

NORTHERN TRUST CAPITAL MARKETS: INSTITUTIONAL BROKERAGE

For the period 1 January 2022 to 31 December 2022

Information on the identity of execution venues and on the quality of execution under Commission Delegated Regulation (EU) 2017/576 of 8 June 2016 ('RTS 28')

a) Overview of Northern Trust Capital Markets' Institutional Brokerage execution arrangements in 2022

Northern Trust Capital Markets is comprised of a number of Northern Trust entities that provide trading and execution services on behalf of institutional clients, including foreign exchange, institutional brokerage, securities lending and transition management services. Northern Trust Capital Markets' Institutional Brokerage services are provided in the UK and EU/EEA by Northern Trust Securities LLP ('NTS LLP') and Northern Trust Global Services SE ('NTGS SE') (herein collectively 'Northern Trust Capital Markets').

NTGS SE is authorised in Luxembourg as an EU credit institution, and it is authorised by the Commission de Surveillance du Secteur Financier (CSSF) and the European Central Bank (ECB) and subject to the prudential supervision of the CSSF, ECB and the Central Bank of Luxembourg (BCL). NTGS SE provides the MiFID investment service of reception and transmission of orders on behalf of clients for Institutional Brokerage Transactions in equity and equity-like financial instruments (e.g. exchange traded funds) and debt instruments to institutional clients.

Northern Trust Securities LLP ('NTS LLP') is a MiFID Investment Firm authorised and regulated by the Financial Conduct Authority in the United Kingdom. NTS LLP provides agency brokerage services to institutional clients in equity and equity-like financial instruments (e.g. exchange traded funds) and debt instruments. NTS LLP provides the MiFID investment services of execution of orders on behalf of clients, and reception and transmission of orders in relation to one or more financial instruments. NTS LLP only provides investment services to Professional clients and Eligible counterparties and does not provide any services to Retail clients.

During 2022, NTGS SE did not execute any client orders in equity and equity-like financial instruments and debt instruments itself and instead arranged Institutional Brokerage transactions by transmitting the client orders that it received to NTS LLP for execution as described below.

NTGS SE has selected NTS LLP as its sole broker on the basis of the level of technical integration with NTGS SE's order management systems, the breadth and depth of the pre-existing market access that it offers to its clients and the wider Northern Trust group, and the extensive experience it has in supporting the trading and execution needs of institutional investors, in particular on an outsourced basis. NTS LLP may use the services of a connected party or a third party broker or dealer to assist in the execution of a client order which may be outside of the UK and/or EU/EEA. Using an affiliated or third party broker does not remove Northern Trust's Best Execution obligations and we will satisfy ourselves through the application of appropriate due diligence that the other entity has execution arrangements in place that enable us to obtain on a consistent basis the best possible result for the execution of our clients' orders.

During 2022, and as in previous years, NTS LLP executed the majority of the client orders it received by transmitting or placing all or part of the client order with one or more external brokers (the 'Order transmission destinations' or 'external brokers') who then executed the order or placement on one or more organised trading venues (e.g. regulated market, multilateral trading facility or third country equivalent).

NTS LLP also utilises its membership of a selection of EU multilateral trading facilities to allow it to execute client orders in exchange traded products and debt instruments directly on these venues rather than accessing

them through another broker. These predominately request-for-quote ('RFQ') trading platforms, allow NTS LLP to interact with a range of dealers, market makers and liquidity providers in an organised trading venue rather than over-the-counter, and allow us to seek competing quotes from a range of liquidity providers at the same time.

Finally, NTS LLP also executed client orders in both equity, and when available, debt instruments, using its "off-book trading" membership of the London Stock Exchange, either by executing a client order away from the exchange's order book and then bringing it under the rules of the exchange through an "Off-book, On Exchange" trade report, or by executing transactions away from the exchange's order book (e.g. by way of a request-for-quote) with other members of the London Stock Exchange who act as market makers in London Stock Exchange listed or traded instruments.

The external brokers used by NTS LLP in 2022 were selected, and subsequently monitored, as in previous years, in accordance with the principles described in section 6 of the Northern Trust EMEA Order Execution Policy¹. The primary objectives of NTS LLP when selecting external brokers are to ensure (a) access to the widest range of possible execution venues, (b) the ability of the external broker to manage complex orders and contribute to the overall performance of NTS LLP when executing client orders, such as through the provision of algorithmic trading strategies and program trading functionality, and (c) their ability to provide NTS LLP's traders with as much direct and near real-time control over the execution of the client order or placement as possible, ideally through the use of direct electronic access arrangements, smart order routers and algorithmic trading strategies.

In 2022, NTS LLP's execution arrangements were considered to satisfy the requirements and expectations of both the Northern Trust EMEA Order Execution Policy and MiFID II, in particular the trading obligation for shares imposed by Article 23 of MiFIR², which requires the majority of transactions executed by MiFID Investment Firms to be carried out on an organised trading venue.

Northern Trust Capital Markets therefore provides the following information on execution venues for each class of financial instrument, and where necessary sub-class of financial instrument, in which we executed client orders in 2022:

- (a) In respect of orders transmitted by Northern Trust Global Services SE ('NTGS SE') to Northern Trust Securities LLP ('NTS LLP'), the identity of the top five execution venues (i.e. trading venues and counterparties) where client orders were executed in 2022; as required by Article 27(6) of Directive 2014/65/EU.
- (b) In respect of orders given by clients of Northern Trust Global Services SE ('NTGS SE'), the identity of the top five receiving firms (i.e. external brokers) to which client orders were transmitted in 2022; as required by Article 65(6) Commission Delegated Regulation (EU) 2017/565.

¹ See further: <https://www.northerntrust.com/documents/legal/mifid/nt-order-execution-policy.pdf>

² Regulation (EU) No 600/2014 of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Regulation (EU) No 648/2012

b) Top Five Execution Venues in 2022

The following data tables have been prepared in accordance with the requirements of Article 27(6) of MiFID II and Article 3(1) of RTS 28 and show the top five venues on which client orders transmitted by NTGS SE to NTS LLP were executed in 2022 by NTS LLP for each class of financial instrument.

Class of instrument			(a) Equities - Shares and Depositary Receipts: (i) Tick size liquidity bands 5 and 6 (from 2,000 trades per day)						
Notification if < 1 average trade per business day in year			No						
Rank	MIC	Operator LEI	Execution Venue Name	% of VOLUME traded in class	% of ORDERS executed in class	% of PASSIVE orders*	% of AGGRESSIVE orders*	% of DIRECTED orders	
1	XETA	391200UOEWDQSEJ0Y74	Xetra - Regulierter Markt	17.22%	9.09%	63.07%	36.93%	0.00%	
2	XETR	391200UOEWDQSEJ0Y74	Xetra - All markets	10.24%	5.69%	59.38%	40.62%	0.00%	
3	BMTF	549300ROEJDDAXM6LU05	Bloomberg Multilateral Trading Facility	8.94%	0.15%	80.00%	20.00%	0.00%	
4	BEUP	2549007JY1TP711IMY80	Cboe Europe - DXE Periodic	7.31%	8.80%	65.50%	34.50%	0.00%	
5	XPOS	213800EEC95PRUCEUP63	ITG POSIT MTF - Dark	6.50%	1.70%	71.91%	28.09%	0.00%	
~	Remaining execution venues			49.79%	74.57%	50.35%	49.65%	0.00%	
Total				100%	100%	54%	46%	0%	

Class of instrument			(a) Equities - Shares and Depositary Receipts: (ii) Tick size liquidity bands 3 and 4 (from 80 to 1,999 trades per day)					
Notification if < 1 average trade per business day in year			No					
Rank	MIC	Operator LEI	Execution Venue Name	% of VOLUME traded in class	% of ORDERS executed in class	% of PASSIVE orders*	% of AGGRESSIVE orders*	% of DIRECTED orders
1	XLON	213800D1E4B9WTWWD28	London Stock Exchange - Regulated Market	28.74%	3.80%	57.69%	42.31%	0.00%
2	XOFF	549300EF8AZLRG0UC208	Off-Exchange Transactions - Listed Instruments	7.98%	0.09%	50.00%	50.00%	0.00%
3	XPOS	213800EEC95PRUCEUP63	ITG POSIT MTF - Dark	5.16%	1.91%	66.04%	33.96%	0.00%
4	LISZ	2549007JY1TP711IMY80	Cboe Europe - LIS Service (NL)	4.70%	0.38%	95.65%	4.35%	0.00%
5	BEUP	2549007JY1TP711IMY80	Cboe Europe - DXE Periodic	3.86%	6.14%	47.61%	52.39%	0.00%
~	Remaining execution venues			49.55%	87.67%	49.11%	50.89%	0.00%
Total				100%	100%	50%	50%	0%

Class of instrument			(a) Equities - Shares and Depositary Receipts: (iii) Tick size liquidity bands 1 and 2 (from 0 to 79 trades per day)						
Notification if < 1 average trade per business day in year			No						
Rank	MIC	Operator LEI	Execution Venue Name	% of VOLUME traded in class	% of ORDERS executed in class	% of PASSIVE orders*	% of AGGRESSIVE orders*	% of DIRECTED orders	
1	XLON	213800D1E4B9WTWWD28	London Stock Exchange - Regulated Market	45.95%	11.98%	72.90%	27.10%	0.00%	
2	TRQM	2138006SKBMJJUE2HV03	Turquoise MTF - Plato	9.37%	5.38%	93.73%	6.27%	0.00%	
3	XPOL	213800EEC95PRUCEUP63	POSIT Dark UK	8.87%	2.11%	87.45%	12.55%	0.00%	
4	BATP	254900ERRPSKE7UZH711	Cboe Europe Equities MTF - BXE Periodic Auction Book	6.38%	6.55%	81.03%	18.97%	0.00%	
5	LIQU	213800ZIRB79BE5XQM68	Liquidnet Europe MTF - Equities	4.54%	0.32%	92.00%	8.00%	0.00%	
~	Remaining execution venues			24.89%	73.67%	54.02%	45.98%	0.00%	
Total				100%	100%	63%	37%	0%	

Class of instrument			(b) Debt Instruments (i) Bonds						
Notification if < 1 average trade per business day in year			N/A - Not applicable						
Rank	MIC	Operator LEI	Execution Venue Name	% of VOLUME traded in class	% of ORDERS executed in class	% of PASSIVE orders*	% of AGGRESSIVE orders*	% of DIRECTED orders	
1	N/A	Not applicable	Not applicable	0.00%	0.00%	0.00%	0.00%	0.00%	
2	N/A	Not applicable	Not applicable	0.00%	0.00%	0.00%	0.00%	0.00%	
3	N/A	Not applicable	Not applicable	0.00%	0.00%	0.00%	0.00%	0.00%	
4	N/A	Not applicable	Not applicable	0.00%	0.00%	0.00%	0.00%	0.00%	
5	N/A	Not applicable	Not applicable	0.00%	0.00%	0.00%	0.00%	0.00%	
~	Remaining execution venues			0.00%	0.00%	0.00%	0.00%	0.00%	
Total				0%	0%	0%	0%	0%	

Class of instrument				(h) Securitized Derivatives: (i) Warrants and Certificate Derivatives					
Notification if < 1 average trade per business day in year				N/A - Not applicable					
Rank	MIC	Operator LEI	Execution Venue Name	% of VOLUME traded in class	% of ORDERS executed in class	% of PASSIVE orders*	% of AGGRESSIVE orders*	% of DIRECTED orders	
1	N/A	Not applicable	Not applicable	0.00%	0.00%	0.00%	0.00%	0.00%	
2	N/A	Not applicable	Not applicable	0.00%	0.00%	0.00%	0.00%	0.00%	
3	N/A	Not applicable	Not applicable	0.00%	0.00%	0.00%	0.00%	0.00%	
4	N/A	Not applicable	Not applicable	0.00%	0.00%	0.00%	0.00%	0.00%	
5	N/A	Not applicable	Not applicable	0.00%	0.00%	0.00%	0.00%	0.00%	
~	Remaining execution venues			0.00%	0.00%	0.00%	0.00%	0.00%	
Total				0%	0%	0%	0%	0%	

Class of instrument			(k) Exchange Traded Products (Exchange Traded Funds, Exchange Traded Notes and Exchange Traded Commodities)						
Notification if < 1 average trade per business day in year			Yes						
Rank	MIC	Operator LEI	Execution Venue Name	% of VOLUME traded in class	% of ORDERS executed in class	% of PASSIVE orders*	% of AGGRESSIVE orders*	% of DIRECTED orders	
1	BMTF	549300ROEJDDAXM6LU05	Bloomberg Multilateral Trading Facility	98.55%	75.00%	24.44%	75.56%	0.00%	
2	XLON	213800D1E4B9WTWWD28	London Stock Exchange - Regulated Market	1.29%	16.67%	100.00%	0.00%	0.00%	
3	XNAS	549300L8X1Q78ERXFD06	NASDAQ - All Markets	0.06%	1.67%	0.00%	100.00%	0.00%	
4	BATE	254900ERRPSKE7UZH711	Cboe Europe Equities MTF - BXE Integrated Book	0.05%	3.33%	100.00%	0.00%	0.00%	
5	CHIX	254900ERRPSKE7UZH711	Cboe Europe Equities MTF - CXE Integrated Book	0.05%	3.33%	100.00%	0.00%	0.00%	
~	Remaining execution venues			0.00%	0.00%	0.00%	0.00%	0.00%	
Total				100%	100%	45%	55%	0%	

Class of instrument			(m) Other Products					
Notification if < 1 average trade per business day in year			N/A - Not applicable					
Rank	MIC	Operator LEI	Execution Venue Name	% of VOLUME traded in class	% of ORDERS executed in class	% of PASSIVE orders*	% of AGGRESSIVE orders*	% of DIRECTED orders
1	N/A	Not applicable	Not applicable	0.00%	0.00%	0.00%	0.00%	0.00%
2	N/A	Not applicable	Not applicable	0.00%	0.00%	0.00%	0.00%	0.00%
3	N/A	Not applicable	Not applicable	0.00%	0.00%	0.00%	0.00%	0.00%
4	N/A	Not applicable	Not applicable	0.00%	0.00%	0.00%	0.00%	0.00%
5	N/A	Not applicable	Not applicable	0.00%	0.00%	0.00%	0.00%	0.00%
~	Remaining execution venues			0.00%	0.00%	0.00%	0.00%	0.00%
Total				0%	0%	0%	0%	0%

IMPORTANT NOTES – TOP FIVE EXECUTION VENUES

NOTE 1: 'PASSIVE' and 'AGGRESSIVE' order values for classes of instrument (a) Equity - Shares and Depository Receipts, (h) Securitized Derivatives: (i) Warrants and Certificate Derivatives, (k) Exchange Traded Products and (m) Other Products are determined based upon an assumption that for the purposes of Article 2 of Commission Delegated Regulation (EU) 2017/576 ('RTS 28') where an order is transmitted to a broker for execution rather than directly to a trading venue these values can be calculated using the execution price of each transaction instead of the order or placement itself on the basis of the following:

- (1) A transaction will be considered to be 'PASSIVE' where the execution price for that transaction is:
 - (a) for a BUY order, at a price equal to or less than the prevailing primary market MID at the time of execution; or,
 - (b) for a SELL order, at a price equal to or greater than the prevailing market MID at the time of execution.
- (2) A transaction will be considered to be 'AGGRESSIVE' where the execution price for that transaction is:
 - (a) for a BUY order, at a price greater than the prevailing primary market MID at the time of execution; or,
 - (b) for a SELL order, at a price less than the prevailing market MID at the time of execution.

NOTE 2: 'PASSIVE' and 'AGGRESSIVE' order values for class of instrument (b) Debt Instruments are not considered to be applicable due to the market structure for this class of instrument which is primarily based upon a 'request-for-quote' model rather than the 'order book' model more common

c) Top Five Order Transmission Destinations in 2022

The following data tables have been prepared in accordance with the requirements of Article 65(6) of Commission Delegated Regulation (EU) 2017/565 (the 'MiFID Org Regulation') in order to be consistent with the technical standards under Article 3(1) of RTS 28 and show the top five order transmission destinations (i.e. brokers) to which client orders were transmitted for execution in 2022 by NTGS SE for each class of financial instrument.

Class of instrument		(a) Equities - Shares and Depositary Receipts: (i) Tick size liquidity bands 5 and 6 (from 2,000 trades per day)					
Notification if < 1 average trade per business day in year		No					
Rank	Broker LEI	Broker name	% of VOLUME traded in class	% of ORDERS executed in class	% of PASSIVE orders*	% of AGGRESSIVE orders*	% of DIRECTED orders
1	549300EF8AZLRG0UC208	Northern Trust Securities LLP	100.00%	100.00%	54.23%	45.77%	0.00%
2	Not applicable	Not applicable	0.00%	0.00%	0.00%	0.00%	0.00%
3	Not applicable	Not applicable	0.00%	0.00%	0.00%	0.00%	0.00%
4	Not applicable	Not applicable	0.00%	0.00%	0.00%	0.00%	0.00%
5	Not applicable	Not applicable	0.00%	0.00%	0.00%	0.00%	0.00%
~	Remaining Order Transmission Destinations		0.00%	0.00%	0.00%	0.00%	0.00%
Total			100%	100%	54%	46%	0%

Class of instrument		(a) Equities - Shares and Depositary Receipts: (ii) Tick size liquidity bands 3 and 4 (from 80 to 1,999 trades per day)					
Notification if < 1 average trade per business day in year		No					
Rank	Broker LEI	Broker name	% of VOLUME traded in class	% of ORDERS executed in class	% of PASSIVE orders*	% of AGGRESSIVE orders*	% of DIRECTED orders
1	549300EF8AZLRG0UC208	Northern Trust Securities LLP	100.00%	100.00%	49.74%	50.26%	0.00%
2	Not applicable	Not applicable	0.00%	0.00%	0.00%	0.00%	0.00%
3	Not applicable	Not applicable	0.00%	0.00%	0.00%	0.00%	0.00%
4	Not applicable	Not applicable	0.00%	0.00%	0.00%	0.00%	0.00%
5	Not applicable	Not applicable	0.00%	0.00%	0.00%	0.00%	0.00%
~	Remaining Order Transmission Destinations		0.00%	0.00%	0.00%	0.00%	0.00%
Total			100%	100%	50%	50%	0%

Class of instrument		(a) Equities - Shares and Depositary Receipts: (iii) Tick size liquidity bands 1 and 2 (from 0 to 79 trades per day)						
Notification if < 1 average trade per business day in year		No						
Rank	Broker LEI	Broker name		% of VOLUME traded in class	% of ORDERS executed in class	% of PASSIVE orders*	% of AGGRESSIVE orders*	% of DIRECTED orders
1	549300EF8AZLRG0UC208	Northern Trust Securities LLP		100.00%	100.00%	62.91%	37.09%	0.00%
2	Not applicable	Not applicable		0.00%	0.00%	0.00%	0.00%	0.00%
3	Not applicable	Not applicable		0.00%	0.00%	0.00%	0.00%	0.00%
4	Not applicable	Not applicable		0.00%	0.00%	0.00%	0.00%	0.00%
5	Not applicable	Not applicable		0.00%	0.00%	0.00%	0.00%	0.00%
~	Remaining Order Transmission Destinations			0.00%	0.00%	0.00%	0.00%	0.00%
Total				100%	100%	63%	37%	0%

Class of instrument			(b) Debt Instruments (i) Bonds						
Notification if < 1 average trade per business day in year			N/A - Not applicable						
Rank	MIC	Operator LEI	Execution Venue Name		% of VOLUME traded in class	% of ORDERS executed in class	% of PASSIVE orders*	% of AGGRESSIVE orders*	% of DIRECTED orders
1	N/A	Not applicable	Not applicable		0.00%	0.00%	0.00%	0.00%	0.00%
2	N/A	Not applicable	Not applicable		0.00%	0.00%	0.00%	0.00%	0.00%
3	N/A	Not applicable	Not applicable		0.00%	0.00%	0.00%	0.00%	0.00%
4	N/A	Not applicable	Not applicable		0.00%	0.00%	0.00%	0.00%	0.00%
5	N/A	Not applicable	Not applicable		0.00%	0.00%	0.00%	0.00%	0.00%
~	Remaining execution venues				0.00%	0.00%	0.00%	0.00%	0.00%
Total					0%	0%	0%	0%	0%

Class of instrument			(h) Securitized Derivatives: (i) Warrants and Certificate Derivatives					
Notification if < 1 average trade per business day in year			N/A - Not applicable					
Rank	MIC	Operator LEI	Execution Venue Name	% of VOLUME traded in class	% of ORDERS executed in class	% of PASSIVE orders*	% of AGGRESSIVE orders*	% of DIRECTED orders
1	N/A	Not applicable	Not applicable	0.00%	0.00%	0.00%	0.00%	0.00%
2	N/A	Not applicable	Not applicable	0.00%	0.00%	0.00%	0.00%	0.00%
3	N/A	Not applicable	Not applicable	0.00%	0.00%	0.00%	0.00%	0.00%
4	N/A	Not applicable	Not applicable	0.00%	0.00%	0.00%	0.00%	0.00%
5	N/A	Not applicable	Not applicable	0.00%	0.00%	0.00%	0.00%	0.00%
~	Remaining execution venues			0.00%	0.00%	0.00%	0.00%	0.00%
Total				0%	0%	0%	0%	0%

Class of instrument		(k) Exchange Traded Products (Exchange Traded Funds, Exchange Traded Notes and Exchange Traded Commodities)						
Notification if < 1 average trade per business day in year		Yes						
Rank	Broker LEI	Broker name		% of VOLUME traded in class	% of ORDERS executed in class	% of PASSIVE orders*	% of AGGRESSIVE orders*	% of DIRECTED orders
1	549300EF8AZLRG0UC208	Northern Trust Securities LLP		100.00%	100.00%	45.31%	54.69%	0.00%
2	Not applicable	Not applicable		0.00%	0.00%	0.00%	0.00%	0.00%
3	Not applicable	Not applicable		0.00%	0.00%	0.00%	0.00%	0.00%
4	Not applicable	Not applicable		0.00%	0.00%	0.00%	0.00%	0.00%
5	Not applicable	Not applicable		0.00%	0.00%	0.00%	0.00%	0.00%
~	Remaining Order Transmission Destinations			0.00%	0.00%	0.00%	0.00%	0.00%
Total				100%	100%	45%	55%	0%

Class of instrument		(m) Other Products					
Notification if < 1 average trade per business day in year		N/A - Not applicable					
Rank	Broker LEI	Broker name	% of VOLUME traded in class	% of ORDERS executed in class	% of PASSIVE orders*	% of AGGRESSIVE orders*	% of DIRECTED orders
1	Not applicable	Not applicable	0.00%	0.00%	0.00%	0.00%	0.00%
2	Not applicable	Not applicable	0.00%	0.00%	0.00%	0.00%	0.00%
3	Not applicable	Not applicable	0.00%	0.00%	0.00%	0.00%	0.00%
4	Not applicable	Not applicable	0.00%	0.00%	0.00%	0.00%	0.00%
5	Not applicable	Not applicable	0.00%	0.00%	0.00%	0.00%	0.00%
~	Remaining Order Transmission Destinations		0.00%	0.00%	0.00%	0.00%	0.00%
Total			0.00%	0.00%	0.00%	0.00%	0.00%

IMPORTANT NOTES – TOP FIVE EXECUTION VENUES

NOTE 1: 'PASSIVE' and 'AGGRESSIVE' order values for classes of instrument (a) Equity - Shares and Depository Receipts, (h) Securitized Derivatives: (i) Warrants and Certificate Derivatives, (k) Exchange Traded Products and (m) Other Products are determined based upon an assumption that for the purposes of Article 2 of Commission Delegated Regulation (EU) 2017/576 ('RTS 28') where an order is transmitted to a broker for execution rather than directly to a trading venue these values can be calculated using the execution price of each transaction instead of the order or placement itself on the basis of the following:

- (1) A transaction will be considered to be 'PASSIVE' where the execution price for that transaction is:
 - (a) for a BUY order, at a price equal to or less than the prevailing primary market MID at the time of execution; or,
 - (b) for a SELL order, at a price equal to or greater than the prevailing market MID at the time of execution.
- (2) A transaction will be considered to be 'AGGRESSIVE' where the execution price for that transaction is:
 - (a) for a BUY order, at a price greater than the prevailing primary market MID at the time of execution; or,
 - (b) for a SELL order, at a price less than the prevailing market MID at the time of execution.

NOTE 2: 'PASSIVE' and 'AGGRESSIVE' order values for class of instrument (b) Debt Instruments are not considered to be applicable due to the market structure for this class of instrument which is primarily based upon a 'request-for-quote' model rather than the 'order book' model more common

d) Information on the quality of execution

The following information is provided in accordance with the requirements of Article 3(3) of RTS 28 and summarises the analysis and conclusions drawn from the monitoring of the quality of execution obtained on the execution venues and through the brokers used by NTS LLP in 2022, for orders transmitted by NTGS SE to NTS LLP. Unless otherwise stated the information covers all classes of financial instrument.

(a) An explanation of the relative importance the firm gave to the execution factors of price, costs, speed, likelihood of execution or any other consideration including qualitative factors when assessing the quality of execution;

In 2022, NTS LLP continued to view the execution price achieved as the most significant execution factor when assessing the quality of execution. As an agency broker executing orders on behalf of institutional clients, we also considered the availability of sufficient liquidity and the speed and likelihood of execution on potential execution venues as an important factor; in this respect potential opportunities for block trading or trading at large-in-scale sizes were a key factor considered. Finally, we always consider any order handling instructions provided by the client as an important factor when assessing the quality of execution because such instructions can influence the execution strategy employed by NTS LLP's traders and also potentially restrict our ability to choose alternative strategies. Consequently the vast majority of client orders were executed on multiple execution venues across a range of lit and dark venues and market segments and it was rarely the case that an individual client order was executed on a single venue unless trading in size or in an illiquid security.

For equity and equity-like instruments, it was most likely that those execution venues were one of a range of multilateral trading facilities, or the primary regulated market for the financial instrument in question. For the more illiquid equities and certain exchange traded funds, market makers trading under the rules of the London Stock Exchange and other regulated markets, and Systematic Internalisers, or their third country equivalents, were also relevant execution venues to assist NTS LLP in ensuring the best possible result for its clients. For instruments with a primary listing outside of the UK and EU, the primary markets for the instruments in question were the main execution venues used by our brokers; however, we also used alternative trading systems when available to ensure access to as much liquidity as possible. In summary NTS LLP's approach to execution is driven by liquidity considerations and ensuring as much access to liquidity as possible.

For debt instruments the range of trading venues in the UK and EU continues to be small and focused on a specialised group of request-for-quote based trading venues and sell-side dealers acting as systematic internalisers. While NTS LLP aimed to primarily execute orders in 2022 on trading venues and with systematic internalisers, over-the-counter executions remain a valid and necessary execution method.

(b) A description of any close links, conflicts of interests, and common ownerships with respect to any execution venues used to execute orders;

NTS LLP does not have any close links, conflicts of interests or common ownerships with any trading venue on which a client order was executed in 2022.

NTS LLP is affiliated with the broker, Northern Trust Securities, Inc. ('NTSI'), through the common ownership of The Northern Trust Company. NTS LLP transmits client orders in US-listed financial instruments and financial instruments traded on other markets in the Americas to NTSI for execution on local trading venues. NTS LLP does not have any other close links, conflicts of interests or common ownerships with any other broker through which a client order was executed in 2022.

(c) A description of any specific arrangements with any execution venues regarding payments made or received, discounts, rebates or non-monetary benefits received;

NTS LLP does not receive any payments, discounts, rebates or non-monetary benefits from the execution venues on which client orders were executed in 2022. The only remuneration that NTS LLP receives is a pre-disclosed and agreed commission, fee or mark-up from the client on behalf of which NTS LLP acts in the market.

In 2022 NTS LLP continued to receive commission rebates from certain third country brokers as payment from the client for the services provided by NTS LLP in bringing about the execution of the client's order. These are paid to NTS LLP by the third country broker from commissions paid by the client to that broker, because NTS LLP is not able to directly settle the transaction(s) in the local market and must therefore give-up the order and client relationship for settlement. All such commission rebates are pre-agreed with the client. NTS LLP did not maintain any arrangements which constitute payment for order flow.

(d) An explanation of the factors that led to a change in the list of execution venues listed in the firm's execution policy, if such a change occurred;

As an agency broker the list of execution venues in the Northern Trust EMEA Order Execution Policy is primarily determined by (a) client orders and the financial instruments and range of potential execution venues on which they are traded, (b) the range of execution venues supported by our panel of external brokers and (c) changes in market infrastructure, such as those arising in the UK and EU following the implementation of MiFID II.

In 2022, any changes to the venues used were not considered to be material changes to NTS LLP's execution arrangements and were predominately used as a result of either liquidity considerations or client order and instrument specific considerations and this is most clearly seen in the makeup of the top execution venues in the *(a) Equities - Shares and Depositary Receipts: (iii) Tick size liquidity bands 1 and 2 (from 0 to 79 trades per day)* class of instrument where the top five has historically consisted of a number of third country venues which are determined primarily by reference to NTS LLP having received client orders rather than other reasons. From time to time NTS LLP might cease to use a venue to execute client orders because we did not receive any client orders in the relevant market. As with the new venues, these changes are mainly linked to order and instrument specific considerations at the time the orders in question were executed, and they do not represent a material change to NTS LLP's execution arrangements.

Finally, it is worth noting that the percentage of client orders executed on an over-the-counter basis in 2022 (i.e. execution away from a trading venue), remained both very low and broadly consistent with the percentages seen in previous years despite a general increase in trading volumes by NTS LLP in 2022. In order to ensure compliance with the MiFIR Trading Obligation for Shares, NTS LLP employed a range of measures in its execution arrangements, which include "Off-book, On-exchange" transactions through our membership of the London Stock Exchange. These measures are described more fully in Appendix 1 of the Northern Trust EMEA Order Execution Policy.

(e) An explanation of how order execution differs according to client categorisation, where the firm treats categories of clients differently and where it may affect the order execution arrangements;

NTS LLP does not differentiate between categories of clients when executing their orders. To the extent that orders from different clients are comparable they are generally executed in the order in which they were received unless it is possible to aggregate the orders to the advantage of all clients concerned, whereupon they will be executed concurrently.

- (f) An explanation of whether other criteria were given precedence over immediate price and cost when executing retail client orders and how these other criteria were instrumental in delivering the best possible result in terms of the total consideration to the client;**

Not applicable, NTS LLP does not provide investment services to Retail clients.

- (g) An explanation of how the investment firm has used any data or tools relating to the quality of execution, including any data published under Delegated Regulation (EU) 2017/575;**

Throughout 2022, and in accordance with the best execution obligation under Article 27 of MiFID II, NTS LLP measured the performance of client orders through the use of third party transaction cost analysis ('TCA') tools, and where available, the TCA reports provided by the brokers to which client orders were transmitted.

The TCA arrangements in place at NTS LLP allow us to access to a range of performance benchmarks to measure the quality of execution, and we typically rely upon a combination of Implementation Shortfall and Participation Weighted Price metrics to both (i) assess and monitor execution performance internally and (ii) demonstrate execution performance to clients. It is also possible to measure performance using alternative benchmarks such as VWAP and Close where such benchmarks are appropriate to the client order and associated instructions. The systems and controls for monitoring best execution and our broker panel are outlined in the Northern Trust EMEA Order Execution Policy.

NTS LLP did not specifically make use of any data published under Delegated Regulation (EU) 2017/575 ('RTS 27') by execution venues and continued to rely upon its execution performance and transaction cost analysis tools.

- (h) Where applicable, an explanation of how the investment firm has used output of a consolidated tape provider established under Article 65 of Directive 2014/65/EU.**

NTS LLP did not use a consolidated tape provider established under Article 65 of Directive 2014/65/EU in 2022.

Published: 27 April 2023

Northern Trust Securities LLP: registered in England & Wales under number OC324323; registered office: 50 Bank Street, Canary Wharf, London E14 5NT; authorised and regulated by the Financial Conduct Authority; member of the London Stock Exchange.

Northern Trust Global Services SE, registered in Luxembourg under number B232281. Registered office: 10 Rue du Château d'Eau, L-3364 Leudelange, Grand-Duché de Luxembourg. Authorised by the European Central Bank and subject to the prudential supervision of the European Central Bank and the Luxembourg Commission de Surveillance du Secteur Financier.

This communication is issued and approved for distribution in the United Kingdom and European Economic Area by Northern Trust Securities LLP ('NTS LLP') or Northern Trust Global Services SE ('NTGS SE'). It has been prepared solely for the purpose of supplying information to the clients and prospective clients of NTS LLP/NTGS SE and/or its affiliate(s) to whom it is distributed. NTS LLP and NTGS SE do not deal with, or for Retail Clients (i.e. those who are not Per Se Professional Clients or an Eligible Counterparty as defined in the European Parliament and Council Directive on Markets in Financial Instruments). NTS LLP and NTGS SE are not covered by the Financial Services Compensation Scheme (FSCS). The contents of this presentation are not, and should not be construed as, a recommendation, solicitation or offer to buy or sell any securities or related financial products. This presentation does not constitute investment advice, does not constitute a personal recommendation and has been prepared without regard to the individual financial circumstances, needs or objectives of persons who receive it.

© Northern Trust Securities LLP and Northern Trust Global Services SE 2023. All rights reserved.