

Part II: Activities of the Broker-Dealer Operator and its Affiliates

Item 1: Broker-Dealer Operator Trading Activities on the ATS

- a. Are business units of the Broker-Dealer Operator permitted to enter or direct the entry of orders and trading interest (e.g., quotes, conditional orders, or indications of interest) into the NMS Stock ATS?

☒ Yes ☐ No

If yes, name and describe each type of business unit of the Broker-Dealer Operator that enters or directs the entry of orders and trading interest into the ATS (e.g., NMS Stock ATS, type of trading desks, market maker, sales or client desk) and, for each business unit, provide the applicable MPID and list the capacity of its orders and trading interest (e.g., principal, agency, riskless principal).

The Over-the-Counter ("OTC") Listed International Sales and Trading unit of the JPMS equities business is able, on a principal basis, to enter directly into JPM-X (using the "JPMS" MPID) both firm orders and trading interest in the form of conditional orders (collectively, "Firm/Conditional Orders"). The OTC Listed International Sales and Trading unit (i) facilitates client trading on an agency, riskless principal, or principal basis, including electronic and portfolio trading, and hedges the resulting risk and (ii) acts as a market maker or block positioner in U.S. and non-U.S. equities, equity listed options, OTC options, equity swaps, exchange-traded funds, preferred stocks, credit products, and equity structured products.

The OTC Listed International Sales and Trading unit includes the following trading desks:

- (i) Americas Execution Services, which primarily conducts and facilitates customer trading on both an agency and a principal basis in U.S. exchange-listed, OTCBB, and pink sheet securities and acts as a market maker or block positioned in certain U.S. exchange-listed securities;
- ~~(ii) — Automated Liquidity Provider, which is an electronic market making desk that places two-sided orders in equities and ETFs via exchanges and other venues (Order Flow Type P-2 in Tier 4, described in response to Part III, Item 13(a), consists entirely of Firm/Conditional Orders routed by this desk);~~
- (iii) Americas Credit Indices, which trades high grade credit derivatives and associated hedges;
- ~~(iiiiv)~~ Block Liquidity Management, which books block transactions with clients;
- (iv) Boston Sales and Trading, which primarily receives and handles domestic (mainly block and program) equity orders (with executions done via coordination with JPMS' block trading desk, proprietary direct market access connectivity, and/or other market access tools) and provides market

commentary, as well as access to JPM corporate marketing and corporate access events;

(v~~i~~) Central Liquidity Book, which manages and hedges client facilitation positions;

(vi~~i~~) Corporate Trading, which trades equities, futures, equity listed options, equity OTC options, equity swaps, and equity structured products and facilitates open market activities for corporate clients;

(vii~~i~~) Electronic Client Trading, which primarily coordinates customer access to, and the monitoring and support of, JPMS direct-to-market, algorithmic, and agency-only trading product;

(viii~~i~~) Emerging Markets Global Credit, which hedges Emerging Markets Credit Risk positions with ETFs;

(ix) Equity Finance Collateral Management, which handles collateral management for the equity finance business;

(x~~i~~) Equity Finance Trading, which finances client and counterparty equity positions through swap transactions;

(xi~~i~~) Exchange Traded Fund ("ETF") Flow, which conducts and facilitates customer trading on both an agency and a principal basis in U.S. exchange-listed ETF securities, acts as a block positioner in certain U.S. exchange-listed ETF securities, and engages in domestic and international creation/redemptions of ETFs, basket swaps, passive index arbitrage, term swaps, and put/call combos;

(xii~~i~~) Exotic, which trades equities, futures, equity listed options, exotic equity options, equity swaps, and equity structured products;

(xiii~~v~~) Flow Index, which trades equities, equity indices, futures, equity listed options, equity vanilla OTC options, swaps, a equity structured products;

(xi~~v~~) Franchise, which primarily conducts and facilitates customer trading, on both an agency and a principal basis, in U.S exchange-listed, OTCBB, and pink sheet securities and also acts as a market maker or block positioner in certain U.S. exchange-listed, OTCBB, and pink sheet securities;

(xvi~~i~~) Equity Index Structuring, which is responsible for creating investible indices based on equities or on a cross-asset basis;

(xvii~~i~~) Index Swaps, which provides financing solutions to clients, makes markets in Exchange for Physicals on any Americas index, single stock, or ETF, sources inventory through derivative trades to lend to prime brokerage clients, make markets and provides liquidity in dividends, and provides customized basket solutions to clients;

(xviii~~i~~) International Trade, which primarily conducts and facilitates customer trading on both an agency and a principal basis in international

securities (both ADRs and "locals") and acts as a market maker or block positioner in certain ADRs;

(xviii) North America Delta One Swap, which engages in financing client and counterparty swap transactions related to custom baskets and ETFs, facing institutional clients on swaps and hedging the client swaps by executing in the market and with counterparties;

(ix) North America Credit Markets Preferred ADM, which facilitates client flow in fixed income products, including preferred equities, and hedges the resulting risk;

(xx) Program Trading, which trades baskets on an agency basis and handles G-VWAP baskets, shortened settlement, a blind risk bid orders for clients, following client instructions such as in-line-with-the-market, market-on-close, market-on-open, VWAP, and TWAP orders;

(xxi) Securitized Product Group, which takes positions in securitized product ETFs via ETF create/redeems to hedge fixed income client-facing positions;

(xxii) Single Stock Flow Volatility, which trades equities, equity indices, futures, equity listed options, equity vanilla OTC options, swaps, and equity structured products; and

(xxiii) Syndicate, which engages in underwriting activities that range from initial public offerings, follow-on equity issues, convertible issues, and private placements.

In addition, the following units of the JPMS equities business are able, on an agency, riskless principal, or principal basis to enter or direct the entry of Firm/Conditional Orders into a JPMS algorithmic trading strategy or JPMS' smart order rout technology (collectively, the "algorithms/SOR"), which in turn is able to enter, or to be directed by the units below to enter Firm/Conditional Orders into JPM-X (using the "JPMS" MPID):

1. OTC Listed International Sales and Trading, which is described above;

2. American Depositary Receipt ("ADR") Cross Trading, which primarily conducts dealer swaps between ADRs and U.S. stocks;

3. Convertible Bond Sales and Trading, which enters into convertible bond transactions with clients and hedges the resulting risk;

4. Fixed Income Sales and Trading, which provides liquidity to high-yield and distressed credit clients and hedges the resulting risk, including the following trading desks:

(i) High Yield Trading, which trades high yield debt and associated hedges;

(ii) High Yield Loan Trading Distressed, which trades high yield distressed loans; and

- (iii) North America Credit Markets Preferred Stock, which trades preferred stocks;
- 5. Commodities Trading, which provides liquidity to commodities clients and hedges the resulting risk;
- 6. Equity Finance, which may buy or sell stocks in connection with its facilitation of stock borrows and loans; and
- 7. WMIS Capital Markets, which handles order flow derived from Wealth Management business lines on an agency basis and is able to source liquidity from other units of the JPMS equities business that in turn are able to access JPM-X via the algorithms/SOR as described above.

Item 2: Affiliates Trading Activities on the ATS

- a. Are Affiliates of the Broker-Dealer Operator permitted to enter or direct the entry of orders and trading interest into the NMS Stock ATS?

☒ Yes ☐ No

If yes, name and describe each type of Affiliate that enters or directs the entry of orders and trading interest into the ATS (e.g., broker-dealer, NMS Stock ATS, investment company, hedge fund, market maker, principal trading firm), and, for each Affiliate, provide the applicable MPID and list the capacity of its orders and trading interest (e.g., principal, agency, riskless principal).

The JPMS affiliates listed below are able to enter, for their own or client accounts, Firm/Conditional Orders into JPMS' algorithms/SOR. The affiliates also are able to route Firm/Conditional Orders to one or more of the JPMS business units identified in Item 1(a), which in turn are able to enter or direct the entry of Firm/Conditional Orders into the algorithms/SOR as discussed in Item 1(a). The algorithms/SOR is able to enter, or to be directed by the affiliate or a business unit to enter Firm/Conditional Orders into JPM-X (using the "JPMS" MPID). As non-FINRA members, the affiliates listed below do not have their own MPIDs.

1. Bear Stearns Asset Management Inc. ("BSAM") (regulated by the U.S. Securities and Exchange Commission ("SEC") which is registered with the SEC as an investment adviser; BSAM and affiliated investment advisers comprise J.P. Morgan Asset Management, the investment management business of J.P. Morgan Asset & Wealth Management)

2. JPMorgan Asset Management (China) Company Limited China International Fund Management Co. Ltd. (regulated by the China Securities Regulatory Commission ("CSRC"), the People's Bank of China, and the State Administration for ~~Industry & Commerce~~Market Regulation of the

People's Republic of China), which issues and sells funds and engages in investment management and other businesses approved by CSRC

3. Highbridge Capital Management LLC (regulated by the SEC, Securities and Futures Commission in Hong Kong, and Financial Conduct Authority in the United Kingdom ("FCA-UK")), which is a registered investment adviser and has developed a diversified investment platform, including hedge funds, daily liquidity products, and other similar investment products

4. J.P. Morgan Alternative Asset Management Inc. (regulated by the SEC), which is a U.S. investment advisory branch of J.P. Morgan Asset Management

5. J.P. Morgan Investment Management Inc. ("JPMIM") (regulated by the SEC, FCA-UK, Securities and Exchange Board India, Financial Supervisory Service in South Korea, and Financial Services Agency of Japan), which is registered with the SEC as an investment adviser; JPMIM and affiliated investment advisers comprise J.P. Morgan Asset Management

6. J.P. Morgan Private Investments Inc. (regulated by the SEC), which is an investment adviser registered with the SEC and operates within the Asset & Wealth Management line of business

7. J.P. Morgan Securities (Asia Pacific) Limited (regulated by the Hong Kong Monetary Authority and Securities and Futures Commission in Hong Kong), which engages in investment banking (corporate finance advisory and debt/equities securities origination and trading), market making of government bills and bonds, and the trading and marketing of FX, rate, money market, derivatives, cash equities, convertible bonds, distressed, and high yield assets

8. J.P. Morgan Securities Asia Private Limited (regulated by the Monetary Authority of Singapore), which holds a Capital Markets Services license to deal in securities and advise on corporate finance

9. J.P. Morgan Securities Australia Limited (regulated by the Australian Securities and Investments Commission), which is a market, clearing, and settlement participant on the ASX and engages in stockbroking, equity research and services in the ETO market for wholesale clients and makes markets in and advises on equity swaps, OTC options, and exchange listed warrants

10. JPMorgan Asset Management (Asia Pacific) Limited (regulated by the Securities and Futures Commission in Hong Kong), which provides investment management services

11. J.P. Morgan Securities (Far East) Limited (regulated by the Securities and Futures Commission in Hong Kong), which is a broker and lead underwriter in PRC and engages in securities dealing and investment banking activities in its Seoul Branch

12. J.P. Morgan Securities plc (regulated by the FCA-UK and Prudential Regulation Authority in the United Kingdom), the principal activity of which is to be a booking and processing entity for investment banking activities initiated by other JPMorgan Chase & Co. ("JPMC") entities
13. J.P. Morgan (Suisse) SA (regulated by the Swiss Financial Market Supervisory Authority), which serves Swiss and international clients across the Private Banking and Investor Services lines of business
14. JPMorgan Asset Management (Europe) S.a.r.l. (regulated by the Commission de Surveillance du Secteur Financier), which is an investment management and management company
15. 55I, LLC (regulated by the SEC), which is a registered investment adviser and provides advisory services associated with tax harvesting solutions as well as ongoing trading and rebalancing services for clients
16. J.P. Morgan Markets Limited (regulated by the FCA-UK), which engages in global credit and equities trading
17. JPMorgan Asset Management (Japan) Limited (regulated by the Financial Services Agency of Japan), which engage in investment trust management, non-discretionary investment advisory services and discretionary investment management services, and the offering of beneficiary certificates of investment trusts and shares of non-Japanese pooled funds
18. JPMorgan Asset Management (Singapore) Limited (regulated by the Monetary Authority of Singapore), which engages in fund management
19. JPMorgan Asset Management (Taiwan) Limited (regulated by the Financial Supervisory Commission and Investment Commission of Ministry of Economic Affairs in Taiwan), which is an investment manager and securities investment trust
20. JPMorgan Asset Management (UK) Limited (regulated by the FCA-UK), which is a discretionary investment adviser
21. JPMorgan Chase Bank, National Association (regulated by the Office of the Comptroller of the Currency, Board of Governors of the Federal Reserve System, and Federal Deposit Insurance Corporation in the United States; Hong Kong Monetary Authority and Securities and Futures Commission in Hong Kong; Monetary Authority of Singapore; and FCA-UK and Prudential Regulation Authority in the United Kingdom), which is a wholly owned bank subsidiary of JPMC
22. JPMorgan Chase Funding Inc. (regulated by the Board of Governors of the Federal Reserve System), which may engage in activities permitted for a financial holding company as set forth in Board Regulation Y

~~23. JPMorgan Gestion, Sociedad Gestora de Instituciones de Inversion Colectiva, S.A. (regulated by the Spanish Securities Market Commission), which is a Spanish management company of collective investment schemes~~

234. JPMorgan Securities Japan Co., Ltd. ("JPMSJ") (regulated by the Financial Services Agency of Japan), which underwrites and trades securities, offers and brokers securities transactions, advises clients on business strategies, capital structures, and financial strategies, and engages in M & A derivative transactions booked outside of JPMSJ

245. Security Capital Research & Management Incorporated ("SCRM") (regulated by the SEC), which is registered with the SEC as an investment adviser; SCRM and affiliated investment advisers comprise J.P. Morgan Asset Management

256. J.P. Morgan SE (regulated by the German Federal Financial Supervisory Authority, German Central Bank, and European Central Bank), which is a wholly owned bank subsidiary of JPMC

26. First Republic Investment Management, Inc. (regulated by the SEC), which is a registered investment advisor offering private wealth management services.

Item 6: Activities of Service Providers

- a. Does any employee of the Broker-Dealer Operator or its Affiliate that services both the operations of the NMS Stock ATS and any other business unit or any Affiliate of the Broker-Dealer Operator ("shared employee") have access to confidential trading information on the NMS Stock ATS?

☒ Yes ☐ No

If yes, identify the business unit, Affiliate, or both that the shared employee services, and provide a summary of the role and responsibilities of the shared employee at the ATS and the business unit, Affiliate, or both that the shared employee services.

Confidential trading information consists of data regarding open or partially open Firm/Conditional Orders in JPM-X ("real-time data") and data regarding fully or partially completed Firm/Conditional Orders in JPM-X, including executions and cancellations ("historical data"). Confidential trading information, however, does not include post-execution reporting and applicable reporting rules or regulations. Confidential trading information also does not include aggregated data resulting from the combination of the JPM-X historical data associated with a Subscriber's Firm/Conditional Order with data regarding other Firm/Conditional Orders of the Subscriber or other JPMS clients, whether

or not such Firm/Conditional Orders were routed to JPM-X ("Aggregated Data"). ~~Aggregated Data is created by ECS Liquidity Product Specialists, who can aggregate any JPM-X historical data, or trading personnel in a business unit identified in response to Part II, Item 1(a) who can aggregate only JPM-X historical data regarding that unit's or a subset of that unit's Firm/Conditional Orders.~~ Aggregated Data includes JPM-X historical data from only the prior trading day, including end of trading on trade date, or earlier. Aggregated Data sourced only from JPM-X historical data does not provide Subscriber-specific or symbol-specific information. Aggregated Data can include any JPM-X historical data or some subset of JPM-X historical data. Aggregated Data can be used (i) by JPMS to provide market color or trend analyses externally and/or to internal principal or agency trading desks or senior management (e.g., JPMS prepares, and makes available online, a monthly summary of JPM-X activity that includes aggregate statistic such as the average trade size for each order flow type described in response to Part III, Item 13(a)); (ii) by JPMS to advertise, report on, or enhance the quality of its execution or other services offered to clients (e.g., JPMS has included i marketing materials aggregate VWAP slippage statistics that incorporate execution data from JPM-X and other venues to which Subscribers' VWAP orders were routed); and (iii) by third parties so they can provide JPMS with analytics (regarding, e.g., its market share or other performance metrics on a client-by-client basis). Such data sets are sufficiently aggregated and/or anonymized that they protect the confidentiality of Subscribers' trading strategies and are not themselves confidential trading information. Moreover, the use of such data sets, depending on the context, may be subject to confidentiality restrictions under agreements with recipients of the data sets and/or JPMC policies and procedures.

No employee or contingent worker ("workforce member") of JPMS or its affiliates is dedicated solely to servicing the operations of JPM-X. Shared workforce members with some level of access to confidential trading information on JPM-X include those described below to the extent they have a need to know such information to perform their respective responsibilities in connection with: (i) the operations and support of JPM-X; (#1-5) or (ii) JPMS' risk management and compliance with applicable law in operating JPM-X; (iii) assisting clients, senior management, and business units that send orders to JPM-X; or (iv) developing or maintaining JPMS's infrastructure and applications, including those related to JPM-X. In particular, as detailed below, limited groups of workforce members have access to all real-time and historical data in JPM-X (1), and limited groups of workforce members have access to all historical data from JPM-X (2). Separately, there are groups that have access to real-time and/or historical data regarding subsets of orders and executions that occur in JPM-X to perform their respective responsibilities (3).-(#6). Persons authorized to access confidential trading information are prohibited from using

confidential trading information for purposes other than those described below.

(1) The following groups have access to all real-time and all historical data in JPM-X for the purposes described below:

a) Electronic Client Solutions ("ECS") Liquidity Product Specialists (workforce members of JPMS) responsible for the development and day-to-day operation of JPMS' smart order routing technology (the "SOR") and JPMS' alternative trading systems, including JPM-X, who can access the JPM-X order book, which includes all real-time data and historical data. This access allows ECS Liquidity Product Specialists to so they can monitor the performance of JPM-X, prepare aggregated data sets as described above, detect any Subscriber behavior resulting in a materially negative impact to the operation of JPM-X or to other Subscribers or indicating a need to change a Subscriber's order flow type or tier assignment, work to resolve issues related to the foregoing that may arise, develop further product initiatives, and respond to client inquiries and regulatory requests; and

b) Personnel in technology groups (workforce members of JPMS) responsible for providing technical support or developing and maintaining applications, e.g., trading applications and other applications or services that support trading personnel described below, or infrastructure across JPMS, including the applications and infrastructure on which JPM-X relies, can access real-time and historical data regarding orders and executions that occur in JPM-X as necessary in the course of their work to provide support and develop and maintain the applications and infrastructure.

(2) The following groups have access to all historical data from JPM-X for the purposes described below:

a) Operations personnel (workforce members of JPMS affiliates worldwide) responsible for processing and providing operational support for transactions effected by JPMS and its affiliates, including trades in JPM-X, who can access historical data so they can monitor the post-trade processing of and provide operational support for transactions executed in JPM-X, including with respect to the clearance, settlement, and allocation of such transactions, and work to resolve any processing or other operational issues that may arise; and

b) Personnel in Conduct Compliance and Operational Risk, Business Control Management, and technology groups (workforce members of JPMS affiliates worldwide), who can access historical data so they can maintain (i) JPMS' and its affiliates' compliance with laws

applicable to the operation of JPM-X, including through supervision, surveillance and the preparation of regulatory reports and responses to regulatory request; and (ii) related systems.

(3) The following groups have access to real-time and/or historical data regarding subsets of orders and executions that occur in JPM-X for the purposes described below:

a) ~~T~~the ECS Client Coverage, ECS ~~Product~~, ECS Connectivity ~~Product~~, and ECS Sales groups (workforce members of JPMS), which provide client services to ECS clients, including JPM-X Subscribers, and can access real-time and historical data regarding subsets of orders and executions that occur in JPM-X so they can field inquiries from clients regarding orders routed to JPM-X by or on behalf of the clients;

b)(3) ~~ECS supervisors and senior management (workforce members of JPMS and its affiliates worldwide) responsible for the ECS business, including the JPM-X offering and its operation, who can access real-time and historical data, only at a summary level (e.g., aggregated order quantities by client or symbol), and historical data so they can appropriately supervise and manage the JPMS workforce members described in (1) and (2) above~~ECS Liquidity Product Specialists, ECS Client Coverage, ECS Product, ECS Connectivity, and ECS Sales groups;

(4) ~~—Middle Office personnel (workforce members of JPMS affiliates worldwide) responsible for processing transactions effected by JPMS and its affiliates, including trades in JPM-X, who can access historical data so they can monitor the pre-trade processing of transactions executed in JPM-X, including with respect to the clearance, settlement, and allocation of such transactions, and work to resolve any processing issues that may arise;~~

c)(5) ~~Personnel in technology groups, the equities electronic trading~~Analytics, Automation, and Optimization quantitative research groups, Electronic Trading quantitative research groups, and the Markets Business Intelligence Group (together, the “Equities Quantitative Research Groups”) (workforce members of JPMS) ~~responsible for providing technical support and developing and maintaining electronic trading applications and infrastructure across JPMS, including the applications and infrastructure on which JPM-X relies, who can access real-time and/or historical data regarding JPM-X activity occurring through the upstream systems or desks they support when necessary in the course of their work to provide technical support and/or develop and maintain the applications and infrastructure (including, in the case of (i) the equities e~~Electronic Trading quantitative research group, to, e.g., develop quantitative models employed by the applications and to analyze the performance of these applications and their underlying models; (ii) the Analytics, Automation, and Optimization quantitative research group to, e.g., maintain the

applications that support trading personnel described below and the integrity of data used by such applications; and (iii) the Markets Business Intelligence Group to, e.g., provide senior management with aggregated trading analytics);

d)(6) Personnel in Operations and Business Control Management (described in section 2 above), who can access real-time data on a limited basis in connection with their responsibilities described above technology groups, Compliance, and Regulatory Management (workforce members of JPMS affiliates worldwide) responsible for facilitating JPMS' and its affiliates' compliance with applicable law, including with respect to the operation of JPM-X, who can access historical data so they can maintain JPMS' and its affiliates' compliance with laws applicable to the operation of JPM-X, including through surveillance and the preparation of regulatory reports and responses to regulatory requests;

e)(7) Business unit sales and trading personnel who route Firm/Conditional Orders to the algorithms/SOR or JPM-X for execution (workforce members of JPMS and its affiliates worldwide), who can access real-time and historical data regarding orders and executions that occur in JPM-X data regarding only that unit's or a subset of that unit's Firm/Conditional Orders so they can monitor such Firm/Conditional Orders, field inquiries regarding their orders, including those Firm/Conditional Orders routed to JPM-X, or provide technical support for related trading applications; and

f)(8) Personnel in Model Risk Governance and Review (workforce members of JPMS and its affiliates worldwide) who can access historical data so they can perform model governance and model review functions, including conducting independent assessment and monitoring of the performance of Firm models that execute transactions in JPM-X

Item 7: Protection of Confidential Trading Information

- a. Describe the written safeguards and written procedures to protect the confidential trading information of Subscribers to the NMS Stock ATS, including:
 - i. written standards controlling employees of the ATS that trade for employees' accounts; and
 - ii. written oversight procedures to ensure that the safeguards and procedures described above are implemented and followed.

JPMS has established written safeguards and procedures that restrict (i) access to all real-time and historical data regarding Subscribers' JPM-X Firm/Conditional Order information to individuals identified in categories 1 and 2 of the response to Part II, Item 6(a) above responsible for the operation of JPM-X and/or JPM-X's

compliance with applicable law and (ii) the personal trading of such individuals with access to Subscriber confidential trading information identified in Part II, Item 6(a). JPMS also has adopted and implemented written oversight procedures intended to ensure that the above safeguards and procedures are followed. Access to Subscribers' confidential trading information is restricted as described below.

Systems with Real-Time and Historical Data. Real-time and historical data is accessible via a front-office graphical user interface ("GUI") and database, each of which can be used to view the status of, and generate reports regarding, Firm/Conditional Orders routed to JPM-X; order management systems used to route Firm/Conditional Orders to the algorithms/SOR or JPM-X; and the servers upon which the GUI, database, order management systems, algorithms/SOR JPM-X matching engine run. The algorithms/SOR and JPM-X matching engine generate and access such data for the purpose of routing Firm/Conditional Orders and matching and executing Firm/Conditional Orders, respectively. Access to these systems through which real-time and historical data regarding all orders and executions that occur in JPM-X through these systems is accessible is restricted, via permissioned electronic logins, to personnel described in category 1 in response to Part II, Item 6(a) above (for the reasons stated therein). Access, through the above-referenced systems, to real-time and/or historical data regarding subsets of orders and executions that occur in JPM-X ECS Liquidity Product Specialists responsible for the development and day-to-day operation of JPM-X and personnel in technology and equities electronic trading quantitative research groups responsible for providing technical support and developing and maintaining the applications and infrastructure on which JPM-X relies. Limited access to such systems is provided to the Client Coverage, ECS Connectivity Product, and ECS Sales groups providing client services to JPM-X Subscribers and to ECS supervisors and senior management responsible for the JPM-X offering and its operation, but the access is restrict via permissioned electronic logins, to real-time data at a summary level (e.g., aggregated order quantities by client or symbol) and historical data. Limited access to such systems also is provided to JPMS business unit trading personnel who route, for whom the algorithms/SOR routes, Firm/Conditional Orders to JPM-X, but their access is restricted, via permissioned electronic logins, to information regarding their respective unit's or a subset of that unit's Firm/Conditional Orders personnel described in sub-parts (a) through (f) of category 3 of the response to Part II, Item 6(a) above (for the reasons stated therein).

Systems with Historical Data. -In addition to the systems noted above, JPMS maintains systems that include only historical data, i.e., these systems do not include real-time data. These systems include a GUI used to view JPMS' transaction data; Middle Office systems for the post-trade processing of transactions; and the servers upon which these systems run. Access to these systems, through which all historical data is accessible, is restricted, via permissioned electronic logins, to the personnel described in category 2 in response to Part II, Item 6(a) above (for the purposes stated therein). Historical data is accessible via a database used to view the status of, and generate report regarding, Firm/Conditional Orders that were routed to JPM-X and either executed or cancelled; a GUI used to view JPM books and records; Middle Office systems for the post-trade processing of transactions; and the servers upon which the database, GUI, JPMS' books and records systems, and Middle Office systems run. Access to these systems through which historical data is accessible is restricted, via permissioned electronic logins, to the ECS Liquidity Product Specialists described above; technology groups, equities electronic trading quantitative research groups and the Markets Business Intelligence Group described above; ECS Client Coverage, ECS Connectivity Product, and ECS Sales groups described above; Middle Office personnel responsible for processing trades JPM-X; personnel in technology groups, Compliance, and Regulatory Management responsible for facilitating JPMS' compliance with applicable law with respect to the operation of JPM-X; and Model Risk Governance and Review responsible for performing model governance and model review functions. Limited access to such systems also is provided to JPMS business unit trading personnel who route, or for whom the algorithms/SOR routes, Firm/Conditional Orders to JPM but their access is restricted, via permissioned electronic logins, to information regarding their respective unit's or a subset of that unit's Firm/Conditional Orders.

Policies and Procedures

The above restrictions are maintained in part through written procedures requiring the escalation and approval of requests to access JPM-X data and the periodic review of such access. Moreover, JPMC has adopted written policies and procedure (the "Personal Account Dealing Policy" or "PAD Policy") requiring (i) employees and contingent workers subject to the PA Policy ("PAD Workforce Members") to disclose accounts that can hold and transact in the purchase or sale of publicly traded securities and over which PAD Workforce Members or related persons can exercise discretion ("Covered Accounts") and review and certify annually as

to the accuracy and completeness of all Covered Account details, (ii) JPMC to monitor transaction details for Covered Accounts, (iii) PAD Workforce Members to preclear purchases, sales, pledges, and gifts of publicly traded and privately held financial instruments, and (iv) managers to review trading requests to prevent the improper use of material non-public information or other confidential information, conflicts of interest, and other applicable trading restrictions. Written supervisory procedures applicable to the JPMS U.S. Equities Division (the "WSPs") require reviews, documented at least on a monthly basis, to make certain that (i) new employees receive training with respect to the PAD Policy, (ii) employees have obtained preclearance appropriately, (iii) trading subject to the PAD Policy has been appropriately monitored, and (iv) escalated personal trading violations have been followed up on appropriately.

JPMS' written procedures for limiting access to confidential trading information, pursuant to JPMS' obligations under Regulation ATS Rule 301(b)(10), include a section of the WSPs regarding JPMS' alternative trading systems. The section requires reviews, documented at least on a quarterly basis, (i) to verify the appropriateness of the access afforded to those described in response to Part II, Item 6 who are authorized to view JPM-X data via certain front office and ~~books and records~~ transaction data processing systems and (ii) to approve, or verify the appropriate approval of, all new requests to access JPM-X order data via such systems.

In addition, JPMC policies and procedures require that confidential trading information be shared only on a "need to know basis (i.e., shared only with a person with a legitimate business need, in the normal exercise of the person's employment duties, for knowing or having access to the information) and prohibit the unauthorized or improper use of ~~material non-public~~ confidential information and/or the front-running of client orders. Only the workforce members identified in response to Part II, Item 6 are deemed by JPMS to have such a need to know Subscribers' confidential trading information.

Part II: Manner of Operations

Item 7: Order Types and Attributes

- a. Identify and explain each order type offered by the NMS Stock ATS. In your explanation, include the following:
 - i. priority, including the order type's priority upon order entry and any subsequent change to priority (if applicable); whether and

- when the order type can receive a new time stamp; the order type's priority vis-à-vis other orders on the book due to changes in the NBBO or other reference price; and any instance in which the order type could lose execution priority to a later arriving order at the same price;
- ii. conditions, including any price conditions (e.g., how price conditions affect the rank and price at which it can be executed; conditions on the display or non-display of an order; or conditions on executability and routability);
 - iii. order types designed not to remove liquidity (e.g., post-only orders), including what occurs when such order is marketable against trading interest on the NMS Stock ATS when received;
 - iv. order types that adjust their price as changes to the order book occur (e.g., price sliding orders or pegged orders) or have a discretionary range, including an order's rank and price upon order entry and whether such prices or rank may change based on the NBBO or other market conditions when using such order type; when the order type is executable and at what price the execution would occur; whether the price at which the order type can be executed ever changes; and if the order type can operate in different ways, the default operation of the order type;
 - v. whether an order type is eligible for routing to other Trading Centers;
 - vi. the time-in-force instructions that can be used or not used with each order type;
 - vii. the circumstances under which order types may be combined with another order type, modified, replaced, canceled, rejected, or removed from the NMS Stock ATS; and
 - viii. the availability of order types across all forms of connectivity to the NMS Stock ATS and differences, if any, in the availability of an order type across those forms of connectivity.

The following order types are eligible for execution in JPM-X:

--Non-Peg Limit Order -- an order to buy or sell at a specified fixed price or better;

--Primary Peg Order -- an order to buy or sell at the inside quotation of the National Best Bid or Offer ("NBBO") on the same side of the market, even as the NBBO changes (with or without a limit price);

--Midpoint Peg Order -- an order to buy or sell at the midpoint between the inside bid and the inside offer of the NBBO, even as the NBBO changes (with or without a limit price); and

--Market Peg Order -- an order to buy or sell at the inside quotation of the NBBO on the opposite side of the market, even as the NBBO changes (with or without a limit price).

Each of the above order types can have one of the following two time-in-force instructions:

--Immediate-or-Cancel ("IOC"), which is an instruction that the order be executed immediately with any portion of the order that cannot be executed immediately being cancelled; and

--Day, which is an instruction that the order rest in the book maintained by JPM-X (the "Order Book") until the order is executed, with any portion of the order that cannot be executed by the end of the trading day, or earlier in accordance with the time interval specified by the Subscriber or an algorithm selected by the Subscriber, being cancelled.

A blank time-in-force field is treated as a Day time-in-force instruction.

~~Additionally, any time-in-force instruction other than IOC, Day or "On the Open" (which, as indicated below, is rejected by JPM-X) is treated as a Day time-in-force instruction.~~

The above order types are available for use by Subscribers that access JPM-X directly or via the algorithms/SOR, irrespective of whether such access occurs through JISU. JPM-X does not offer post-only order types, and none of the above order types is eligible for routing to other Trading Centers. As described in response to Part III, Item 9, JPM-X accepts limit and pegged conditional order messages corresponding to the order types described above with a day (but not IOC) time-in-force instruction.

The above order types cannot be combined (i.e., an order cannot be more than one order type). Subscribers that access JPM-X by routing to it or the SOR directly, and algorithms that access JPM-X via the SOR on behalf of Subscribers, can modify, replace, or cancel day orders routed to JPM-X. The modification or replacement of a day order results in the entry of a replacement order with a new time stamp and lower priority in time than the original order, unless the modification is reduction in the quantity of the order, in which case the replacement order has a new time stamp but the same priority in time that the original order had prior to its replacement.

JPM-X rejects (1) short sale exempt orders, (2) orders priced at or above \$1.00 per share if priced in a sub-penny increment, (3) orders priced below \$1.00 per share if priced in an increment of less than \$.0001, (4) orders that exceed limits imposed by JPMS pursuant to its obligations under SEC Rule 15c3-5, and (5) beginning on October 30, 2023, any order types and/or orders with any time-in-force instructions other than those identified above (for example, non Peg Market orders and/or orders with a time-in-force instruction of "On the Open:").

An order is ineligible for execution in JPM-X unless the price, minimum quantity, and counterparty preference instructions associated with the order, if any, are satisfied. Accordingly, a partially executed order is cancelled if the leaves quantity is less than the minimum quantity instruction associated with the order. An order also is ineligible for execution in JPM-X if the order is a firm-up order or an order committed to a conditional order message during a firm-up period, as described in response to Part III, Item 9.

Once JPM-X determines that an order is eligible for execution, it is crossed with other eligible order(s) on the opposite side of the market based on price/tier/time priority (e.g., at a given price level, Tier 1 orders have higher priority than Tier 2 orders, and at a given price level within the same tier, orders received earlier in time have higher priority than orders received later in time). (As described in response to Part III, Item 11(c), as between firm orders and conditional order messages at the same price, firm orders always have priority over conditional order messages irrespective of their tier or when they were received by JPM-X.) When two orders eligible for execution are crossed, they are executed at or within their effective limit prices, as described in response to Part III, Item 11(c). Accordingly, a peg order is executed at its pegged price or better. JPM-X does not execute a cross if the inside quotation of the NBBO is crossed (i.e., the inside bid exceeds the inside offer) or locked (i.e., the inside bid is equal to the inside offer). In addition, JPM-X does not execute a cross in any NMS stock that is subject to a regulatory or trading halt (although, as described in response to Part III, Item 20, JPM-X will continue to accept Firm/Conditional Orders in such an NMS stock and instructions to modify, cancel, or replace Firm/Conditional Orders in that NMS stock using the priority logic described in response to Part III, Item 11(c)).

Although a change in the NBBO would not affect the relative priority of orders (including peg orders) that remain eligible for execution after the change, the change could affect whether an order with a price instruction associated with it (including peg order) is eligible for execution and the execution price at which orders that remain eligible for execution (including peg orders) are crossed.

Item 11: Trading Services, Facilities and Rules

- c. Explain the established, non-discretionary rules and procedures of the NMS Stock ATS, including order interaction rules for the priority, pricing methodologies, allocation, matching, and execution of orders and trading interest, and other procedures governing trading, such as price improvement functionality, price protection mechanisms, short sales, locked-crossed markets, the handling of execution errors, and the time-stamping of orders and executions.

JPM-X accepts non-peg limit, primary peg, midpoint peg, and market peg Firm/Conditional Orders unless they (i) are marked short sale exempt, (ii) are priced in a sub-penny increment if priced at or above \$1.00 per share, (iii) are priced in an increment of less than \$.0001 if priced below \$1.00 per share, (iv) exceed limits imposed by JPMS pursuant to its obligations under SEC Rule 15c3-5, or (v) beginning on October 30, 2023, any order types and/or orders with any time-in-force instructions other than those identified in the response to Part III, Item 7 above (for example, non Peg Market orders and/or orders with have a time-in-force instruction of “On the Open.”)

▲ All Firm/Conditional Orders accepted by JPM-X (whether routed directly by a Subscriber or routed via the SOR by a Subscriber or JPMS trading algorithm on behalf of a Subscriber) -- other than firm-up orders and Resting Orders that are committed to a conditional order message during a firm-up period, as described in response to Part III, Item 9 -- are eligible for matching based on the liquidity available in the Order Book. JPM-X matches Firm/Conditional Orders on opposite side of the market in an NMS stock based on the price, size, and counterparty preference instructions associated with them.

Firm/Conditional Orders, once found eligible for crossing, are matched by JPM-X on the basis of price/tier/time priority, which means, e.g., that (i) at a given price level, orders in lower numbered tiers have priority over orders in higher numbered tiers and (ii) at a given price level within the same tier, orders received earlier in time have priority over orders received later in time. Accordingly, of two equally priced orders, the one that is in the lower numbered tier will have priority over the one that is in the higher numbered tier regardless of the times at which the orders were received by JPM-X. As between firm orders and conditional order messages at the same price, firm orders always have priority over conditional order messages irrespective of their tier or when they were received by JPM-X.

When crossing two orders matched for execution, JPM-X executes at or within their effective limit prices. For marketable limit orders, the effective limit price is the NBBO inside offer for buy orders and the NBBO inside bid for sell orders. For p orders, the effective limit price is the better of the limit price specified on the order, if any, and the price defined by the peg instruction. (For example, for a midpoint peg order with a limit price, the effective limit price is the better of the order's limit price and the NBBO midpoint.) If the effective limit prices of two orders overlap, the orders will cross within, or at one of, the effective limit prices. Note that JPM-X does not execute a cross if the inside quotation of the NBBO is crossed (i.e., the inside bid exceeds the inside offer) or locked (i.e., the inside bid is equal to the inside offer). JPM-X also does not execute a cross in any NMS stock that is subject to a regulatory or trading halt. In addition, when a circuit breaker has been triggered for an NMS stock under Rule 201 of Regulation SHO and

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JPM-X has matched a short sale order for execution, JPM-X will only execute at a price that is above the NBBO inside bid.

JPMS, at the request of a Subscriber or on JPMS' own initiative, may determine to review any transaction in JPM-X to assess whether it was adversely affected by a technical issue or "clearly erroneous" as defined by relevant regulators (e. under FINRA Rule 11891, "the terms of a transaction are 'clearly erroneous' when there is an obvious error in any term, such as price, number of shares, or other unit of trading, or identification of the security"). If JPMS determines that a transaction was adversely affected by a technical issue or clearly erroneous, whether or not as a result of JPMS or Subscriber error, JPMS, depending on the facts and circumstances, may work with the affected Subscriber(s) to resolve the error and may cancel (bust) the transaction or assume responsibility for one side of the transaction and work to cover the resulting position as soon as is practicable. JPM-X also may suspend matching in the event of volatile market conditions (e.g., wide bid/offer spreads).

JPM-X time stamps orders upon receipt and executions at the time they occur and reports them in milliseconds in accordance with applicable FINRA Order Audit Trail System and trade reporting rules. JPM-X determines queue position based on new order receipt times with microsecond precision, except in the case of a reduction in the quantity of an order in which case, the replacement order assumes the queue position of the original order.

Item 13: Segmentation; Notice

- a. Are orders and trading interest in the NMS Stock ATS segmented into categories, classifications, tiers, or levels (e.g., segmented by type of participant, order size, duration, source, or nature of trading activity)?

☒ Yes ☐ No

If yes, explain the segmentation procedures, including (i) a description for how orders and trading interest are segmented; (ii) identify and describe any categories, classification, tiers, or levels and the types of orders and trading interest that are included in each; (iii) provide a summary of the parameters for each segmented category and length of time each segmented category is in effect; (iv) any procedures for overriding a determination of segmented category; and (v) how segmentation can affect order interaction.

Subscriber Firm/Conditional Order flow is assigned to an order flow type, each of which corresponds to a tier used for purposes of determining priority (given JPM-X's use of price/tier/time priority as described in response to Part III, Item 11(c)). JPMS assigns a Subscriber's

Firm/Conditional Order flow to an order flow type based upon an initial review of information received from the Subscriber at onboarding. The order

flow types and corresponding tiers are provided below. For the avoidance of doubt, "institutional investor client flow" does not

include "U.S.-registered broker-dealer client flow" (and vice versa), and neither of them includes JPMS flow or JPMS affiliates' flow. Fills resulting from JPMS principal trading desk flow accessing JPM-X via the algorithms/SOR (Order Flow Type P-1 in Tier 4) may be provided to JPMS clients on a riskless principal basis. ~~As noted in response to Part II, Item 1(a), Order Flow Type P-2 in Tier 4 consists entirely of Firm/Conditional Orders routed by JPMS' Automated Liquidity Provider desk.~~

Tier 1 (Order Flow Type I-1) -- Institutional investor client flow and JPMS affiliates' flow accessing JPM-X via the algorithms/SOR;

Tier 2 (Order Flow Type I-2) -- Institutional investor client flow with direct access to JPM-X;

Tier 3 (Order Flow Type I-3) -- U.S.-registered broker-dealer client flow (both agency and principal) accessing JPM-X via the algorithms/SOR;

Tier 4 (Order Flow Type P-1) -- Internal (JPMS) principal trading desk flow accessing JPM-X via the algorithms/SOR;

~~Tier 4 (Order Flow Type P-2) -- Internal (JPMS) electronic liquidity provider flow with direct access to JPM-X;~~

Tier 5 (Order Flow Type I-4 / ELP) -- Flow of external broker-dealers categorized as electronic liquidity providers with direct access to JPM-X; and

Tier 5 (Order Flow Type I-5) -- Flow of external broker-dealers not categorized as electronic liquidity providers (both agency and principal) with direct access to JPM-X. There is no specific length of time that an order flow type or tier assignment for a Subscriber will remain in effect;

however, JPMS conducts a quarterly review of the trading activity in JPM-X of a sample set of Subscribers to confirm the accuracy of the Subscribers' order flow type and tier assignments, and JPMS reserves the right to review and add, remove, or revise an order flow type or tier assignment for

a Subscriber at any time. Based on a review of a Subscriber's trading activity (including, e.g., discussions with the Subscriber about changes in its business or observed changes in order flow characteristics), ECS Liquidity Product Specialists can request that the Subscriber modify its order flow and/or trading behavior to conform to its assigned order flow type or, if such a modification seems unlikely, determine to amend the Subscriber's order flow type assignment. JPMS would notify the Subscriber in the event of a change in the order flow type or tier assignment for the Subscriber. JPMS may change an order flow type or tier assignment for a Subscriber as described in response to Part III, Items 13-14 but does not otherwise override such an assignment once made. The segmentation of order flow described above affects order interaction insofar as, in looking for matching opportunities for

a Subscriber's Firm/Conditional Orders, JPM-X complies with the Subscriber's counterparty preferences regarding the order flow types or tiers with which the Subscriber would like to interact, as described in response to Part III, Item 14. In addition, Firm/Conditional Orders, once found eligible for crossing, are matched by JPM-X on the basis of price/tier/time priority, which means, e.g., that at a given price level, orders in lower numbered tiers have priority over orders in higher numbered tiers, as described in response to Part III, Item 11(c). Accordingly, of two equally priced orders, the one that is in the lower numbered tier will have priority over the one that is in the higher numbered tier regardless of the times at which the orders were received by JPM-X. As between firm orders and conditional order messages at the same price, firm orders always have priority over conditional order messages irrespective of their tier or when they were received by JPM-X.

Item 23: Market Data

- a. Identify the sources of market data used by the NMS Stock ATS (e.g., proprietary feed from a national securities exchange, feed from the securities information processor ("SIP")), and how the ATS uses market data from these sources to provide the services that it offers, including how the ATS uses market data to determine the NBBO and protected quotes, and display, price, prioritize, execute, and remove orders and trading interest on the ATS.

JPMS determines the NBBO and protected quotes and prices, prioritizes, and executes Firm/Conditional Orders in JPM-based on market data received from direct feeds through Redline, JPM-X's market data provider, uses (a) proprietary fee from all national securities exchanges other than ~~the~~ Long-Term Stock Exchange, Members Exchange, ~~MIAX PEARL Equities~~ ~~NYSE American, NYSE Chicago, and NYSE National~~ and (b) the Securities Information Processors (the "SIP") for the aforementioned exchanges and ~~the~~ ADF. Redline or JPMS will switch to extracting equivalent data from the SIP where a proprietary feed is unavailable, unstable, experiencing unacceptable latencies, or detected to be providing quotes that appear to have quality issues. When a direct feed is affected, the SIP is used for market data from the affected market, a Redline or JPMS will continue to use direct feeds from the unaffected markets to determine the NBBO. In the event of an disruption of services or other issues with any of the direct feeds, JPMS reserves the right to execute transactions in JPM-X based on market data from the SIP for any (or all) market center(s). As described in response to Part III, Item 20, JPMS may suspend trading in an NMS stock if the market data received by JPM-X for the stock from the SIP is unavailable, unstable, experiencing unacceptable latencies, or detected to be providing quotes that appear to have quality issues.

Form ATS-N JPMS CRD # 79

Part I, Item 8—Identifying Information

Request: *Attach as Exhibit I, the most recently filed or amended Schedule A of Form BD for the Broker-Dealer Operator disclosing information related to direct owners and executive officers.*

Response:

Schedule A –Direct Owners

Full Legal Name	CRD / Tax ID	Entity Type	Roles	Date Role Acquired	Ownership %	Control Person	Public Reporting Company
J.P. Morgan Broker-Dealer Holdings Inc.	13-4110995	Domestic Entity	Stockholder	09/2010	75% or more	Y	N
Bell, Jeremy	4268755	Individual	Chief Compliance Officer-Registered Investment Adviser	11/2019	Less than 5%	N	N
Bartolomei, Danielle	4442543	Individual	Chief Compliance Officer- Broker Dealer	9/2023	Less than 5%	N	N
Bisesi, Brian J	3090554	Individual	Elected Manager and Member	02/2022	Less than 5%	Y	N
Choi, Michael	6597789	Individual	Chief Compliance Officer – Registered Investment Adviser	9/2023	Less than 5%	N	N
Collins, James Michael	2725065	Individual	Chief Financial Officer	06/2008	Less than 5%	N	N
Dempsey, Patrick Paul	2830362	Individual	Treasurer	08/2013	Less than 5%	N	N
Dugger, Christina B	5599227	Individual	Chief Compliance Officer- Broker Dealer	11/2019	Less than 5%	N	N

Freilich, William Howard	2203801	Individual	Chief Legal Officer	05/2013	Less than 5%	N	N
Jury, Claudia	6403910	Individual	Elected Manager and Member	02/2020	Less than 5%	Y	N
Klion, Roger	5082261	Individual	Chief Operating Officer	10/2020	Less than 5%	N	N
<u>McCrum, Carrie</u>	<u>7675791</u>	<u>Individual</u>	<u>Elected Manager and Member</u>	<u>9/2023</u>	<u>Less than 5%</u>	<u>Y</u>	<u>N</u>
Rivas, Fernando	4803269	Individual	Elected Manager and Member	07/2022	Less than 5%	Y	N
Sieg, William Phillip	1066159	Individual	Elected Manager and Member	08/2021	Less than 5%	Y	N
Simmons, John E	2727754	Individual	Elected Manager and Member	02/2021	Less than 5%	Y	N
Sippel, Jason Edwin	1718602	Individual	CEO, Chairman, Elected Manager and Member	01/2013	Less than 5%	Y	N
Tepper, Eric David	2242377	Individual	Elected Manager and Member	08/2017	Less than 5%	Y	N
Winkelman, Amanda Denise	2352562	Individual	Elected Manager and Member	10/2019	Less than 5%	N	N