

NORTHERN TRUST SECURITIES LLP

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 NTS LLP's execution arrangements in 2017

Northern Trust Securities LLP ('NTS LLP') is a MiFID Investment Firm authorised and regulated by the Financial Conduct Authority. 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 2017, NTS LLP executed the majority of the client orders it received by transmitting or placing all or part of the order with one or more external brokers who then normally executed the order or placement on an organised trading venue (the 'Order transmission destinations' or 'external brokers'). The external brokers used by NTS LLP in 2017 were selected, and subsequently monitored, in accordance with the principles described in section 6 of The Northern Trust Company Order Execution Policy. The primary objectives of NTS LLP when selecting external brokers are to ensure (a) access to the widest range of possible execution venues and (b) as much direct and near real-time control over the execution of the order or placement by NTS LLP's traders as possible, ideally through the use of direct electronic access arrangements, smart order routers and algorithmic trading strategies. NTS LLP did not, as a matter of course, transmit any client orders to an external broker within the meaning of Article 26(4) of Regulation (EU) No 600/2014 ('transmission of orders') and therefore retained full responsibility for best execution to its clients.

As a result of the execution arrangements applied by NTS LLP in 2017 the majority of client orders were executed on organised trading venues such as regulated markets and multilateral trading facilities and their third country equivalents. In keeping with the principles of best execution however, where the best interests of the client were most likely to be served by executing all or part of an order outside of a trading venue NTS LLP executed transactions on an 'over-the-counter' basis, either by crossing two or more compatible client orders in the same financial instrument as an agency cross, or by trading with another broker that deals on own account by acting as a market maker or similar liquidity provider.

NTS LLP therefore provides the following information on execution venues for each class of financial instrument, and where necessary sub-class of financial instrument, we executed client orders in 2017:

- (a) The identity of the top five execution venues (i.e. trading venues and counterparties) where client orders were executed in 2017; as required by Article 27(6) of Directive 2014/65/EU.
- (b) The identity of the top five receiving firms (i.e. external brokers) to which client orders were transmitted in 2017; as required by Article 65(6) Commission Delegated Regulation (EU) 2017/565,

b) Top Five Execution Venues in 2017

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 were executed in 2017 by NTS LLP for each class of financial instrument.

Class of Instrument		(a) Equities - Shares and Depository Receipts: (i) Tick size liquidity bands 5 and 6 (from 2,000 trades per day)					
Notification if <1 average trade per business day		No					
Rank	MIC	Venue name	% of VOLUME traded in class	% of ORDERS executed in class	% of PASSIVE orders	% of AGGRESSIVE orders	% of directed orders
1	XLON	London Stock Exchange - Regulated Market	17.28%	12.02%	n/a	n/a	n/a
2	CHIX	Cboe Europe Equities MTF – CXE Integrated Book Segment	10.32%	18.72%	n/a	n/a	n/a
3	MTAA	Borsa Italiana S.P.A. - Mercato Telematico Azionario	7.87%	2.49%	n/a	n/a	n/a
4	XPOS	ITG - Posit	5.81%	2.06%	n/a	n/a	n/a
5	TRQM	Turquoise Plato™	5.13%	1.42%	n/a	n/a	n/a
~	Remaining venues		53.59%	63.30%	n/a	n/a	n/a
Total			100%	100%	n/a	n/a	n/a

Class of Instrument		(a) Equities - Shares and Depository 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		No					
Rank	MIC	Venue name	% of VOLUME traded in class	% of ORDERS executed in class	% of PASSIVE orders	% of AGGRESSIVE orders	% of directed orders
1	CHIX	Cboe Europe Equities MTF – CXE Integrated Book Segment	11.50%	11.82%	n/a	n/a	n/a
2	BATE	Cboe Europe Equities MTF – BXE Integrated Book Segment	11.46%	8.37%	n/a	n/a	n/a
3	XAMS	Euronext Amsterdam N.V.	6.02%	4.48%	n/a	n/a	n/a
4	XLON	London Stock Exchange - Regulated Market	5.57%	7.39%	n/a	n/a	n/a
5	XSTO	NASDAQ Stockholm AB	4.92%	3.41%	n/a	n/a	n/a
~	Remaining venues		60.53%	64.53%	n/a	n/a	n/a
Total			100%	100%	n/a	n/a	n/a

Class of Instrument		(a) Equities - Shares and Depository Receipts: (iii) Tick size liquidity bands 1 and 2 (from 0 to 79 trades per day)					
Notification if <1 average trade per business day		No					
Rank	MIC	Venue name	% of VOLUME traded in class	% of ORDERS executed in class	% of PASSIVE orders	% of AGGRESSIVE orders	% of directed orders
1	XHKG	Hong Kong Exchanges And Clearing Ltd	34.56%	14.11%	n/a	n/a	n/a
2	XTKS	Tokyo Stock Exchange	10.83%	12.27%	n/a	n/a	n/a
3	MSPL	Morgan Stanley And Co. International plc - MS Pool	7.60%	5.41%	n/a	n/a	n/a
4	XASX	ASX - All Markets	6.90%	6.54%	n/a	n/a	n/a
5	XOFF	Off-Exchange Transactions - Listed Instruments	5.01%	1.39%	n/a	n/a	n/a
~	Remaining venues		35.11%	60.28%	n/a	n/a	n/a
Total			100%	100%	n/a	n/a	n/a

Class of Instrument		(b) Debt Instruments (i) Bonds					
Notification if <1 average trade per business day		Yes					
Rank	MIC	Venue name	% of VOLUME traded in class	% of ORDERS executed in class	% of PASSIVE orders	% of AGGRESSIVE orders	% of directed orders
1	XOFF	Off-Exchange Transactions - Listed Instruments	100.00%	100.00%	n/a	n/a	n/a
2	N/A	N/A	0.00%	0.00%	n/a	n/a	n/a
3	N/A	N/A	0.00%	0.00%	n/a	n/a	n/a
4	N/A	N/A	0.00%	0.00%	n/a	n/a	n/a
5	N/A	N/A	0.00%	0.00%	n/a	n/a	n/a
~	Remaining venues		0.00%	0.00%	n/a	n/a	n/a
Total			100%	100%	n/a	n/a	n/a



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		No					
Rank	MIC	Venue name	% of VOLUME traded in class	% of ORDERS executed in class	% of PASSIVE orders	% of AGGRESSIVE orders	% of directed orders
1	XOFF	Off-Exchange Transactions - Listed Instruments	71.52%	19.06%	n/a	n/a	n/a
2	XLON	London Stock Exchange - Regulated Market	11.41%	1.23%	n/a	n/a	n/a
3	ARCX	NYSE Arca	2.14%	12.11%	n/a	n/a	n/a
4	XOTC	OTC BB	1.87%	0.02%	n/a	n/a	n/a
5	XNAS	NASDAQ - All Markets	1.53%	10.14%	n/a	n/a	n/a
~	Remaining venues		11.53%	57.44%	n/a	n/a	n/a
Total			100%	100%	n/a	n/a	n/a

Class of instrument		(m) Other instruments					
Notification if <1 average trade per business day		No					
Rank	MIC	Venue name	% of VOLUME traded in class	% of ORDERS executed in class	% of PASSIVE orders	% of AGGRESSIVE orders	% of directed orders
1	XMAD	Bolsa de Madrid - Mercado Continuo Espanol - Continuous Market	34.17%	0.24%	n/a	n/a	n/a
2	XMCE	Bolsa de Madrid - Mercado Continuo Espanol - Continuous Market	27.72%	3.02%	n/a	n/a	n/a
3	XSES	Singapore Exchange	13.53%	23.51%	n/a	n/a	n/a
4	XASX	ASX - All Markets	9.85%	13.02%	n/a	n/a	n/a
5	CHIA	Chi-X Australia	3.09%	9.60%	n/a	n/a	n/a
~	Remaining venues		11.64%	50.60%	n/a	n/a	n/a
Total			100%	100%	n/a	n/a	n/a

c) Top Five Order Transmission Destinations in 2017

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 2017 by NTS LLP for each class of financial instrument.

Class of instrument		(a) Equities - Shares and Depository Receipts: (i) Tick size liquidity bands 5 and 6 (from 2,000 trades per day)					
Notification if < 1 average trade per business day		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	213800SH9MTNZQJKP526	Exane Limited	35.66%	40.04%	n/a	n/a	n/a
2	4PQUHN3JPPGFNF3BB653	Morgan Stanley & Co. International plc	24.25%	19.45%	n/a	n/a	n/a
3	213800EEC95PRUCEUP63	Investment Technology Group Limited	15.92%	16.88%	n/a	n/a	n/a
4	DL6FFRRL74S01HE2M14	Credit Suisse Securities (Europe) Ltd	10.93%	14.41%	n/a	n/a	n/a
5	W22LROWP2IHZNBB6K528	Goldman Sachs International	10.13%	5.78%	n/a	n/a	n/a
~	Remaining brokers		3.10%	3.44%	n/a	n/a	n/a
Total			100%	100%	n/a	n/a	n/a

Class of instrument		(a) Equities - Shares and Depository 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		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	213800SH9MTNZQJKP526	Exane Limited	29.05%	35.12%	n/a	n/a	n/a
2	213800EEC95PRUCEUP63	Investment Technology Group Limited	22.34%	25.40%	n/a	n/a	n/a
3	W22LROWP2IHZNBB6K528	Goldman Sachs International	19.30%	12.98%	n/a	n/a	n/a
4	4PQUHN3JPPGFNF3BB653	Morgan Stanley & Co. International plc	10.47%	9.38%	n/a	n/a	n/a
5	DL6FFRRL74S01HE2M14	Credit Suisse Securities (Europe) Ltd	9.64%	11.82%	n/a	n/a	n/a
~	Remaining brokers		9.20%	5.30%	n/a	n/a	n/a
Total			100%	100%	n/a	n/a	n/a

Class of instrument		(a) Equities - Shares and Depository Receipts: (iii) Tick size liquidity bands 1 and 2 (from 0 to 79 trades per day)					
Notification if < 1 average trade per business day		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	4PQUHN3JPPGFNF3BB653	Morgan Stanley & Co. international plc	65.83%	28.43%	n/a	n/a	n/a
2	549300GX4FPMFF91RJ37	Macquarie Capital (Europe) Limited	17.68%	25.31%	n/a	n/a	n/a
3	3CHSO99JSPHD9HGNVY46	Northern Trust Securities, Inc.	4.84%	38.03%	n/a	n/a	n/a
4	DL6FFRRL74S01HE2M14	Credit Suisse Securities (Europe) Ltd	5.01%	0.49%	n/a	n/a	n/a
5	W22LROWP2IHZNBB6K528	Goldman Sachs International	2.33%	3.79%	n/a	n/a	n/a
~	Remaining brokers		4.31%	3.96%	n/a	n/a	n/a
Total			100%	100%	n/a	n/a	n/a

Class of instrument		(b) Debt Instruments (i) Bonds					
Notification if < 1 average trade per business day		N/A - no relevant orders during period					
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	N/A	N/a	0.00%	0.00%	n/a	n/a	n/a
2	N/A	N/A	0.00%	0.00%	n/a	n/a	n/a
3	N/A	N/A	0.00%	0.00%	n/a	n/a	n/a
4	N/A	N/A	0.00%	0.00%	n/a	n/a	n/a
5	N/A	N/A	0.00%	0.00%	n/a	n/a	n/a
~	Remaining brokers		0.00%	0.00%	n/a	n/a	n/a
Total			0%	0%	n/a	n/a	n/a



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		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	3CHSO99JSPHD9HGNYJ46	Northern Trust Securities, Inc.	32.40%	96.27%	n/a	n/a	n/a
2	549300CLJ19XDH12XV51	Flow Traders B.V.	29.36%	0.28%	n/a	n/a	n/a
3	851WYGNLUQLFZBSYGB56	Commerzbank AG	13.57%	0.31%	n/a	n/a	n/a
4	4PQUHN3JPPGFNF3BB653	Morgan Stanley & Co. International plc	6.84%	0.75%	n/a	n/a	n/a
5	549300ZHEHX8M31RP142	Jane Street Financial Limited	5.35%	0.13%	n/a	n/a	n/a
~	Remaining brokers		12.49%	2.25%	n/a	n/a	n/a
Total			100%	100%	n/a	n/a	n/a

Class of instrument		(m) Other instruments					
Notification if < 1 average trade per business day		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	4PQUHN3JPPGFNF3BB653	Morgan Stanley & Co. International plc	39.91%	50.96%	n/a	n/a	n/a
2	DL6FFRRL74S01HE2M14	Credit Suisse Securities (Europe) Ltd	37.19%	1.43%	n/a	n/a	n/a
3	549300GX4FPMFF91RJ37	Macquarie Capital (Europe) Limited	13.97%	12.85%	n/a	n/a	n/a
4	213800SH9MTN2QJKP526	Exane Limited	6.41%	1.43%	n/a	n/a	n/a
5	3CHSO99JSPHD9HGNYJ46	Northern Trust Securities, Inc.	2.30%	32.97%	n/a	n/a	n/a
~	Remaining brokers		0.23%	0.37%	n/a	n/a	n/a
Total			100%	100%	n/a	n/a	n/a

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 2017, 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 2017, NTS LLP generally viewed price as the most significant execution factor when assessing the quality of execution, followed by speed, likelihood of execution and any order handling instructions provided by the client. Consequently the vast majority of orders were executed on multiple trading venues, and it was most likely that those venues were either the primary trading venue for the financial instrument in question, or one of the most liquid multilateral trading facilities.

(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 2017.

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 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 2017.

(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 2017.

In 2017 NTS LLP received commission rebates from certain third country brokers as payment for the services provided by NTS LLP in bring about the execution of the client's order. These are paid to NTS LLP by the third country 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;

Not applicable for 2017.

(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;

Not applicable for 2017 as this data was not available. However, throughout 2017, and in accordance with the best execution obligation under Article 21 of MiFID I (Directive 2004/39/EC), 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 tools and reports used by NTS LLP measured the performance of client orders primarily through the use of order and placement level benchmarks, such as implementation shortfall, percentage weighted participation and price reversion.

(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.

Not applicable for 2017.

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