operator, which brings together multiple third-party buying and selling interests in financial instruments – in the system and in accordance with non-discretionary rules – in a way that results in a contract."
[3] Available at *http://www.anna-web.org/dsb-consultation-pc-phase-1/*.

Minimum Capacity Requirements (Question 14)

The consultation paper provides the minimum capacity requirements for the FIX network that the system must be able to support and asks whether we agree with the assumptions made to infer the total number of messages sent by the DSB and if not, to explain our reasoning. The consultation paper assumes 200 firms with a single connection per firm, which implies a total number of messages (assuming all firms request ISIN updates across all asset classes) of 4 billion messages annually. With approximately 250 annual business days, this implies a daily message count of 16 million per day.

State Street believes there will be many more than the estimated 200 firms connected to the DSB system at any point in time and each firm will have more than a single connection. Global organizations have multiple legal entities and business lines, which will likely require separate connectivity. From a

State Street perspective alone, we have at least three entities (two MTFs and one SI) which are required to generate ISINs and many more entities that are required to consume the reference data. As such, the minimum capacity requirements should be much higher in order to accommodate the true volume of FIX messages to be supported by the network per day. Furthermore, capacity should allow for scalability so the system can accommodate future increases in capacity.

"Cloud" Infrastructure and Data Centers (Questions 15, 16 and 23)

The consultation paper proposes using cloud-based technology to build the system infrastructure and asks whether we believe the cloud is the most appropriate approach (question 15) and if two or more data centers located in different countries in Europe is the right approach (question 16).

State Street believes that the term "cloud" is too broad as there are many forms of the "cloud", such as public, private or hybrid cloud, etc. Additionally, other considerations such as the service partner and connectivity outside the cloud are just as important as the cloud-based solution that the DSB chooses. State Street believes that the most appropriate implementation for the DSB is a set of secure external cloud services which are independent of the infrastructure of the provider and the consumer to allow for the greatest coverage and flexibility. The cloud service providers must provide global access both for high availability of services and to store the data to be compliant with all geographic restrictions.

Moreover, State Street recommends that the data centers be both globally accessible and compliant with all regional constraints on data residency. Limiting the data locations to only two countries in Europe is too restrictive and data centers should be globally located, beyond Europe. Firm infrastructures vary and can be run out of Europe, Asia, the U.S., etc. Having data centers in different regions than the server location will impact latency and ANNA should take this into consideration when deciding the number and locations of data centers. Additionally, the DSB's cloud access services should be able to locate the data and enforce access controls on the consumers. Also, to ensure our compliance with business continuity standards, we must understand whether the data centers will have their own disaster recovery solution. If not, we must know the location of the data centers in order to ensure there is sufficient distance between them.

Question 23 also asks whether use of the "cloud" will prevent our ability and/or willingness to connect to the service. Data protection, information security and access controls will be State Street's primary determining factors in its ability to use the DSB cloud services. However, conformance with cloud security standards as defined by a recognized security organization, *e.g.* the Cloud Security Alliance[4], would facilitate willingness to use the service.

Performance and Throughput (Questions 17 and 18)

The consultation paper provides the minimum throughput requirements for the system including a latency of 1,000 milliseconds and the ability for the system to receive, process and deliver 60,000

[4] The Cloud Security Alliance is an organization consisting of subject matter experts from industry, associations, governments, and corporate and individual members who assist with defining best practices for a secure cloud computing environment. See *https://cloudsecurityalliance.org/*.

messages in a burst to 200 users in one minute. Question 17 asks whether 1000 milliseconds is not a low enough latency threshold for the DSB to respond with an ISIN, while question 18 asks whether a maximum time-lag of one minute to respond to a burst affects the ability of the market participant to proceed with its trading activity.

State Street strongly believes that the latency threshold and maximum time-lag is too slow. Trading is conducted in microseconds, not milliseconds, and considering that an ISIN is required to conduct trading under MiFID II / MiFIR, 1,000 milliseconds will slow down trading, especially for firms engaging in algorithmic trading over trading models where ISINs cannot be pre-applied because the combinations are infinite (*e.g.* Request for Quote ("RFQ") trading). This could also be an issue for order book trading styles, which allow for the ad hoc creation of instruments. Additionally, a maximum time-lag of one minute is too slow and will negatively impact all market participants, including human traders.

Connectivity (Question 27)

The consultation paper discusses connectivity and states that the DSB will support a direct FIX connection to access the database and the OTC derivative ISIN reference database. System access will be through a virtual private network ("VPN") with external communication tunnelled through encrypted VPN (may not be a secured sockets layer ("SSL") encrypted) and through an internet SSL connection with a minimum TLS version of 1.1. Question 27 asks whether alternative connection types such as leased line, access via third party networks such as BT Radianz, or direct cross-connect would be preferable options.

State Street prefers either access via third party networks such as BT Radianz or a direct cross-connect. Access via a third party like BT Radianz or a direct cross-connect increases reliability as there is no need to go through encrypted VPNs which may sometimes have connection issues causing delays in data transmission. Using a third party or a direct cross-connect could also potentially lower the additional time it takes an ISIN to reach the requester.

Disaster Recovery (Questions 34 and 35)

The consultation paper details the key aspects of the system's disaster recovery requirements, including a recovery time of four hours and an annual failover test frequency. Question 34 asks whether the recovery time of four hours is sufficiently fast enough to meet requirements for obtaining OTC derivative ISINs and question 35 asks whether in addition to ANNA's annual internal system failover test, there should be a separate failover test with the industry to enable participants to test their failover procedures.

State Street recommends a recovery time of two hours in order to align with regulatory requirements such as MiFID RTS 7.[5] Moreover, State Street's practice is to execute post-trade reporting within 15 minutes. DSB's service for issuing ISINs being down for more than two hours would not align with this practice.

[5] MiFID RTS 7 of Article 15 (Article 48(1) of Directive 2014/65/EU) requires that business continuity arrangements ensure that trading can be resumed within or close to two hours of a disruptive incident.

Additionally, State Street agrees there should be a separate failover test with the industry to enable participants to test their failover procedures but believes there should be some flexibility in scheduling this failover test. The frequency of testing will depend on the system criticality and its recovery time.

Implementation Steps (Question 40)

The consultation paper details high level implementation steps with relevant timeframes. The implementation steps include: draft FIX API published; open DSB Demo connection list; Demo connectivity details available; SPP vendor selected; DSB DEMO connectivity testing: UAT connection details available; open DSB UAT connection list; UAT environment live; and production go-live. Question 40 asks whether we agree with the approach of the DSB production service running parallel to the UAT and only allowing certified users to be permissioned to connect to the DSB production. The DSB is planning to utilize the UAT environment to complete certification.

State Street agrees with this implementation but requests further clarity on the criteria to become a "certified user." Additionally, considering ANNA's resource constraints, State Street recommends that a self-certification option be made available.

Conclusion

In conclusion, State Street is supportive of ANNA's efforts to detail the key operational and technical aspects of developing global, permanent and timely ISINs for OTC derivatives. Adoption of our key recommendations above, however, will help facilitate a more efficient process.

Please feel free to contact Guy Kirby at gkirby@statestreet.com or Beverley Doherty at bdoherty@statestreet.com should you wish to discuss State Street's submission in further detail.

Sincerely,

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