



capstone



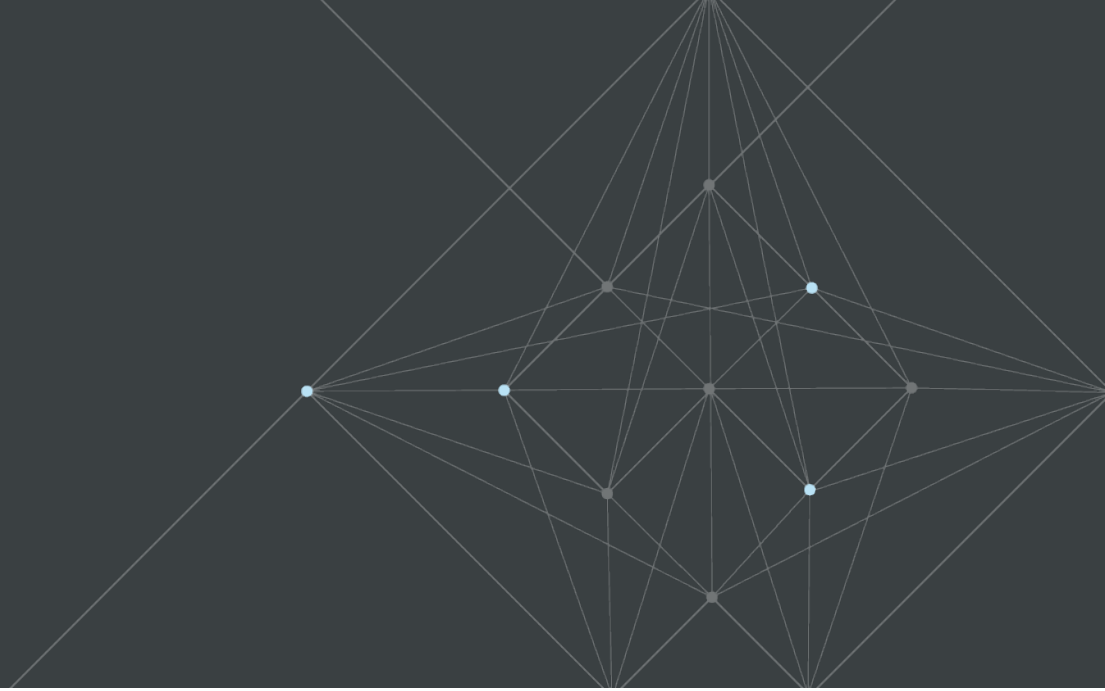
# Capstone Investment Advisors (UK), LLP

April 2019

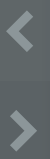




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# Annual Best Execution Disclosure – FY 2018



## Overview

On an annual basis, Capstone Investment Advisors (UK), LLP (“Capstone UK”) or (“the Firm”) is required to provide disclosures around the execution venues utilized for each asset class, and certain information on the quality of execution.

The Markets in Financial Instruments Directive and Markets in Financial Instruments Regulation (together, “MiFID II”) and Regulatory Technical Standard (Delegated Regulation (EU) 2017/576) (“RTS 28”) require MiFID investment firms to publish on an annual basis:

- i) a list of their top five execution venues in terms of trading volumes for all executed client orders per class of financial instrument;
- ii) a list of their top five execution venues in terms of trading volumes for all executed client orders in securities financing transaction per class of financial instruments and for each class of financial instrument; and
- iii.) a summary of the analysis and conclusions they draw from their monitoring of the quality of execution obtained on execution venues where they executed all client orders in the previous year.

Article 65(6) of the MiFID II Delegated Regulation 2017/565 requires the publication of equivalent information relating to firms to which Capstone UK transmitted or placed client orders for execution (brokers) in the previous year. Capstone UK’s quantitative best execution data is therefore divided between brokers and venues.

All of Capstone UK’s clients are categorised as professional clients under Article 4(1)(10) of Directive 2014/65/EU. The Firm generally uses internal analysis to monitor the quality of execution against our best execution criteria. We conduct regular reviews of our chosen execution venues / brokers against Capstone’s global Best Execution Policy, and may at our discretion, remove those which we believe are no longer offering us best execution.

Capstone UK only places orders to be executed with approved counterparties. The Firm’s list of approved counterparties is reviewed regularly and changes over time in-line with Capstone’s global Best Execution Policy.

A Best Execution Committee meeting is held at least semi-annually to review adherence to the Firm’s global Best Execution Policy.

All figures shown herein are displayed in United States Dollars (\$USD). Capstone UK’s RTS 28 Quality of Execution Report for fiscal year 2017 aggregated counterparty data at the parent company level. Pursuant to guidance released by the Financial Conduct Authority on 29/06/2018<sup>1</sup>, Capstone UK has adjusted its methodology for the fiscal year 2018 RTS Quality of Execution Report, and all forthcoming reports, barring a material change in guidance. As such, all counterparty data herein is grouped at the LEI level.

Where no data is provided for a given class of financial instrument or execution method, this is because such trading was not relevant to Capstone UK’s activities for the year in review.

<sup>1</sup><https://www.handbook.fca.org.uk/handbook/COBS/11/Annex1EU.html>



# Overview (continued)

## MiFID II Annual Best Execution Review

<b>General Observations</b>	As part of Capstone UK's fiduciary duty to its clients, and in line with its Best Execution Policy and FCA rules, Capstone UK has an obligation to seek the best results on a consistent basis for its clients. Capstone acts in the best interest of its clients when placing orders with other entities for execution. Capstone monitors the effectiveness of its order execution arrangements to identify and, where necessary, correct any deficiencies. The various methods of analysis employed, both qualitative and quantitative, are reviewed periodically throughout the year during the Firm's Best Execution Committee meetings. There were no deficiencies or material issues identified during 2018. There was no single counterparty favored compared to others.	
<b>Execution Factors</b>	<p style="text-align: center;"><b>Summary of Analysis</b></p> <p>To ensure that Capstone UK takes all reasonable steps to obtain the best possible result for its client(s) it has considered the relative importance of the execution factors listed below:</p> <ul style="list-style-type: none"> <li>• Listed bids and asks;</li> <li>• The opportunity for price improvement;</li> <li>• Transaction costs;</li> <li>• Anonymity;</li> <li>• Liquidity;</li> <li>• Speed of execution;</li> <li>• Expertise with difficult Securities;</li> <li>• Trading style and strategy;</li> <li>• Geographic location;</li> <li>• Frequency of errors; and</li> <li>• Access to new issues.</li> </ul>	<p style="text-align: center;"><b>Conclusion</b></p> <p>During 2018, Capstone's overarching execution process was based on these execution factors and criteria, as detailed further by Capstone's Best Execution Policy. Given that Capstone primarily trades in highly liquid securities, in the majority of cases, Capstone would generally use the broker which offers the best price and liquidity. Capstone's Best Execution Committee conducted multiple reviews of its executing brokers throughout 2018. No issues were noted. All Capstone UK investment professionals provided sufficient documentation and rationale to justify the various counterparty relationships they maintain.</p>
<b>Use of data or tools relating to the quality of execution, including data published under RTS 27 (Article 3(3)(g) of RTS 28)</b>	The Firm monitors execution internally via proprietary tools and analysis to determine the most appropriate execution arrangements for its clients. In line with its Best Execution Policy, the Firm continuously strives to maintain a robust and multi-faceted best execution monitoring program that employs a variety of qualitative and quantitative analyses. The Firm was satisfied with the takeaways from its best execution reviews during 2018, and thus the various tools and data used in the reviews.	
<b>Close links, conflicts of interest and common ownership with respect to execution venues</b>	<p><b>Close Links</b> Capstone UK has no close links to report.</p> <p><b>Conflicts of Interest</b> Capstone UK has no conflicts of interest to report.</p> <p><b>Common Ownership</b> Capstone UK has no common ownership to report.</p>	<p><b>Close Links</b> N/A</p> <p><b>Conflicts of Interest</b> None. In the event a conflict of interest arises, such conflicts will be handled in accordance with the Firm's policies and procedures as set forth in the Firm's Compliance Manual.</p> <p><b>Common Ownership</b> The Firm is not aware of any common ownership with the execution venues or brokers it utilizes to execute client orders.</p>
<b>Specific arrangements with execution venues regarding payments made or received, discounts, rebates, or non-monetary benefits received</b>	Capstone UK has no arrangements to report. N/A	
<b>Factors leading to a change in the list of execution venues/brokers listed in the firm's Best Execution Policy</b>	Various changes were made to Capstone UK's counterparty relationships. All counterparty additions/removals during 2018 were made in the best interest of Capstone's clients. There were no material incidents prompting the removal of a given counterparty. All added counterparties were on-boarded for legitimate business purposes, and the rationale justifying their addition is well documented. Counterparties were added or removed following review and approval by Capstone's Best Execution Committee. Among other factors, the review seeks to examine competency of the counterparty in question, effectiveness of the relationship, conflicts of interest, etc. Any removals were made as business decisions, typically for reasons around infrequent use of a given counterparty. No material issues in 2018.	
<b>Differentiation across client categories</b>	In line with Capstone's Trade Allocation and Best Execution Policies, Capstone UK seeks to treat all of its private funds consistently, and seeks to ensure that no fund is favored over another when executing. No material issues in 2018.	

## Equities – Shares and Depositary Receipts: Tick Size Liquidity Bands 5 and 6

### Equities - Shares and Depositary Receipts: Tick size liquidity bands 5 and 6 (from 2,000 trades per day): Top Five BROKERS Ranked in Terms of Trading Volumes:

	LEI	Venue	Percent of Volume	Percent of Order Count	Percent of Passive Orders	Percentage of Aggressive Orders	Percentage of Directed Orders
1	GGDZP1UYGU9STUHRDP48	Merrill Lynch International	86.63%	65.80%	N/A	N/A	N/A
2	W22LROWP2IHZNBB6K528	Goldman Sachs International	5.05%	19.23%	N/A	N/A	N/A
3	G5GSEF7VJP5I7OUK5573	Barclays Bank PLC	3.41%	0.00%	N/A	N/A	N/A
4	KD3XUN7C6T14HNAYLU02	Goldman Sachs Bank USA	1.46%	14.87%	N/A	N/A	N/A
5	2FL5XIC1B8Q6HNGN6A35	Exane Derivatives SNC	0.87%	0.00%	N/A	N/A	N/A

Notification if <1 average trade per business day: No

### Equities - Shares and Depositary Receipts: Tick size liquidity bands 5 and 6 (from 2,000 trades per day): Top Five VENUES Ranked in Terms of Trading Volumes:

	LEI	Venue	Percent of Volume	Percent of Order Count	Percent of Passive Orders	Percentage of Aggressive Orders	Percentage of Directed Orders
1	7LTWFZYICNSX8D621K86	Deutsche Bank Aktiengesellschaft	53.11%	50.00%	N/A	N/A	N/A
2	GGDZP1UYGU9STUHRDP48	Merrill Lynch International	24.36%	10.94%	N/A	N/A	N/A
3	FOR8UP27PHTHVYLBNG30	Goldman Sachs & Co LLC	5.79%	18.75%	N/A	N/A	N/A
4	XKZZ2JZF41MRHTR1V493	Citigroup Global Markets Ltd.	5.30%	1.56%	N/A	N/A	N/A
5	K6Q0W1PS1L1O4IQL9C32	JP Morgan Securities PLC	4.18%	6.25%	N/A	N/A	N/A

Notification if <1 average trade per business day: No

### Execution Factors:

Given that the Firm primarily trades in highly liquid securities, in the majority of cases the Firm would generally use the broker which offers the best price and liquidity. Depending on market liquidity and a variety of other factors, additional considerations may be made in the interest of achieving best execution. Such considerations are permitted to be taken into account at the discretion of the relevant investment professional as is appropriate for the size and nature of the relevant order, and the conditions of the market in which such order is being executed in.

Based on the Firm's best execution monitoring during 2018, and taking into account the relevant execution factors for a given trade(s), the Firm is satisfied that it achieved best execution for this Instrument Class.

## Equities – Shares and Depositary Receipts: Tick Size Liquidity Bands 3 and 4

### Equities - Shares and Depositary Receipts: Tick size liquidity bands 3 and 4 (from 80 to 1,999 trades per day): Top Five BROKERS Ranked in Terms of Trading Volumes:

	LEI	Venue	Percent of Volume	Percent of Order Count	Percent of Passive Orders	Percentage of Aggressive Orders	Percentage of Directed Orders
1	KD3XUN7C6T14HNAYLU02	Goldman Sachs Bank USA	74.25%	87.39%	N/A	N/A	N/A
2	W22LROWP2IHZNBB6K528	Goldman Sachs International	9.72%	8.35%	N/A	N/A	N/A
3	G5GSEF7VJP5I7OUK5573	Barclays Bank PLC	3.37%	0.00%	N/A	N/A	N/A
4	FOR8UP27PHTHYVLBNG30	Goldman Sachs & Co LLC	3.31%	3.03%	N/A	N/A	N/A
5	4PQUHN3JPFGFNF3BB653	Morgan Stanley & Co. International PLC	2.69%	0.01%	N/A	N/A	N/A

Notification if <1 average trade per business day: No

### Equities - Shares and Depositary Receipts: Tick size liquidity bands 3 and 4 (from 80 to 1,999 trades per day): Top Five VENUES Ranked in Terms of Trading Volumes:

	LEI	Venue	Percent of Volume	Percent of Order Count	Percent of Passive Orders	Percentage of Aggressive Orders	Percentage of Directed Orders
1	7LTWFZYICNSX8D621K86	Deutsche Bank Aktiengesellschaft	87.34%	28.57%	N/A	N/A	N/A
2	FOR8UP27PHTHYVLBNG30	Goldman Sachs & Co LLC	7.56%	42.86%	N/A	N/A	N/A
3	529900UC2OD7II24Z667	Joh. Berengerg, Gossler & Co. KG	2.61%	14.29%	N/A	N/A	N/A
4	GGDZP1UYGU9STUHRDP48	Merrill Lynch International	2.48%	14.29%	N/A	N/A	N/A
5	-	-	-	-	-	-	-

Notification if <1 average trade per business day: No

### Execution Factors:

Given that the Firm primarily trades in highly liquid securities, in the majority of cases the Firm would generally use the broker which offers the best price and liquidity. Depending on market liquidity and a variety of other factors, additional considerations may be made in the interest of achieving best execution. Such considerations are permitted to be taken into account at the discretion of the relevant investment professional as is appropriate for the size and nature of the relevant order, and the conditions of the market in which such order is being executed in.

Based on the Firm's best execution monitoring during 2018, and taking into account the relevant execution factors for a given trade(s), the Firm is satisfied that it achieved best execution for this Instrument Class.

## Equities – Shares and Depositary Receipts: Tick Size Liquidity Bands 1 and 2

### Equities - Shares and Depositary Receipts: Tick size liquidity bands 1 and 2 (from 0 to 79 trades per day): Top Five BROKERS Ranked in Terms of Trading Volumes:

	LEI	Venue	Percent of Volume	Percent of Order Count	Percent of Passive Orders	Percentage of Aggressive Orders	Percentage of Directed Orders
1	KD3XUN7C6T14HNAYLU02	Goldman Sachs Bank USA	59.06%	91.50%	N/A	N/A	N/A
2	W22LROWP2IHZNBB6K528	Goldman Sachs International	19.57%	1.19%	N/A	N/A	N/A
3	XKZZZJZF41MRHTR1V493	Citigroup Global Markets Ltd.	2.74%	0.00%	N/A	N/A	N/A
4	G7WFA3G3MT5YHH8CHG81	SMBC Nikko Capital Markets Ltd	2.55%	0.02%	N/A	N/A	N/A
5	GGDZP1UYGU9STUHRDP48	Merrill Lynch International	2.36%	4.47%	N/A	N/A	N/A

Notification if <1 average trade per business day: No

### Equities - Shares and Depositary Receipts: Tick size liquidity bands 1 and 2 (from 0 to 79 trades per day): Top Five VENUES Ranked in Terms of Trading Volumes:

	LEI	Venue	Percent of Volume	Percent of Order Count	Percent of Passive Orders	Percentage of Aggressive Orders	Percentage of Directed Orders
1	DGQCSV2PHVF7I2743539	Nomura International PLC	71.95%	38.10%	N/A	N/A	N/A
2	7LTWFZYICNSX8D621K86	Deutsche Bank Aktiengesellschaft	16.86%	23.81%	N/A	N/A	N/A
3	ANGGYXNX0JLX3X63JN86	Credit Suisse AG	4.54%	4.76%	N/A	N/A	N/A
4	GGDZP1UYGU9STUHRDP48	Merrill Lynch International	3.53%	4.76%	N/A	N/A	N/A
5	G7WFA3G3MT5YHH8CHG81	SMBC Nikko Capital Markets Ltd	3.12%	28.57%	N/A	N/A	N/A

Notification if <1 average trade per business day: No

### Execution Factors:

Given that the Firm primarily trades in highly liquid securities, in the majority of cases the Firm would generally use the broker which offers the best price and liquidity. Depending on market liquidity and a variety of other factors, additional considerations may be made in the interest of achieving best execution. Such considerations are permitted to be taken into account at the discretion of the relevant investment professional as is appropriate for the size and nature of the relevant order, and the conditions of the market in which such order is being executed in.

Based on the Firm's best execution monitoring during 2018, and taking into account the relevant execution factors for a given trade(s), the Firm is satisfied that it achieved best execution for this Instrument Class.

## Debt Instruments - Bonds

### Debt Instruments - Bonds: Top Five BROKERS Ranked in Terms of Trading Volumes:

	LEI	Venue	Percent of Volume	Percent of Order Count	Percent of Passive Orders	Percentage of Aggressive Orders	Percentage of Directed Orders
1	W22LROWP2IHZNBB6K528	Goldman Sachs International	18.02%	24.63%	N/A	N/A	N/A
2	7H6GLXDRUGQFU57RNE97	JPMorgan Chase Bank, National Association	16.40%	10.65%	N/A	N/A	N/A
3	B4TYDEB6GKMZO031MB27	Bank of America, National Association	14.67%	11.36%	N/A	N/A	N/A
4	K9WDOH4D2PYBSLSOB484	Barclays Capital Securities Limited	11.60%	10.43%	N/A	N/A	N/A
5	549300G8NIYYSMVM6211	ICAP Securities USA LLC	5.14%	6.23%	N/A	N/A	N/A

Notification if <1 average trade per business day: No

### Debt Instruments - Bonds: Top Five VENUES Ranked in Terms of Trading Volumes:

	LEI	Venue	Percent of Volume	Percent of Order Count	Percent of Passive Orders	Percentage of Aggressive Orders	Percentage of Directed Orders
1	B4TYDEB6GKMZO031MB27	Bank of America, National Association	47.44%	48.00%	N/A	N/A	N/A
2	W22LROWP2IHZNBB6K528	Goldman Sachs International	26.98%	31.81%	N/A	N/A	N/A
3	7H6GLXDRUGQFU57RNE97	JPMorgan Chase Bank, National Association	5.96%	3.58%	N/A	N/A	N/A
4	K9WDOH4D2PYBSLSOB484	Barclays Capital Securities Limited	4.99%	3.40%	N/A	N/A	N/A
5	4PQUHN3JPFQFN3BB653	Morgan Stanley & Co. International PLC	2.35%	1.12%	N/A	N/A	N/A

Notification if <1 average trade per business day: No

### Execution Factors:

Given that the Firm primarily trades in highly liquid securities, in the majority of cases the Firm would generally use the broker which offers the best price and liquidity. Depending on market liquidity and a variety of other factors, additional considerations may be made in the interest of achieving best execution. Such considerations are permitted to be taken into account at the discretion of the relevant investment professional as is appropriate for the size and nature of the relevant order, and the conditions of the market in which such order is being executed in.

Based on the Firm's best execution monitoring during 2018, and taking into account the relevant execution factors for a given trade(s), the Firm is satisfied that it achieved best execution for this Instrument Class.



## Interest Rate Derivatives – Futures and Options Admitted to Trading on a Trading Venue

### Interest Rate Derivatives - Futures and Options Admitted to Trading on a Trading Venue: Top Five BROKERS Ranked in Terms of Trading Volumes:

	LEI	Venue	Percent of Volume	Percent of Order Count	Percent of Passive Orders	Percentage of Aggressive Orders	Percentage of Directed Orders
1	G5GSEF7VJP5I7OUK5573	Barclays Bank PLC	42.72%	62.51%	N/A	N/A	N/A
2	7LTWFZYICNSX8D621K86	Deutsche Bank Aktiengesellschaft	10.96%	34.79%	N/A	N/A	N/A
3	1ZU7M6R6N6PXYJ6VOC83	Kyte Broking Ltd	10.08%	0.17%	N/A	N/A	N/A
4	213800TPPPTYLS8Z364	Mako Financial Markets Partnership LLP	8.18%	0.24%	N/A	N/A	N/A
5	549300WYFIFDMB6POR04	JB Drax Honore UK Ltd	4.91%	0.25%	N/A	N/A	N/A

Notification if <1 average trade per business day: No

### Interest Rate Derivatives - Futures and Options Admitted to Trading on a Trading Venue: Top Five VENUES Ranked in Terms of Trading Volumes:

	LEI	Venue	Percent of Volume	Percent of Order Count	Percent of Passive Orders	Percentage of Aggressive Orders	Percentage of Directed Orders
1	B4TYDEB6GKMZO031MB27	Bank of America, National Association	43.39%	28.93%	N/A	N/A	N/A
2	W22LROWP2IHZNBB6K528	Goldman Sachs International	35.86%	64.72%	N/A	N/A	N/A
3	BFM8T61CT2L1QCEMIK50	UBS AG	10.12%	1.52%	N/A	N/A	N/A
4	R0MUWSFPU8MPRO8K5P83	BNP Paribas SA	3.82%	0.76%	N/A	N/A	N/A
5	4PQUHN3JPFQFN3BB653	Morgan Stanley & Co. International PLC	3.44%	0.51%	N/A	N/A	N/A

Notification if <1 average trade per business day: No

### Execution Factors:

Given that the Firm primarily trades in highly liquid securities, in the majority of cases the Firm would generally use the broker which offers the best price and liquidity. Depending on market liquidity and a variety of other factors, additional considerations may be made in the interest of achieving best execution. Such considerations are permitted to be taken into account at the discretion of the relevant investment professional as is appropriate for the size and nature of the relevant order, and the conditions of the market in which such order is being executed in.

Based on the Firm's best execution monitoring during 2018, and taking into account the relevant execution factors for a given trade(s), the Firm is satisfied that it achieved best execution for this Instrument Class.

## Interest Rate Derivatives – Swaps, Forwards, and Other Interest Rate Derivatives

### Interest Rate Derivatives - Swaps, Forwards, and Other Interest Rate Derivatives: Top Five BROKERS Ranked in Terms of Trading Volumes:

	LEI	Venue	Percent of Volume	Percent of Order Count	Percent of Passive Orders	Percentage of Aggressive Orders	Percentage of Directed Orders
1	R0MUWSFPU8MPRO8K5P83	BNP Paribas SA	35.16%	9.09%	N/A	N/A	N/A
2	9J6MBOOO07BECTDTUZW19	Deutsche Bank Securities Inc.	28.87%	45.45%	N/A	N/A	N/A
3	G5GSEF7VJP5I7OUK5573	Barclays Bank PLC	25.31%	18.18%	N/A	N/A	N/A
4	7H6GLXDRUGQFU57RNE97	JPMorgan Chase Bank, National Association	5.36%	9.09%	N/A	N/A	N/A
5	7LTFWZYICNSX8D621K86	Deutsche Bank Aktiengesellschaft	4.10%	9.09%	N/A	N/A	N/A

Notification if <1 average trade per business day: No

### Interest Rate Derivatives - Swaps, Forwards, and Other Interest Rate Derivatives: Top Five VENUES Ranked in Terms of Trading Volumes:

	LEI	Venue	Percent of Volume	Percent of Order Count	Percent of Passive Orders	Percentage of Aggressive Orders	Percentage of Directed Orders
1	7H6GLXDRUGQFU57RNE97	JPMorgan Chase Bank, National Association	12.91%	12.43%	N/A	N/A	N/A
2	E570DZWZ7FF32TWEFA76	Citibank NA	12.67%	12.52%	N/A	N/A	N/A
3	G5GSEF7VJP5I7OUK5573	Barclays Bank PLC	11.54%	15.27%	N/A	N/A	N/A
4	GGDZP1UYGU9STUHRDP48	Merrill Lynch International	11.27%	8.95%	N/A	N/A	N/A
5	W22LROWP2IHZNBB6K528	Goldman Sachs International	7.14%	6.96%	N/A	N/A	N/A

Notification if <1 average trade per business day: No

### Execution Factors:

Given that the Firm primarily trades in highly liquid securities, in the majority of cases the Firm would generally use the broker which offers the best price and liquidity. Depending on market liquidity and a variety of other factors, additional considerations may be made in the interest of achieving best execution. Such considerations are permitted to be taken into account at the discretion of the relevant investment professional as is appropriate for the size and nature of the relevant order, and the conditions of the market in which such order is being executed in.

Based on the Firm's best execution monitoring during 2018, and taking into account the relevant execution factors for a given trade(s), the Firm is satisfied that it achieved best execution for this Instrument Class.

## Credit Derivatives – Other Credit Derivatives

### Credit Derivatives - Other Credit Derivatives: Top Five BROKERS Ranked in Terms of Trading Volumes:

	LEI	Venue	Percent of Volume	Percent of Order Count	Percent of Passive Orders	Percentage of Aggressive Orders	Percentage of Directed Orders
1	W22LROWP2IHZNBB6K528	Goldman Sachs International	24.84%	17.02%	N/A	N/A	N/A
2	7LTFWZYICNSX8D621K86	Deutsche Bank Aktiengesellschaft	23.90%	34.04%	N/A	N/A	N/A
3	ROMUWSFPU8MPRO8K5P83	BNP Paribas SA	16.15%	8.51%	N/A	N/A	N/A
4	G5GSEF7VJP5I7OUK5573	Barclays Bank PLC	10.33%	14.89%	N/A	N/A	N/A
5	E57ODZWZ7FF32TWEFA76	Citibank NA	7.34%	8.51%	N/A	N/A	N/A

Notification if <1 average trade per business day: No

### Credit Derivatives - Other Credit Derivatives: Top Five VENUES Ranked in Terms of Trading Volumes:

	LEI	Venue	Percent of Volume	Percent of Order Count	Percent of Passive Orders	Percentage of Aggressive Orders	Percentage of Directed Orders
1	7LTFWZYICNSX8D621K86	Deutsche Bank Aktiengesellschaft	30.99%	35.46%	N/A	N/A	N/A
2	E57ODZWZ7FF32TWEFA76	Citibank NA	16.78%	8.76%	N/A	N/A	N/A
3	ROMUWSFPU8MPRO8K5P83	BNP Paribas SA	13.91%	12.35%	N/A	N/A	N/A
4	OIKLU6X1B10WK7X42C15	Societe Generale International Limited	11.89%	11.16%	N/A	N/A	N/A
5	W22LROWP2IHZNBB6K528	Goldman Sachs International	10.63%	8.76%	N/A	N/A	N/A

Notification if <1 average trade per business day: No

### Execution Factors:

Given that the Firm primarily trades in highly liquid securities, in the majority of cases the Firm would generally use the broker which offers the best price and liquidity. Depending on market liquidity and a variety of other factors, additional considerations may be made in the interest of achieving best execution. Such considerations are permitted to be taken into account at the discretion of the relevant investment professional as is appropriate for the size and nature of the relevant order, and the conditions of the market in which such order is being executed in.

Based on the Firm's best execution monitoring during 2018, and taking into account the relevant execution factors for a given trade(s), the Firm is satisfied that it achieved best execution for this Instrument Class.

## Currency Derivatives – Futures and Options Admitted to Trading on a Trading Venue

### Currency Derivatives - Futures and Options Admitted to Trading on a Trading Venue: Top Five BROKERS Ranked in Terms of Trading Volumes:

	LEI	Venue	Percent of Volume	Percent of Order Count	Percent of Passive Orders	Percentage of Aggressive Orders	Percentage of Directed Orders
1	549300WYFIFDMB6POR04	JB Drax Honore UK Ltd	18.09%	9.32%	N/A	N/A	N/A
2	RR3QWICWWIPCS8A4S074	NatWest Markets PLC	14.06%	16.10%	N/A	N/A	N/A
3	0IKLU6X1B10WK7X42C15	Societe Generale International Limited	13.65%	12.71%	N/A	N/A	N/A
4	7H6GLXDRUGQFU57RNE97	JPMorgan Chase Bank, National Association	9.17%	9.32%	N/A	N/A	N/A
5	1VUV7VQFKUOQSJ21A208	Credit Agricole CIB SA	8.05%	11.02%	N/A	N/A	N/A

Notification if <1 average trade per business day: No

### Currency Derivatives - Swaps, Forwards, and other Currency Derivatives: Top Five VENUES Ranked in Terms of Trading Volumes:

	LEI	Venue	Percent of Volume	Percent of Order Count	Percent of Passive Orders	Percentage of Aggressive Orders	Percentage of Directed Orders
1	RR3QWICWWIPCS8A4S074	Natwest Markets PLC	14.83%	15.94%	N/A	N/A	N/A
2	W22LROWP2IHZNBB6K528	Goldman Sachs International	13.01%	10.61%	N/A	N/A	N/A
3	7H6GLXDRUGQFU57RNE97	JPMorgan Chase Bank, National Association	7.71%	8.24%	N/A	N/A	N/A
4	7LTFWZYICNSX8D621K86	Deutsche Bank Aktiengesellschaft	7.15%	3.99%	N/A	N/A	N/A
5	0IKLU6X1B10WK7X42C15	Societe Generale International Limited	6.20%	12.23%	N/A	N/A	N/A

Notification if <1 average trade per business day: No

### Execution Factors:

Given that the Firm primarily trades in highly liquid securities, in the majority of cases the Firm would generally use the broker which offers the best price and liquidity. Depending on market liquidity and a variety of other factors, additional considerations may be made in the interest of achieving best execution. Such considerations are permitted to be taken into account at the discretion of the relevant investment professional as is appropriate for the size and nature of the relevant order, and the conditions of the market in which such order is being executed in.

Based on the Firm's best execution monitoring during 2018, and taking into account the relevant execution factors for a given trade(s), the Firm is satisfied that it achieved best execution for this Instrument Class.

## Equity Derivatives – Options and Futures Admitted to Trading on a Trading Venue

### Equity Derivatives - Options and Futures Admitted to Trading on a Trading Venue: Top Five BROKERS Ranked in Terms of Trading Volumes:

	LEI	Venue	Percent of Volume	Percent of Order Count	Percent of Passive Orders	Percentage of Aggressive Orders	Percentage of Directed Orders
1	R0MUWSFPU8MPRO8K5P83	BNP Paribas SA	26.67%	0.08%	N/A	N/A	N/A
2	W22LROWP2IHZNBB6K528	Goldman Sachs International	24.11%	59.47%	N/A	N/A	N/A
3	7LTWFZYICNSX8D621K86	Deutsche Bank Aktiengesellschaft	12.45%	0.05%	N/A	N/A	N/A
4	T6FIZBDPKLYJKFCRVK44	UBS Securities LLC	11.84%	0.01%	N/A	N/A	N/A
5	0IKLU6X1B10WK7X42C15	Societe Generale International Limited	7.25%	0.06%	N/A	N/A	N/A

Notification if <1 average trade per business day: No

### Equity Derivatives - Options and Futures Admitted to Trading on a Trading Venue: Top Five VENUES Ranked in Terms of Trading Volumes:

	LEI	Venue	Percent of Volume	Percent of Order Count	Percent of Passive Orders	Percentage of Aggressive Orders	Percentage of Directed Orders
1	T6FIZBDPKLYJKFCRVK44	UBS Securities LLC	83.50%	2.26%	N/A	N/A	N/A
2	GGDZP1UYGU9STUHRDP48	Merrill Lynch International	3.14%	15.04%	N/A	N/A	N/A
3	4PQUHN3JPFGFNF3BB653	Morgan Stanley & Co. International PLC	2.37%	6.02%	N/A	N/A	N/A
4	K6Q0W1PS1L1O4IQL9C32	JP Morgan Securities PLC	2.18%	9.77%	N/A	N/A	N/A
5	R0MUWSFPU8MPRO8K5P83	BNP Paribas SA	1.73%	9.02%	N/A	N/A	N/A

Notification if <1 average trade per business day: No

### Execution Factors:

Given that the Firm primarily trades in highly liquid securities, in the majority of cases the Firm would generally use the broker which offers the best price and liquidity. Depending on market liquidity and a variety of other factors, additional considerations may be made in the interest of achieving best execution. Such considerations are permitted to be taken into account at the discretion of the relevant investment professional as is appropriate for the size and nature of the relevant order, and the conditions of the market in which such order is being executed in.

Based on the Firm's best execution monitoring during 2018, and taking into account the relevant execution factors for a given trade(s), the Firm is satisfied that it achieved best execution for this Instrument Class.

## Equity Derivatives – Swaps and Other Equity Derivatives

### Equity Derivatives - Swaps and Other Equity Derivatives: Top Five BROKERS Ranked in Terms of Trading Volumes:

	LEI	Venue	Percent of Volume	Percent of Order Count	Percent of Passive Orders	Percentage of Aggressive Orders	Percentage of Directed Orders
1	GGDZP1UYGU9STUHRDP48	Merrill Lynch International	65.23%	68.98%	N/A	N/A	N/A
2	W22LROWP2IHZNBB6K528	Goldman Sachs International	6.57%	10.82%	N/A	N/A	N/A
3	7LTFWZYICNSX8D621K86	Deutsche Bank Aktiengesellschaft	6.22%	7.16%	N/A	N/A	N/A
4	G5GSEF7VJP5I7OUK5573	Barclays Bank PLC	3.70%	0.64%	N/A	N/A	N/A
5	4PQUHN3JPFQFNF3BB653	Morgan Stanley & Co. International PLC	2.51%	0.85%	N/A	N/A	N/A

Notification if <1 average trade per business day: No

#### Execution Factors:

Given that the Firm primarily trades in highly liquid securities, in the majority of cases the Firm would generally use the broker which offers the best price and liquidity. Depending on market liquidity and a variety of other factors, additional considerations may be made in the interest of achieving best execution. Such considerations are permitted to be taken into account at the discretion of the relevant investment professional as is appropriate for the size and nature of the relevant order, and the conditions of the market in which such order is being executed in.

Based on the Firm's best execution monitoring during 2018, and taking into account the relevant execution factors for a given trade(s), the Firm is satisfied that it achieved best execution for this Instrument Class.

## Commodities Derivatives – Options and Futures Admitted to Trading on a Trading Venue

### Commodity Derivatives and Emission Allowances Derivatives: Top Five BROKERS Ranked in Terms of Trading Volumes:

	LEI	Venue	Percent of Volume	Percent of Order Count	Percent of Passive Orders	Percentage of Aggressive Orders	Percentage of Directed Orders
1	W22LROWP2IHZNBB6K528	Goldman Sachs International	42.08%	69.70%	N/A	N/A	N/A
2	7H6GLXDRUGQFU57RNE97	JPMorgan Chase Bank, National Association	35.29%	19.70%	N/A	N/A	N/A
3	B4TYDEB6GKMZO031MB27	Bank of America, National Association	19.91%	9.09%	N/A	N/A	N/A
4	2138007ZHUXSGBB53N72	Vantage Capital Markets LLP	2.71%	1.52%	N/A	N/A	N/A
5	-	-	-	-	-	-	-

Notification if <1 average trade per business day: No

### Execution Factors:

Given that the Firm primarily trades in highly liquid securities, in the majority of cases the Firm would generally use the broker which offers the best price and liquidity. Depending on market liquidity and a variety of other factors, additional considerations may be made in the interest of achieving best execution. Such considerations are permitted to be taken into account at the discretion of the relevant investment professional as is appropriate for the size and nature of the relevant order, and the conditions of the market in which such order is being executed in.

Based on the Firm's best execution monitoring during 2018, and taking into account the relevant execution factors for a given trade(s), the Firm is satisfied that it achieved best execution for this Instrument Class.

## Exchange Traded Products

### Exchange Traded Products (Exchange Traded Funds, Exchange Traded Notes, and Exchange Traded Commodities): Top Five BROKERS Ranked in Terms of Trading Volumes:

	LEI	Venue	Percent of Volume	Percent of Order Count	Percent of Passive Orders	Percentage of Aggressive Orders	Percentage of Directed Orders
1	KD3XUN7C6T14HNAYLU02	Goldman Sachs Bank USA	52.99%	85.93%	N/A	N/A	N/A
2	W22LROWP2IHZNBB6K528	Goldman Sachs International	20.33%	10.10%	N/A	N/A	N/A
3	969500ULCOY1IG0A4O72	Tradition Securities & Futures SA	4.14%	0.01%	N/A	N/A	N/A
4	GGDZP1UYGU9STUHRDP48	Merrill Lynch International	4.13%	2.97%	N/A	N/A	N/A
5	O2RNE8IBXP4R0TD8PU41	Societe Generale SA	2.42%	0.01%	N/A	N/A	N/A

Notification if <1 average trade per business day: No

### Exchange Traded Products (Exchange Traded Funds, Exchange Traded Notes, and Exchange Traded Commodities): Top Five VENUES Ranked in Terms of Trading Volumes:

	LEI	Venue	Percent of Volume	Percent of Order Count	Percent of Passive Orders	Percentage of Aggressive Orders	Percentage of Directed Orders
1	GGDZP1UYGU9STUHRDP48	Merrill Lynch International	26.09%	11.11%	N/A	N/A	N/A
2	K6Q0W1PS1L1O4IQL9C32	JP Morgan Securities PLC	22.98%	22.22%	N/A	N/A	N/A
3	ROMUWSFPU8MPRO8K5P83	BNP Paribas SA	15.15%	11.11%	N/A	N/A	N/A
4	G5GSEF7VJP5I7OUK5573	Barclays Bank PLC	14.98%	22.22%	N/A	N/A	N/A
5	XKZZ2JZF41MRHTR1V493	Citigroup Global Markets Ltd.	7.74%	11.11%	N/A	N/A	N/A

Notification if <1 average trade per business day: No

### Execution Factors:

Given that the Firm primarily trades in highly liquid securities, in the majority of cases the Firm would generally use the broker which offers the best price and liquidity. Depending on market liquidity and a variety of other factors, additional considerations may be made in the interest of achieving best execution. Such considerations are permitted to be taken into account at the discretion of the relevant investment professional as is appropriate for the size and nature of the relevant order, and the conditions of the market in which such order is being executed in.

Based on the Firm's best execution monitoring during 2018, and taking into account the relevant execution factors for a given trade(s), the Firm is satisfied that it achieved best execution for this Instrument Class.