

D. E. Shaw & Co. (London), LLP

Annual Summary of Execution Arrangements

30 April 2019

Introduction

D. E. Shaw & Co. (London), LLP (the “Partnership”) is a member of the D. E. Shaw group, a global investment and technology development firm. The Partnership is authorized and regulated by the Financial Conduct Authority (the “FCA”) in the United Kingdom. The Partnership provides investment management services to D. E. Shaw & Co., L.P. (“DESCO LP”), its indirect parent company, and certain of DESCO LP’s investment advisory subsidiaries, which services are for the benefit of certain affiliated private investment funds and separately managed accounts (collectively, the “Funds”). DESCO LP is a U.S.-based investment adviser registered with and regulated by the United States Securities and Exchange Commission.

COBS 11.2A of the FCA Handbook (the “FCA Rule”) implements the requirements set out in Article 27(6) of Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments (“MiFID II”). Pursuant to these requirements, a firm such as the Partnership that executes client orders must summarize and make public on an annual basis, for each relevant class of financial instruments, the top five execution venues in terms of trading volumes on which it executed client orders in the preceding year, together with information on the quality of execution obtained. In addition, a firm such as the Partnership that provides the service of portfolio management to its clients must, per Article 65 of Commission Delegated Regulation (EU) 2017/565 of 25 April 2016, summarize and make public on an annual basis, for each relevant class of financial instruments, the top five firms in terms of trading volumes to which it transmitted or with which it placed client orders for execution in the preceding year, and information on the quality of execution obtained. This report summarizes and provides such information in relation to the Partnership’s order execution activities during the period from 1 January 2018 to 31 December 2018 (the “Report Period”). This report applies solely to order execution activity undertaken by the Partnership and does not address the order execution activities of any other member of the D. E. Shaw group.

Order Execution Practices

The Partnership may execute client orders by placing orders and executing transactions directly on an execution venue, or indirectly by placing an order with a broker that subsequently executes the order. The Partnership generally considers both direct (where available) and indirect execution when determining the optimal execution strategy for an order.

Generally, the Partnership is authorized by its clients to determine the execution venue or broker to be used for transactions executed by the Partnership on behalf of a Fund. In selecting such execution venues or brokers, the Partnership is required by MiFID II and the FCA Rule to take all sufficient steps to obtain the best possible results for its clients. The Partnership is not required to solicit competitive bids, and does not have an obligation to seek the lowest available commission cost. The price offered by an execution venue or broker, including commissions and commission equivalents, if any, and other transaction costs, is normally an important factor in this decision, but the Partnership's execution venue or broker selection also takes into account the prevailing market conditions at the time of an order and the overall quality of the execution services offered, including without limitation factors such as: execution capability, including speed and likelihood of execution; willingness and ability to commit capital; creditworthiness and financial stability; clearance and settlement capability; and ability to maintain confidentiality. The relative importance that the Partnership generally assigns to various execution factors in connection with the execution of orders in different classes of financial instruments is summarized in the Annexes to this report.

The Partnership is required by MiFID II and the FCA Rule to take into account the following criteria when determining the relative importance of the execution factors described above:

- the client's characteristics, including the client's categorization;
- the characteristics of the relevant orders;
- the characteristics of the instruments or products that are the subject of the relevant orders; and
- the characteristics of the broker through which, and the execution venues on or with which, those orders can be executed.

The Partnership's clients are DESCO LP and certain of its investment advisory subsidiaries, each of which is classified as a professional client for the purposes of MiFID II and the FCA Rule. These clients have delegated discretion to the Partnership to execute orders on behalf of the Funds, each of which would be classified as a professional client if it was a client of the Partnership. The Partnership considers the characteristics of both its client and the relevant Fund when executing orders. The Partnership's order execution arrangements do not vary for any class of financial instrument based upon client categorization, given that all of the Partnership's clients are professional clients. The Partnership does not execute orders for retail clients and does not operate separate order execution arrangements for retail clients.

The Partnership deploys a variety of trading strategies on behalf of its clients and executes orders involving different financial instruments in a range of asset classes. The Partnership maintains relationships with numerous execution venues and brokers to enable it to take all sufficient steps to obtain the best possible results across the full scope of its trading activities. The order execution policies and processes operated by the Partnership provide for a significant degree of flexibility in deciding which execution factors are to be taken into account in respect of a particular order. This flexibility is required to facilitate execution decisions that are appropriate to the size and nature of an order and that take into account prevailing market conditions at the time of an order and all relevant execution factors, such as the desire to minimize the market impact of

the transaction.

The applicable Fund pays any exchange fees and/or commissions associated with orders executed by the Partnership on behalf of such Fund, regardless of the class of financial instrument to which the order relates. Neither the Partnership nor the Funds make payments (other than settlement price, which may include transaction costs) to, or receive payments (in the form of discounts, rebates, or otherwise) from, execution venues or brokers in connection with the execution of orders by the Partnership. The Partnership may receive minor non-monetary benefits, such as market commentary, from its brokers and other counterparties in accordance with MiFID II. The Partnership does not believe that the receipt of such minor non-monetary benefits induces the Partnership to make execution decisions that are inconsistent with its obligation to obtain the best possible result for its clients.

The Partnership may pass orders to DESCO LP or DESCO LP's Hong Kong-based subsidiary, D. E. Shaw & Co. (Asia Pacific) Limited ("DESCO AP"), for DESCO LP or DESCO AP to execute on an execution venue or with a broker. The Partnership typically uses DESCO LP in this capacity in connection with orders involving financial instruments, in any asset class, traded on North American execution venues to leverage DESCO LP's expertise and familiarity with such instruments and venues. The Partnership typically utilizes DESCO AP in this capacity in connection with orders involving instruments traded in Asia for analogous reasons. With the exception of DESCO LP's indirect ownership of a substantial majority of the Partnership's voting and capital rights, and ownership of all of the equity of DESCO AP, the Partnership is not aware of close links or common ownerships between itself (and/or its affiliates) and the execution venues or brokers it uses to execute orders. Similarly, the Partnership is not aware of conflicts of interest between it (or its affiliates) and such execution venues or brokers that would impair its ability to obtain, when executing orders, the best possible result for its clients.

Order Execution Monitoring

The Partnership conducts periodic reviews of its order execution activities utilizing both quantitative and qualitative data to monitor the quality of the execution obtained. Based on the periodic reviews conducted in respect of the Report Period, the Partnership believes that:

- the execution venues and brokers covered by its order execution policy have the capabilities necessary to efficiently execute orders across the full range of asset classes traded by the Partnership on behalf of the Funds;
- the Partnership maintains relationships with a sufficient number of execution venues and brokers, given the extent and nature of its trading activities;
- the commissions charged by the brokers it uses to execute orders are reasonable and consistent with, or more favorable than, standard market rates;
- the Partnership is not overly dependent on a single execution venue or broker for classes of financial instruments that it trades actively; and
- its selection of execution venues and brokers resulted in the overarching best possible results for its clients during the Report Period.

Certain of the Partnership's employees responsible for order placement have reviewed data relating to execution quality published by key execution venues and brokers utilized by the Partnership. The review and analysis of such data did not have a material impact on the Partnership's order execution practices during the Report Period. The Partnership did not utilize the output of a consolidated tape provider, because no such provider has been established in Europe. The Partnership's periodic reviews of its order execution results inform the Partnership's decisions as to the execution venues and brokers that it utilizes when executing orders on behalf of the Funds. During the Report Period, the Partnership initiated relationships with new execution venues and brokers for orders relating to instruments in various equity, equity derivatives, and debt asset classes. These new relationships were commenced primarily for the specialization of the execution venues and brokers in particular instruments, markets, or geographies, and/or their ability to source inventory or market flow. The Partnership terminated its relationships with various execution venues and brokers for orders relating to equities, equity derivatives, bonds, and credit derivatives during the Report Period, primarily as a result of infrequent use of the execution venue or broker.

Execution Factors and Execution Venues

The Annexes to this report include tables for each of the classes of financial instrument identified in MiFID II, as well as a class of instruments labeled “Non-EU Equities” (consisting of equity instruments traded on trading venues outside of the EU which have not, therefore, been assigned a liquidity band), setting out (i) the relative importance that the Partnership assigned to the various execution factors in connection with the execution of orders relating to instruments in that class; (ii) the top five execution venues in terms of trading volumes for orders relating to instruments in that class executed by the Partnership during the Report Period; (iii) the top five firms in terms of trading volumes to which the Partnership transmitted or with which it placed orders for execution during the Report Period; and (iv) the top five execution venues in terms of trading volumes for all securities financing transactions involving that asset class executed by the Partnership during the Report Period. Consistent with all other aspects of this report, the tables in the Annexes relate only to order execution activity carried out by the Partnership during the Report Period and not to the order execution activities of other members of the D. E. Shaw group.

In the tables in the Annexes, each execution venue or broker is ranked by trading volume, which for securities transactions is measured by the sum of the gross market values of all orders executed with the execution venue or broker. In the case of derivatives transactions, trading volume is measured by the sum of the gross notional values of all orders executed with the execution venue or broker.

Instruments that could be reasonably categorized in more than one class of financial instrument have been assigned to the class that the Partnership believes most accurately reflects the relative importance of the execution factors for orders involving such instruments.

The legal entity identifier (LEI) of each execution venue and broker is listed after the name of the venue or broker in the tables in the Annexes.

The Partnership transacts in equity swaps typically by placing an order for an equity instrument with an executing broker and “giving up” the resulting trade to a swap counterparty in connection with entry into a swap trade. The Partnership reported these swap trades in the appropriate tables in the Annexes. The Partnership, however, does not report the order involving an equity instrument with executing brokers in the Annexes, as the swap counterparty is the party to any resulting equity trades.

A “directed order” is, for purposes of the tables in the Annexes, an order for which a particular execution venue was specified by the client prior to the execution of the order by the Partnership. None of the orders executed by the Partnership were directed orders.

Annex 1: Transactions in Financial Instruments

Section A: Equities – Shares & Depositary Receipts - Tick size liquidity bands 5 and 6 (from 2000 trades per day)

Relative Importance of Execution Factors

Rank	Execution Factor
1	Price/overall transaction cost at the given order size
=2	Ability to source inventory or market flow
=2	Willingness to execute difficult transactions
3	Reliability and accuracy
4	Quality of market colour on orders placed
5	Specialism in particular instruments, markets, or geographies
6	Minimizing adverse signaling effects

Top five execution venues (indirect execution)

Class of Instrument			Equities – Shares & Depositary Receipts - Tick size liquidity bands 5 and 6 (from 2000 trades per day)		
Notification if <1 average trade per business day in the previous year			No		
Top 5 Venues ranked in terms of volume (descending order)	Proportion of Volume traded as a percentage of total in that class	Proportion of orders executed as percentage of total in that class	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders
D. E. Shaw & Co., L.P. - TNWE6LERP1CI9IDAZB80	19%	76%	2%	0%	N/A
J.P. Morgan Securities LLC - ZBUT11V806EZRVWT807	12%	1%	0%	4%	N/A
Citigroup Global Markets Inc. - MBNUM2BPBDO7JBLYG310	11%	2%	0%	0%	N/A
Intermonte Sim S.P.A - YMUU1WGHJKORF9E36I98	11%	1%	0%	0%	N/A
Credit Suisse Securities (Europe) Limited - DL6FFRRL74S01HE2M14	8%	12%	0%	15%	N/A

Section B: Equities – Shares & Depositary Receipts - Tick size liquidity bands 3 and 4 (from 80 to 1999 trades per day)

Relative Importance of Execution Factors

Rank	Execution Factor
1	Price/overall transaction cost at the given order size
=2	Ability to source inventory or market flow
=2	Willingness to execute difficult transactions
3	Reliability and accuracy
4	Quality of market colour on orders placed
5	Specialism in particular instruments, markets, or geographies
6	Minimizing adverse signaling effects

Top five execution venues (indirect execution)

Class of Instrument			Equities – Shares & Depositary Receipts - Tick size liquidity bands 3 and 4 (from 80 to 1999 trades per day)		
Notification if <1 average trade per business day in the previous year			No		
Top 5 Venues ranked in terms of volume (descending order)	Proportion of Volume traded as a percentage of total in that class	Proportion of orders executed as percentage of total in that class	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders
Credit Suisse Securities (Europe) Limited - DL6FFRRL74S01HE2M14	27%	61%	0%	4%	N/A
Goldman Sachs & Co. LLC - FOR8UP27PHTHYVLBNG30	25%	7%	0%	0%	N/A
Citigroup Global Markets Inc. - MBNUM2BPBDO7JBLYG310	15%	9%	0%	0%	N/A
Intermonte Sim S.P.A - YMUU1WGHJKORF9E36I98	15%	7%	0%	0%	N/A
Deutsche Bank Aktiengesellschaft - 7LTWFZYICNSX8D621K86	15%	1%	0%	0%	N/A

Section C: Equities – Shares & Depositary Receipts - Tick size liquidity band 1 and 2 (from 0 to 79 trades per day)

Relative Importance of Execution Factors

Rank	Execution Factor
1	Price/overall transaction cost at the given order size
=2	Ability to source inventory or market flow
=2	Willingness to execute difficult transactions
3	Reliability and accuracy
4	Quality of market colour on orders placed
5	Specialism in particular instruments, markets, or geographies
6	Minimizing adverse signaling effects

Top five execution venues (indirect execution)

Class of Instrument			Equities – Shares & Depositary Receipts - Tick size liquidity band 1 and 2 (from 0 to 79 trades per day)		
Notification if <1 average trade per business day in the previous year			No		
Top 5 Venues ranked in terms of volume (descending order)	Proportion of Volume traded as a percentage of total in that class	Proportion of orders executed as percentage of total in that class	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders
D. E. Shaw & Co., L.P. - TNWE6LERP1CI9IDAZB80	79%	98%	0%	0%	N/A
D. E. Shaw & Co. (Asia Pacific) Limited - 549300IKAFQ7KFD49545	9%	1%	0%	0%	N/A
Citigroup Global Markets Inc. - MBNUM2BPBDO7JBLYG310	9%	1%	0%	0%	N/A
Credit Suisse International - E58DKGMJYYYJLN8C3868	2%	<1%	0%	0%	N/A
Cantor Fitzgerald Europe - 549300KM6VUHPKQLQX53	1%	<1%	0%	0%	N/A

Section D: Equities – Shares & Depositary Receipts - Non-EU Equities

Relative Importance of Execution Factors

Rank	Execution Factor
1	Price/overall transaction cost at the given order size
=2	Ability to source inventory or market flow
=2	Willingness to execute difficult transactions
3	Reliability and accuracy
4	Quality of market colour on orders placed
5	Specialism in particular instruments, markets, or geographies
6	Minimizing adverse signaling effects

Top five execution venues (indirect execution)

Class of Instrument			Equities – Shares & Depositary Receipts - Non-EU		
Notification if <1 average trade per business day in the previous year			No		
Top 5 Venues ranked in terms of volume (descending order)	Proportion of Volume traded as a percentage of total in that class	Proportion of orders executed as percentage of total in that class	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders
D. E. Shaw & Co., L.P. - TNWE6LERP1CI9IDAZB80	97%	96%	0%	0%	N/A
Barclays Bank Plc - G5GSEF7VJP5I7OUK5573	2%	1%	0%	0%	N/A
Credit Suisse Securities (USA) LLC - 1V8Y6QCX6YMJ2OELI146	1%	3%	0%	0%	N/A

Section E: Debt instruments - Bonds

Relative Importance of Execution Factors

Rank	Execution Factor
1	Price/overall transaction cost at the given order size
2	Liquidity
3	Specialism in particular instruments, markets, or geographies
4	Reliability and accuracy
5	Ability to provide hedging

Top five execution venues (direct execution)

Class of Instrument			Debt instruments - Bonds		
Notification if <1 average trade per business day in the previous year			Yes		
Top 5 Venues ranked in terms of volume (descending order)	Proportion of Volume traded as a percentage of total in that class	Proportion of orders executed as percentage of total in that class	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders
Credit Suisse AG - ANGGYXNX0JLX3XG3JN86	100%	100%	0%	0%	N/A

Top five execution venues (indirect execution)

Class of Instrument			Debt instruments - Bonds		
Notification if <1 average trade per business day in the previous year			Yes		
Top 5 Venues ranked in terms of volume (descending order)	Proportion of Volume traded as a percentage of total in that class	Proportion of orders executed as percentage of total in that class	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders
Credit Suisse Securities (Europe) Limited - DL6FFRRLF74S01HE2M14	10%	3%	0%	0%	N/A
JP Morgan Chase Bank, National Association - 7H6GLXDRUGQFU57RNE97	10%	10%	0%	0%	N/A
Citigroup Global Markets Limited - XKZZ2JZF41MRHTR1V493	9%	6%	0%	0%	N/A
Standard Chartered Bank - RILFO74KP1CM8P6PCT96	8%	1%	0%	0%	N/A
Societe Generale - O2RNE8IBXP4R0TD8PU41	7%	3%	0%	0%	N/A

Section F: Interest rate derivatives – Futures and options admitted to trading on a trading venue

Relative Importance of Execution Factors

Rank	Execution Factor
1	Price/overall transaction cost at the given order size
2	Liquidity

Top five execution venues (indirect execution)

Class of Instrument			Interest rate derivatives – Futures and options admitted to trading on a trading venue		
Notification if <1 average trade per business day in the previous year			No		
Top 5 Venues ranked in terms of volume (descending order)	Proportion of Volume traded as a percentage of total in that class	Proportion of orders executed as percentage of total in that class	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders
D. E. Shaw & Co., L.P. - TNWE6LERP1CI9IDAZB80	73%	92%	0%	0%	N/A
Deutsche Bank Aktiengesellschaft - 7LTFWZYICNSX8D621K86	16%	3%	0%	3%	N/A
Barclays Capital Inc. - AC28XWWI3WIBK2824319	7%	4%	0%	3%	N/A
Merrill Lynch International - GGDZP1UYGU9STUHRDP48	4%	1%	0%	0%	N/A
Goldman Sachs & Co. LLC - FOR8UP27PHTHYVLBN30	<1%	<1%	0%	0%	N/A

Section G: Interest rate derivatives – Swaps, forwards, and other interest rate derivatives

Relative Importance of Execution Factors

Rank	Execution Factor
1	Price/overall transaction cost at the given order size
2	Liquidity

Top five execution venues (direct execution)

Class of Instrument			Interest rate derivatives – Swaps, forwards, and other interest rate derivatives		
Notification if <1 average trade per business day in the previous year			Yes		
Top 5 Venues ranked in terms of volume (descending order)	Proportion of Volume traded as a percentage of total in that class	Proportion of orders executed as percentage of total in that class	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders
Morgan Stanley - IGJ5JL3JD5P3016NJZ34	100%	57%	0%	0%	N/A
Barclays Capital Inc. - AC28XWWI3WIBK2824319	<1%	43%	0%	0%	N/A

Section H: Credit derivatives – Other credit derivatives

Relative Importance of Execution Factors (non-swap transactions)

Rank	Execution Factor
1	Price/overall transaction cost at the given order size
2	Liquidity
3	Ability to source inventory or market flow

Relative Importance of Execution Factors (swap transactions)

Rank	Execution Factor
1	Price/overall transaction cost at the given order size
2	Liquidity
=3	Portfolio optimization
=3	Ability to provide leverage

Top five execution venues (direct execution)

Class of Instrument			Credit derivatives – Other credit derivatives		
Notification if <1 average trade per business day in the previous year			Yes		
Top 5 Venues ranked in terms of volume (descending order)	Proportion of Volume traded as a percentage of total in that class	Proportion of orders executed as percentage of total in that class	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders
Credit Suisse International - E58DKGMJYYYJLN8C3868	68%	41%	0%	0%	N/A
JP Morgan Chase Bank, National Association - 7H6GLXDRUGQFU57RNE97	14%	12%	0%	0%	N/A
BNP Paribas - ROMUWSFPU8MPRO8K5P83	9%	20%	0%	0%	N/A
Citibank, National Association - E57ODZWZ7FF32TWEFA76	6%	2%	0%	0%	N/A
Deutsche Bank Aktiengesellschaft - 7LTFWZYICNSX8D621K86	1%	2%	0%	0%	N/A

Section I: Currency derivatives – Swaps, forwards, and other currency derivatives

Relative Importance of Execution Factors

Rank	Execution Factor
1	Price/overall transaction cost at the given order size

Top five execution venues (direct execution)

Class of Instrument			Currency derivatives – Swaps, forwards, and other currency derivatives		
Notification if <1 average trade per business day in the previous year			Yes		
Top 5 Venues ranked in terms of volume (descending order)	Proportion of Volume traded as a percentage of total in that class	Proportion of orders executed as percentage of total in that class	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders
Deutsche Bank Aktiengesellschaft - 7LWTFZYICNSX8D621K86	40%	39%	10%	8%	N/A
Morgan Stanley - IGJSJL3JD5P30I6NJZ34	39%	5%	0%	0%	N/A
Bank Of America, National Association - B4TYDEB6GKMZO031MB27	11%	43%	9%	9%	N/A
JP Morgan Chase Bank, National Association - 7H6GLXDRUGQFU57RNE97	4%	2%	0%	0%	N/A
Citibank, National Association - E57ODZWZ7FF32TWEFA76	3%	3%	0%	0%	N/A

Section J: Equity Derivatives - Options and Futures admitted to trading on a trading venue

Relative Importance of Execution Factors

Rank	Execution Factor
1	Price/overall transaction cost at the given order size
2	Liquidity
3	Speed of execution

Top five execution venues (direct execution)

Class of Instrument			Equity Derivatives - Options and Futures admitted to trading on a trading venue		
Notification if <1 average trade per business day in the previous year			No		
Top 5 Venues ranked in terms of volume (descending order)	Proportion of Volume traded as a percentage of total in that class	Proportion of orders executed as percentage of total in that class	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders
UBS AG - BFM8T61CT2L1QCEMIK50	16%	3%	0%	0%	N/A
Credit Suisse International - E58DKGMJYJYL8C3868	13%	2%	0%	0%	N/A
D. E. Shaw & Co., L.P. - TNWE6LERP1CI9IDAZB80	11%	84%	2%	1%	N/A
Banco Bilbao Vizcaya Argentaria Sociedad Anonima - K8MS7FD7N5Z2WQ51AZ71	10%	2%	0%	0%	N/A
Morgan Stanley & Co. International Plc - 4PQUHN3JPFQFN3BB653	9%	2%	0%	0%	N/A

Top five execution venues (indirect execution)

Class of Instrument			Equity Derivatives - Options and Futures admitted to trading on a trading venue		
Notification if <1 average trade per business day in the previous year			No		
Top 5 Venues ranked in terms of volume (descending order)	Proportion of Volume traded as a percentage of total in that class	Proportion of orders executed as percentage of total in that class	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders
Merrill Lynch International - GGDZP1UYGU9STUHRDP48	41%	33%	0%	5%	N/A
D. E. Shaw & Co., L.P. - TNWE6LERP1CI9IDAZB80	29%	44%	0%	0%	N/A
Deutsche Bank Aktiengesellschaft - 7LWTFZYICNSX8D621K86	15%	4%	0%	0%	N/A
Cantor Fitzgerald Europe - 549300KM6VUHPKQLQX53	6%	10%	0%	0%	N/A
Barclays Bank Plc - G5GSEF7VJP5I7OUK5573	4%	2%	0%	0%	N/A

Section K: Equity Derivatives – Swaps, forwards, and other equity derivatives

Relative Importance of Execution Factors (forwards and other equity derivatives transaction)

Rank	Execution Factor
1	Price/overall transaction cost at the given order size
=2	Liquidity
=2	Willingness to execute difficult transactions
=2	Ability to source inventory or market flow
=3	Reliability and accuracy
=3	Speed of execution
4	Quality of market colour on orders placed
5	Specialism in particular instruments, markets, or geographies
6	Minimizing adverse signaling effects

Relative Importance of Execution Factors (swap transactions)

Rank	Execution Factor
1	Price/overall transaction cost at the given order size
2	Liquidity
=3	Portfolio optimization
=3	Ability to provide leverage

Top five execution venues (direct execution)

Class of Instrument			Equity Derivatives – Swaps, forwards, and other equity derivatives		
Notification if <1 average trade per business day in the previous year			No		
Top 5 Venues ranked in terms of volume (descending order)	Proportion of Volume traded as a percentage of total in that class	Proportion of orders executed as percentage of total in that class	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders
Deutsche Bank Aktiengesellschaft - 7LWTFZYICNSX8D621K86	50%	10%	0%	2%	N/A
Barclays Bank Plc - G5GSEF7VJP5I7OUK5573	8%	7%	0%	3%	N/A
Citibank, National Association - E57ODZWZ7FF32TWEFA76	8%	5%	0%	8%	N/A
Merrill Lynch International - GGDZP1UYGU9STUHRDP48	5%	3%	1%	5%	N/A
HSBC Bank Plc - MP6I5ZYZBEU3UXPYFY54	4%	8%	0%	14%	N/A

Top five execution venues (indirect execution)

Class of Instrument			Equity Derivatives - Swaps and other equity derivatives		
Notification if <1 average trade per business day in the previous year			No		
Top 5 Venues ranked in terms of volume (descending order)	Proportion of Volume traded as a percentage of total in that class	Proportion of orders executed as percentage of total in that class	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders
Merrill Lynch International - GGDZP1UYGU9STUHRDP48	48%	16%	0%	0%	N/A
BNP Paribas - R0MUWSFPU8MPRO8K5P83	20%	12%	0%	0%	N/A
Morgan Stanley & Co. International Plc - 4PQUHN3JPFGFNF3BB653	8%	6%	0%	0%	N/A
Cantor Fitzgerald Europe - 549300KM6VUHPKQLQX53	4%	4%	0%	0%	N/A
Banco Bilbao Vizcaya Argentaria Sociedad Anonima - K8MS7FD7N5Z2WQ51AZ71	4%	9%	0%	0%	N/A

Section L: Commodities derivatives and emission allowances derivatives - Options and Futures admitted to trading on a trading venue

Relative Importance of Execution Factors

Rank	Execution Factor
1	Price/overall transaction cost at the given order size
2	Liquidity
3	Access to products

Top five execution venues (indirect execution)

Class of Instrument			Commodities derivatives and emission allowances derivatives - Options and Futures admitted to trading on a trading venue		
Notification if <1 average trade per business day in the previous year			No		
Top 5 Venues ranked in terms of volume (descending order)	Proportion of Volume traded as a percentage of total in that class	Proportion of orders executed as percentage of total in that class	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders
D. E. Shaw & Co., L.P. - TNWE6LERP1CI9IDAZB80	44%	10%	1%	0%	N/A
Barclays Capital Inc. - AC28XWWI3WIBK2824319	21%	1%	0%	4%	N/A
Tullett Prebon (Securities) Limited - 549300BMVW85YF9FGN67	10%	4%	0%	0%	N/A
Morgan Stanley & Co. LLC - 9R7GPTSO7KV3UQJZQ078	10%	77%	0%	0%	N/A
J.P. Morgan Securities Plc - K6Q0W1PS1L1O4IQL9C32	8%	2%	0%	0%	N/A

Section M: Commodities derivatives and emission allowances derivatives - Other commodities derivatives and emission allowances derivatives

Relative Importance of Execution Factors

Rank	Execution Factor
1	Price/overall transaction cost at the given order size
2	Liquidity
3	Access to products

Top five execution venues (indirect execution)

Class of Instrument			Commodities derivatives and emission allowances derivatives - Other commodities derivatives and emission allowances derivatives		
Notification if <1 average trade per business day in the previous year			No		
Top 5 Venues ranked in terms of volume (descending order)	Proportion of Volume traded as a percentage of total in that class	Proportion of orders executed as percentage of total in that class	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders
Merrill Lynch International - GGDZP1UYGU9STUHRDP48	54%	51%	0%	0%	N/A
TFS Derivatives Limited - 549300WXUYR1CMLDQF25	17%	6%	0%	0%	N/A
Morgan Stanley & Co. LLC - 9R7GPTSO7KV3UQJZQ078	12%	34%	0%	0%	N/A
ICAP Energy AS - 549300ESJXOU0F7S8014	6%	3%	0%	0%	N/A
Tullett Prebon (Europe) Limited - 549300MU2MYJLOY6IJ51	4%	<1%	0%	0%	N/A

Annex 2: Securities Financing Transactions

Relative Importance of Execution Factors

Rank	Execution Factor
1	Price/overall transaction cost at the given order size
2	Liquidity
=3	Portfolio optimization
=3	Ability to provide leverage

Top five execution venues

Class of Instrument		Equities – Shares & Depositary Receipts - Tick size liquidity bands 5 and 6 (from 2000 trades per day)	
Notification if <1 average trade per business day in the previous year		No	
Top 5 Venues ranked in terms of volume (descending order)	Proportion of volume executed as a percentage of total in that class	Proportion of orders executed as percentage of total in that class	
Barclays Bank Plc - G5GSEF7VJP5I7OUK5573	30%	26%	
Deutsche Bank Aktiengesellschaft - 7LWTFZYICNSX8D621K86	20%	46%	
Citibank, National Association - E57ODZWZ7FF32TWEFA76	10%	6%	
UBS Securities LLC - T6FIZBDPKLYJKFCRVK44	7%	4%	
Goldman Sachs & Co. LLC - FOR8UP27PHTHYVLBNG30	6%	3%	

Class of Instrument	Equities – Shares & Depositary Receipts - Tick size liquidity bands 3 and 4 (from 80 to 1999 trades per day)	
Notification if <1 average trade per business day in the previous year	No	
Top 5 Venues ranked in terms of volume (descending order)	Proportion of volume executed as a percentage of total in that class	Proportion of orders executed as percentage of total in that class
Deutsche Bank Aktiengesellschaft - 7LTFWZYICNSX8D621K86	41%	35%
Citibank, National Association - E57ODZWZ7FF32TWEFA76	29%	7%
Barclays Bank Plc - G5GSEF7VJP5I7OUK5573	16%	54%
UBS Securities LLC - T6FIZBDPKLYJKFCRVK44	6%	1%
JP Morgan Chase Bank, National Association - 7H6GLXDRUGQFU57RNE97	4%	<1%

Class of Instrument		Equities – Shares & Depositary Receipts - Tick size liquidity band 1 and 2 (from 0 to 79 trades per day)	
Notification if <1 average trade per business day in the previous year		No	
Top 5 Venues ranked in terms of volume (descending order)	Proportion of volume executed as a percentage of total in that class	Proportion of orders executed as percentage of total in that class	
Citibank, National Association - E57ODZWZ7FF32TWEFA76	42%	29%	
Credit Suisse Securities (Europe) Limited - DL6FFRRLF74S01HE2M14	16%	37%	
Deutsche Bank Aktiengesellschaft - 7LWTFZYICNSX8D621K86	14%	11%	
Natixis - KX1WK48MPD4Y2NCUIZ63	8%	3%	
Societe Generale - O2RNE8IBXP4R0TD8PU41	6%	2%	

Class of Instrument		Equities – Shares & Depositary Receipts - Non-EU	
Notification if <1 average trade per business day in the previous year		No	
Top 5 Venues ranked in terms of volume (descending order)	Proportion of volume executed as a percentage of total in that class	Proportion of orders executed as percentage of total in that class	
Citibank, National Association - E57ODZWZ7FF32TWEFA76	54%	41%	
HSBC Bank Plc - MP6I5YZBEU3UXPYFY54	23%	39%	
Credit Suisse Securities (Europe) Limited - DL6FFRRLF74S01HE2M14	21%	16%	
Barclays Bank Plc - G5GSEF7VJP5I7OUK5573	1%	5%	