

Part II

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?

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).

GSCO has a number of affiliate organizations that are classified as Broker-Dealers and Investment Advisors (domestic and foreign) that engage in various securities trading activities. Currently ~~however, only~~, Goldman Sachs International ("GSI"), ~~a~~Goldman Sachs Bank Europe SE ("GSOH") and Goldman Sachs Canada, Inc. ("GSCD") are foreign affiliates that ~~is~~are not registered in the U.S., ~~is and are~~ entitled to send Firm and Conditional orders to GSCO ~~in a principal or agency capacity~~, which, where warranted, may be entered or directed to Sigma X2 by GSCO using GSCO's algorithms or the GSCO SOR. Such GSI and GSOH orders may be principal and/or agency orders, and such GSCD orders may be agency orders. These orders have GSCO's MPID attached to them. GSI, GSOH and GSCD are referred to herein as either "GSCO Affiliates" or "GSCO Affiliate" as warranted.

Please note that while GSCO's affiliate Goldman Sachs Asset Management, L.P. ("GSAM"), a U.S. registered entity, routinely interacts and routes orders to GSCO to facilitate trade execution, GSAM is not permitted to enter or direct the entry of orders to Sigma X2.

Item 5: Other Products and Services

- c. Does any Affiliate of the Broker-Dealer Operator offer Subscribers, the Broker-Dealer Operator, or both, any products or services for the purpose of effecting transactions or submitting, disseminating, or displaying orders or trading interest in the NMS Stock ATS?

If yes, identify the products or services offered, provide a summary of the terms and conditions for use, and list here the applicable Item number in Part III of this form where the use of the product or service is explained. If there is no applicable item in Part III, explain the use of the product or service with the ATS here.

~~Neither GSI nor its clients~~GSCO Affiliates cannot access Sigma X2 directly (i.e., they are not Direct Subscribers as defined in Part II, Item 5.a.). ~~GSI~~These affiliates offers sales and trading services to ~~its~~their clients that include the ability to send orders in NMS Stocks to GSCO, which, through the use of a GSCO algorithm or the GSCO SOR, may be routed to Sigma X2.

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?**

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.

GSCO does not have any employees solely responsible for Sigma X2. Certain GSCO employees ~~and certain Affiliate employees~~ have responsibilities with respect to GSCO ~~and/or an Affiliate~~ in addition to responsibilities regarding the operation of Sigma X2 and, as such, have the ability to access certain Participant confidential trading information. Such employees' roles are summarized below in response to Part II, Item 7.d.

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.**

GSCO has written policies and procedures designed to safeguard confidential trading information. Such policies and procedures are global and, as such, apply to The Goldman Sachs Group, Inc. and all of its affiliates (e.g., GSCO, ~~GSI~~ and other affiliates). GSCO considers information about Participants' identities, orders, transactions, strategies, and activities to be confidential trading information subject to protection. GSCO and GSCO Affiliate employees' access to Participant confidential trading information is dependent upon the level of information that is needed to perform their duties and responsibilities related to Sigma X2 (with respect to GSCO employees) or other duties and responsibilities ("need to know standard"). GSCO and GSCO Affiliate employees are strictly prohibited from using such information in an unauthorized manner and from discussing the details of any trades executed in Sigma X2 with persons who do not need such information to carry out their designated duties and responsibilities. Access to such information is granted as needed to perform these duties and responsibilities (i.e., real-time or delayed, isolated, periodic, or continuous). The individuals and systems with access to Participant confidential trading information, including the basis for such access, are outlined in response to Part II, Item 7.d. Set forth below are the policies and procedures in place to safeguard and oversee the protection of Sigma X2 Participant confidential trading information.

SEPARATION OF SYSTEMS AND EMPLOYEES:

The Sigma X2 matching engine is physically separate from other GSCO systems as it is hosted and operated by Ocean on a daily basis (i.e., Sigma X2 does not share rack space with any other GSCO systems). Similarly, the Sigma X2 matching engine and order entry servers are on separate hardware from other systems hosted/operated by Ocean. Additionally, the Ocean employees that are responsible for the daily operation of Sigma X2 and that have access to the Sigma X2 order book are in a separate physical location from GSCO employees.

GSCO employees with access to real-time Participant confidential trading information are in a different physical location on the floor, separate from GSCO principal trading employees.

THIRD PARTY ACCESS PROTECTIONS:

Certain Ocean and Nasdaq employees have access to Participant confidential trading information. Such employees include Ocean and Nasdaq staff from Compliance, Operations, Technology Development (including trading and surrounding systems), Product Management, and Business Management. The confidential trading information consists of information regarding individual orders and executions, names of Participants, and volume of orders in Sigma X2.

Ocean's policies and procedures employ a three-pronged approach to permission access to Sigma X2. First, an employee must complete compliance training specific to the Ocean business unit. Second, an Ocean employee must request, and Ocean Compliance must approve, access to each specific system based on the employee's designated role and responsibilities. Third, once approved, the Ocean employee must complete Ocean's annual Compliance training.

Ocean employees that have access to confidential trading information are subject to Ocean's "~~Information Barriers and Conflict Management~~Compliance Policies and Procedures."

All Ocean employees are subject to Nasdaq's Global Trading Policy ("GTP"), which outlines all requirements and restrictions related to personal trading activity including holding periods, annual attestations, IPO restrictions and a prohibited list. Ocean employees are required to disclose personal investment and brokerage accounts, positions, and transactions. Nasdaq's Global Ethics Team monitors personal trade activities against the GTP.

Ocean also conducts electronic communications reviews to identify policy violations including non-compliance with the above referenced policies and procedures.

GSCO has the right to audit Ocean's operation of Sigma X2, including Ocean's access to and use of Participant confidential trading information either through audits conducted by GSCO's own audit team or by third-party auditors. Such audits may be conducted on-site or off-site.

Ocean also is obligated to notify GSCO of any actual or suspected unauthorized access to confidential information, which includes Participant confidential trading information, in a timely manner.

GSCO ACCESS PROTECTIONS:

Access to Sigma X2 is controlled through permission configurations that provide application access only to entitled users (i.e., users who require access to information to carry out designated

duties and responsibilities as described in Part II, Item 7.d. below). Access entitlements are approved by designated supervisors and documented, tracked and monitored. Designated supervisors attest periodically, via an electronic system, that procedures designed to safeguard and protect Participant confidential trading information were followed. Such procedures include reviews of organizational structure including any new or transferred employees as well as reviews of any personal account trades and any related firm/divisional policy violations (as described below).

GSCO employees with access to the Sigma X2 order book are prohibited from writing code (i.e., order handling logic) for the GSCO SOR and GSCO algorithms.

GSCO also has detailed written firm-wide and divisional policies and procedures designed to monitor and limit employee personal trading globally. As such, they are applicable to The Goldman Sachs Group, Inc. and all of its affiliates and, accordingly, are applicable to all GSCO employees, including those with duties and responsibilities related to Sigma X2. Specifically, GSCO employees are prohibited from engaging in personal trading activity that, among other things, would conflict with or appear to conflict with client business or negatively impact client service or trading outcomes. To address potential conflicts of interest GSCO employs personal trading controls including the following: (i) requiring disclosure of all covered personal trading accounts for activity monitoring purposes; (ii) requiring supervisor pre-approval before trading in single name securities; and (iii) restricting or performing enhanced reviews of personal trading in certain financial instruments. Goldman Sachs FICC and Equities, within which Sigma X2 is operated within GSCO, also has a policy that provides general guidelines for limits on personal trading volumes in single name securities. The policy is applicable to all employees within Goldman Sachs FICC and Equities, including employees that have duties and responsibilities related to Sigma X2 (e.g., Supervision (including GSET managers), GSET Engineers, and GSCO and ~~GSI~~GSCO Affiliate Execution Coverage employees described in Part II, Item 7.d). Control-side and other employee groups described in Part II, Item 7.d (Compliance, Legal, Internal Audit, Operations) are subject to more restrictive policies regarding trading in single name securities (i.e., with limited exceptions, such employees may not transact in single name securities). GSCO supervisors must escalate personal trades if there is an appearance of impropriety (e.g., potential front-running). Additionally, GSCO employees are only allowed to use external brokerage accounts under certain terms and conditions and only with approved brokers. Finally, GSCO employee trades in certain products (e.g., single name securities) are subject to a 30-day holding period.

On an annual basis, GSCO employees (including those with duties and responsibilities related to Sigma X2) participate in compliance training that addresses information protection and client confidentiality. Additionally, on a firm-wide basis GSCO continuously monitors electronic communications to identify potential policy violations.

- d. Provide a summary of the roles and responsibilities of any Persons that have access to confidential trading information, the confidential trading information that is accessible by them, and the basis for the access.**

Subject to the written safeguards and procedures described above, access to Participant confidential trading information is limited to those Persons with a "need to know" such information, as defined in response to Part II, Item 7.a. In particular, with respect to GSCO, ~~and Ocean~~ ~~and GSI~~, such access by personnel and systems is permissioned when necessary to perform duties and responsibilities for Sigma X2. Persons with access to Participant confidential trading information, including the basis for such access, are outlined below.

OCEAN PERSONNEL

To perform operational, compliance, surveillance, recordkeeping, and regulatory reporting responsibilities, certain designated Ocean employees (approximately a dozen) require access to Sigma X2 trading information. Particular Ocean business personnel include:

Ocean Operations - Dedicated Operations personnel are responsible for the day-to-day technical and market operations of Sigma X2. To perform these responsibilities, Operations personnel have access to intraday and historical order and execution event data via various system applications, including OceanView, and have access to client set up data via the Configuration API.

Ocean Compliance - Dedicated Compliance personnel are responsible for surveillance of Sigma X2 using the SMARTS application and for managing access requests and entitlements for Ocean systems. Such Compliance personnel also are responsible for Ocean's compliance with ~~the~~ Ocean's ~~"Information Barriers and Conflict Management~~ Compliance Policies and Procedures." To perform these responsibilities, such Compliance personnel have access to intraday and historical order and execution event data.

Ocean CORE Technology - Dedicated CORE Technology personnel are responsible for development and maintenance of software related to the core/matching functionality of Sigma X2. To perform these responsibilities, CORE Technology personnel have access to intraday and historical order-event data via CORE stream.

Ocean Surrounding Technology - Surrounding Technology personnel have responsibilities for the development, maintenance, and operation of downstream applications that consume data from Sigma X2 for purposes of surveillance, regulatory reporting, and recordkeeping. Personnel have access to intraday and historical order-event data via various system applications, including OceanView. Personnel also have access to client set up data via the Configuration API.

Ocean Business and Product Management - Dedicated Business and Product Management personnel are responsible for overarching management and coordination of Ocean teams (Operations/Compliance/CORE/Surrounding). For these purposes, such personnel have access to intraday and historical order-event data via various systems applications, including OceanView.

GSCO EMPLOYEES: OCEANVIEW LIAISONS & DEDICATED GSET ENGINEERS

Designated "OceanView Liaisons": Supervisory, GSET Engineers, Operations and Compliance - A defined and limited group of designated GSCO employees who have responsibilities for providing supervisory, operational, or compliance support specific to Sigma X2 have access to

the order book via Ocean's "OceanView" GUI. Support responsibilities may include liaising with Ocean, performing various technical functions, and troubleshooting.

Dedicated GSET Engineers - A designated subset of engineers dedicated to the Sigma X2 business who perform execution quality and mark-out profile analysis requiring information access on a (T+1) delayed basis. For these purposes, such personnel have access to Participant identities and execution information but do not have real-time access to the Sigma X2 order book.

GSCO EMPLOYEES: OTHER SUPPORT

Support employees referenced below are not entitled to access the Sigma X2 order book.

Execution Coverage - Through an order management system, designated sales employees have access to order and execution information for the Indirect Subscribers to whom they provide coverage. Access to Indirect Subscriber order information is necessary for the purpose of providing sales and execution services, and their access to such information is no different than their ability to see orders that are routed to other market venues. Designated sales employees also have access to delayed (at least T+1) and aggregated execution information for the Direct and/or Indirect Subscribers to whom they provide coverage.

GSET Engineers - As discussed above, pursuant to an agreement with GSCO, Ocean operates and supports the technology platform for Sigma X2 subject to the oversight of GSCO as the Broker-Dealer Operator (See Part II, Item 6.b., above). Certain engineering employees monitor Sigma X2's performance for purposes of measuring execution quality, performing mark-out profile analyses (as described further in Part III, Item 13), and related analytical functions. These employees have development and maintenance responsibilities for GSCO trading platforms, execution algorithms, order routing, data stores, and systems that feed GSCO middle and back office and have visibility into order routing destinations (whether principal and/or client flow), including routing to Sigma X2.

Operations - GSCO Operations employees perform various operational support functions including regulatory reporting and trade booking. Such employees can access Participant trading execution information in order to provide operational support, or perform specific responsibilities such as trade booking and regulatory reporting.

Supervisory Coverage - Designated employees who perform supervisory oversight of GSET business activities and Sigma X2. These designated supervisory employees have as needed access to order and execution information to provide supervisory oversight responsibilities.

Legal, Compliance, Internal Audit/Compliance Testing "Control Side Employees" -Designated employees assigned to GSCO's various Compliance, Legal, and Internal Audit/Compliance Testing divisions and who have control side, audit, and regulatory responsibilities may access Participant information to provide regulatory and compliance support, and address regulatory examinations and inquiries where warranted.

Segmentation Governance Working Group - Certain designated employees from Compliance, Dedicated GSET Engineers, Designated OceanView Liaisons, Execution Coverage, and Supervision, all described above, meet on a periodic basis to review and discuss Participants' Counterparty Classification designations (as described in Part III, Item 13). This group reviews and discusses the results of the GSCO objective mark-out analysis (as described in Part III, Item 13).

GSCO AFFILIATES PERSONNEL

GSCO Affiliates, as ~~an~~ Indirect Subscribers to Sigma X2, ~~has~~ have access to ~~its~~ their own principal and client trading information. Similar to the coverage team for GSCO Execution, GSCO Affiliate employees have access to order and execution information for the clients on whose behalf they provide coverage, including execution services in Sigma X2 that are facilitated by GSCO acting as agent for GSCO Affiliates.

GSCO AND GSCO AFFILIATES' SYSTEMS

GSCO has systems, applications and databases that contain Participant confidential trading information. Specifically, with regard to systems, GSCO has order and execution management systems, algorithms, a SOR and a DMA System that have real-time order and execution information to support the transmission of orders, executions and related information to and from Sigma X2.

Participant confidential trading information is maintained in GSCO central databases as well as the applications used to access those database, e.g., SMARTS and OceanView. These databases and applications contain real-time and delayed order and execution information. The information in these databases is used to comply with books and records requirements, regulatory reporting requirements, and for monitoring and surveillance. GSCO also derives information from these databases to satisfy Participants' requests for their individual activity in Sigma X2, as described in Part III, Item 13.d, as well as to provide Participants with aggregated and anonymized information about overall activity in Sigma X2, as described in Part III, Item 26. Finally, GSCO Execution Coverage may also receive information from these databases regarding the activity of the specific Participants for whom they provide coverage.

GSCO Affiliates also ~~has~~ have systems, applications and databases that contain Participant confidential trading information (real-time and delayed order and execution information); namely, the orders in NMS Stocks sent to, and executions received from, GSCO, which acts as agent for GSCO Affiliates in connection with Sigma X2 activity. GSCO Affiliates uses the information in a manner similar to GSCO, i.e., for the same above-described purposes.

Both GSCO and GSCO Affiliates limit access to their systems, applications and databases to persons with a "need to know" such information to perform their specific duties and responsibilities as defined in Part II, Item 7.a. This policy, which is global, is enforced through entitlement access procedures.

OCEAN SYSTEMS

Ocean, in its role of hosting, operating and supporting the technology platform for Sigma X2, also maintains systems, applications and databases that contain Participant confidential trading information. For example, Ocean maintains the Sigma X2 order book, SMARTS, and OceanView, which include real-time and delayed order and execution information. Separately, Ocean also maintains applications and databases that contain real-time and delayed order and execution information to assist GSCO with other functions including regulatory reporting (e.g., ~~OCATS~~ and trade reporting) and surveillance.

Like GSCO and ~~GSI~~GSCO Affiliates, Ocean has a "need to know" policy and entitlement access procedures.

Part III

Item 5: Means of Entry

- c. **Are there any other means for entering orders and trading interest into the NMS Stock ATS (e.g., smart order router, algorithm, order management system, sales desk)?**

If yes, identify and explain the other means for entering orders and trading interest, indicate whether the means are provided through the Broker-Dealer Operator, either by itself or through a third-party contracting with the Broker-Dealer Operator, or through an Affiliate of the Broker-Dealer Operator, and list and provide a summary of the terms and conditions for entering orders or trading interest into the ATS through these means.

Indirect Subscribers can enter and access Firm and Conditional order types at Sigma X2 via non-ATS GSCO offered products and services, which may include:

- i. GSCO algorithms, which accept parent-level orders and can send portions of such orders (i.e., child orders) to GSCO's SOR. GSCO's SOR may route such orders to Sigma X2 or other market centers, as described below;
- ii. The GSCO SOR (hosted in Carteret and NY4), which can route various orders to Sigma X2 or other market centers or may route directed orders to Sigma X2; and
- iii. The GSCO DMA System, which GSCO clients may use to direct orders to Sigma X2 or other market centers using their own algorithms, i.e., non-GSCO algorithms. Orders routed via the GSCO DMA System do not pass through, and are not known by, GSCO's SOR.

Firm and Conditional orders sent to Sigma X2 by Indirect Subscribers, ~~GSI~~GSCO Affiliates, and GSCO business units via GSCO algorithms and the GSCO SOR are sent directly to Sigma X2 once the routing decision is made by the GSCO SOR, and use a FIX connection and the same FIX protocol as described in the response to Part III, Item 5.a. above.