

Top Venues and Brokers Full Year 2020

Redburn Top Brokers and Venues

This document details the top brokers and venues by volume for flow executed through Redburn (Europe) Limited, ("Redburn"), as detailed under EU Commission Delegated Regulation (EU) 2017/576 (RTS 28). The data contained within is based on all executions taking place between 1 January 2020 and 31 December 2020.

Summary of execution quality monitoring

All orders are executed in-line with Redburn's Order Execution Policy which is available from our public website redburn.com.

A range of factors are considered when selecting a venue to trade on, the venues used will be subject to the agreement with the client and objectives of the order being worked. The primary factors considered are available price, volume and probability of execution. Cost of execution is only considered when all other factors are equal.

Redburn has no close links, conflicts of interest, or common ownerships with any execution venues.

Payments received from or paid to venues are subject to standard venue pricing policies as published by the individual venues.

The list of venues accessed changes over time depending on relative market share and availability of liquidity. During the period covered, the only changes to the firm's existing list of venues was to add those venues that accessed additional liquidity sources and therefore improved overall best execution. During the same period, no venues were removed from our current list of approved trading venues.

The same execution arrangements are available to all clients. Any difference in execution style or venue access is purely driven by client preference.

Redburn does not trade on-behalf of retail clients. Execution of all orders is based on available price and liquidity as outlined in our order execution policy.

Reburn does not make use of a consolidated tape provider.

Redburn gathers data on execution quality through our own trading activity and through feeds provided by the individual trading venues, including data published under RTS-27. This data is monitored to determine the effectiveness of trading strategies and guide decisions on how orders will be executed.

Information on Redburn's exchange memberships, our Principal Execution Venues and Order Execution Policy are available on request from ukcompliance@redburn.com or from our website: https://www.redburn.com/regulatory-information

Equity: Common/Ordinary convertible shares

Tick size liquidity bands 1 and 2 (from 0 to 79 trades per day)

Average below one trade per business day: N

Identifier	Proportion of volume traded	Proportion of orders executed	Percent of passive orders	Percent of aggressive orders	Percent of directed orders
TURQUOISE DARK	E4 00/	27.20/	0.0%	100.0%	0.0%
TRQM	51.2%	27.3%	0.0%	100.0%	0.0%
LONDON STOCK EXCHANGE	40.00/	F 4 F0/	0.00/	100.00/	0.00/
XLON	48.0%	54.5%	0.0%	100.0%	0.0%
J.P. MORGAN SECURITIES PLC	0.70/	40.0%	0.00/	0.00/	
JPSI	0.7%	18.2%	0.0%	0.0%	0.0%

Equity: Common/Ordinary shares

Tick size liquidity bands 1 and 2 (from 0 to 79 trades per day)

Average below one trade per business day: Y

Identifier	Proportion of volume traded	Proportion of orders executed	Percent of passive orders	Percent of aggressive orders	Percent of directed orders
SIX SWISS EXCHANGE	22.40/	20.0%	20.0%	c2 00/	0.0%
XSWX	33.1%	38.0%	36.8%	63.2%	0.0%
SIX SWISS EXCHANGE - SIX SWISS	20.0%	4.00/	77 70/	00.00/	0.00/
XSWM	29.0%	4.3%	77.7%	22.3%	0.0%
POSIT	0.70/		00 50/	04 5%	0.001
XPOS	6.7%	3.0%	68.5%	31.5%	0.0%
LIQUIDNET SYSTEMS	4.00/	0.0%	100.0%	0.0%	0.00/
LIQU	4.2%	0.3%			0.0%
TURQUOISE DARK	0.00/	0.00/	00.00/		
TRQM	3.9%	2.8%	86.2%	13.8%	0.0%

Equity: Common/Ordinary shares

Tick size liquidity bands 3 and 4 (from 80 to 1,999 trades per day)

Identifier	Proportion of volume traded	Proportion of orders executed	Percent of passive orders	Percent of aggressive orders	Percent of directed orders
SIX SWISS EXCHANGE - SIX SWISS	00.0%	7.00/	07.00/	0.70/	0.00
XSWM	28.6%	7.9%	97.3%	2.7%	0.0%
SIX SWISS EXCHANGE	00.0%	40.00/	45 40/	E4.00/	0.00/
XSWX	26.3%	18.9%	45.1%	54.9%	0.0%
CBOE Europe - BXE Periodic Auctions	0.40/	· · · · · · · · · · · · · · · · · · ·	0.00/	0.00/	0.00
ВАТР	6.1%	9.7%	0.0%	0.0%	0.0%
SIX SWISS EXCHANGE - BLUE CHIPS	4.00/	0.00/	40.2%	50.00/	0.00/
XVTX	4.6%	3.8%		59.8%	0.0%
TURQUOISE DARK	4 40/	4 70/	00.5%	40.5%	
TRQM	4.4%	1.7%	89.5%	10.5%	0.0%

Equity: Common/Ordinary shares

Tick size liquidity bands 5 and 6 (from 2,000 trades per day)

Average below one trade per business day: Y

Identifier	Proportion of volume traded	Proportion of orders executed	Percent of passive orders	Percent of aggressive orders	Percent of directed orders
CBOE Europe - CXE Order Books	44.00/	00.00/	00.00/	04.00/	0.00/
CHIX	11.0%	20.3%	69.0%	31.0%	0.0%
LONDON STOCK EXCHANGE	40.5%	44.00/	F 4 00/	45 40/	0.00/
XLON	10.5%	11.9%	54.6%	45.4%	0.0%
CBOE Europe - BXE Periodic Auctions	0.404	40.40/			
BATP	9.1%	10.1%	0.0%	0.0%	0.0%
TURQUOISE DARK	0.404	0.70/	07.00/	0.70/	0.00/
TRQM	9.1%	3.7%	97.3%	2.7%	0.0%
CBOE Europe - CXE Dark Order Books	0.00/	5 50/	05 50/	4.50/	
CHID	6.6%	5.5%	95.5%	4.5%	0.0%

Equity: Depositary receipts on equities

Tick size liquidity bands 1 and 2 (from 0 to 79 trades per day)

Average below one trade per business day: Y

Identifier	Proportion of volume traded	Proportion of orders executed	Percent of passive orders	Percent of aggressive orders	Percent of directed orders
LONDON STOCK EXCHANGE - MTF	75.2%	32.9%	21.7%	78.3%	0.0%
XLOM	15.2%	32.9%	21.7%	70.3%	0.0%
EURONEXT - EURONEXT AMSTERDAM	F 20/	25.0%	0.0%	0.00/	0.0%
XAMS	5.2%	25.0%	0.0%	0.0%	0.0%
LONDON STOCK EXCHANGE	2.0%		0.00/	0.00/	0.00/
XLON	3.2%	1.3%	0.0%	0.0%	0.0%
XTX MARKETS	0.40/	0.70/		0.00/	0.0%
XTXM	2.4%	3.7%	0.0%	0.0%	0.0%
CITADEL CONNECT EUROPE -	4.00/	0.0%	0.0%	0.00/	0.00/
CCEU	1.8%	0.9%	0.0%	0.0%	0.0%

Equity: Depositary receipts on equities

Tick size liquidity bands 3 and 4 (from 80 to 1,999 trades per day)

Identifier	Proportion of volume traded	Proportion of orders executed	Percent of passive orders	Percent of aggressive orders	Percent of directed orders
LONDON STOCK EXCHANGE - MTF	27 60/	16 40/	10.6%	90.40/	0.0%
XLOM	27.5%	16.4%	19.6%	80.4%	0.0%
LONDON STOCK EXCHANGE	40 50/	22.0%	00.0%	4.00/	0.0%
XLON	12.5%	22.6%	99.0%	1.0%	0.0%
EURONEXT - EURONEXT AMSTERDAM	0.0%		40.00/	50.00/	0.00/
XAMS	8.3%	14.1%	43.2%	56.8%	0.0%
CBOE Europe - LIS Service	0.40/	0.40/	0.0%	0.00/	0.0%
LISX	8.1%	0.1%	0.0%	0.0%	0.0%
CBOE Europe - BXE Periodic Auctions	7.40/	7.00/	0.0%	0.0%	
ВАТР	7.1%	7.9%	0.0%	0.0%	0.0%

Equity: Depositary receipts on equities

Tick size liquidity bands 5 and 6 (from 2,000 trades per day)

Average below one trade per business day: Y

Identifier	Proportion of volume traded	Proportion of orders executed	Percent of passive orders	Percent of aggressive orders	Percent of directed orders
LONDON STOCK EXCHANGE	10.10/	00.00/	50.00/	44.407	0.001
XLON	19.1%	20.0%	58.6%	41.4%	0.0%
LONDON STOCK EXCHANGE - MTF	45.00/	44.40/	400.00/	0.00/	0.00/
XLOM	15.0%	11.1%	100.0%	0.0%	0.0%
TURQUOISE DARK	40.00/	0.00/			
TRQM	10.2%	3.8%	96.4%	3.6%	0.0%
CBOE Europe - CXE Dark Order Books	7.00/	4.007			2.02/
CHID	7.9%	4.9%	95.3%	4.7%	0.0%
CBOE Europe - BXE Periodic Auctions	7.00/	40.00/	0.00/	0.00/	
ВАТР	7.8%	10.3%	0.0%	0.0%	0.0%

Equity: Others (miscellaneous)

Tick size liquidity bands 1 and 2 (from 0 to 79 trades per day)

Average below one trade per business day: Y

Identifier	Proportion of volume traded	Proportion of orders executed	Percent of passive orders	Percent of aggressive orders	Percent of directed orders
EURONEXT - EURONEXT PARIS	96.0%	94.00/	22.7%	77.00/	0.0%
XPAR	86.0%	84.0%	22.1%	77.3%	0.0%
CBOE Europe - CXE Order Books	0.70/	0.70/	0.0%	400.00/	0.0%
CHIX	2.7%	8.7%	0.0%	100.0%	0.0%
CBOE Europe - BXE Dark Order Books	0.00/	0.00/	0.00/	0.00/	0.0%
BATD	2.6%	0.6%	0.0%	0.0%	0.0%
CBOE Europe - LIS Service	0.5%	0.00/	0.00/	0.00/	0.0%
LISX	2.5%	0.2%	0.0%	0.0%	0.0%
CBOE Europe - CXE Dark Order Books	0.49/	0.40/	0.00/	0.00/	
CHID	2.4%	0.4%	0.0%	0.0%	0.0%

Equity: Others (miscellaneous)

Tick size liquidity bands 3 and 4 (from 80 to 1,999 trades per day)

Identifier	Proportion of volume traded	Proportion of orders executed	Percent of passive orders	Percent of aggressive orders	Percent of directed orders
LONDON STOCK EXCHANGE	40.0%	22.29/	00.00/	40.00/	0.0%
XLON	19.6%	22.3%	86.2%	13.8%	0.0%
POSIT	40.00/	2.0%	0.4.00/	45.00/	0.0%
XPOS	16.6%	3.0%	84.8%	15.2%	0.0%
TURQUOISE DARK		F 0%	00.4%	10.00/	0.00/
TRQM	15.5%	5.2%	83.1%	16.9%	0.0%
CBOE Europe - BXE Periodic Auctions	40.5%	22.00/	0.0%	0.00/	0.0%
BATP	12.5%	23.8%		0.0%	
CBOE Europe - CXE Dark Order Books	0.00/	7.00/	04 70/	40.00/	
CHID	8.8%	7.2%	81.7%	18.3%	0.0%

Equity: Preferred/Preference shares

Tick size liquidity bands 1 and 2 (from 0 to 79 trades per day)

Average below one trade per business day: N

Identifier	Proportion of volume traded	Proportion of orders executed	Percent of passive orders	Percent of aggressive orders	Percent of directed orders
NASDAQ STOCKHOLM AB	00.00/	00.40/	0.00/	0.00/	0.00/
XSTO	86.0%	68.4%	0.0%	0.0%	0.0%
CBOE Europe - CXE Order Books	0.40/	40.5%	0.00/	0.00/	0.00/
CHIX	9.1%	10.5%	0.0%	0.0%	0.0%
CBOE Europe - BXE Periodic Auctions	0.00/	40.50/	0.00/		0.00/
BATP	2.6%	10.5%	0.0%	0.0%	0.0%
CBOE Europe - BXE Order Books	4.50/	5.00/		0.00/	0.00/
BATE	1.5%	5.3%	0.0%	0.0%	0.0%
TURQUOISE	0.00/	5.00/	0.00/	0.00/	
TRQX	0.8%	5.3%	0.0%	0.0%	0.0%

Equity: Preferred/Preference shares

Tick size liquidity bands 3 and 4 (from 80 to 1,999 trades per day)

Average below one trade per business day: Y

Identifier	Proportion of volume traded	Proportion of orders executed	Percent of passive orders	Percent of aggressive orders	Percent of directed orders
BOLSA DE MADRID	10.20/	26 50/	FO 90/	47.00/	0.0%
XMAD	19.3%	26.5%	52.8%	47.2%	0.0%
CBOE Europe - BXE Periodic Auctions	40.40/	40.0%	0.00/	0.00/	0.0%
BATP	16.4%	12.2%	0.0%	0.0%	0.0%
CBOE Europe - CXE Order Books	40 50/	47 40/	00.4%	74.00/	0.00/
CHIX	12.5%	17.1%	28.1%	71.9%	0.0%
TURQUOISE DARK	40.40/	0.00/	400.0%	0.00/	0.0%
TRQM	10.1%	2.8%	100.0%	0.0%	
CBOE Europe - CXE Dark Order Books	0.0%	7.00/	400.0%	0.00/	
CHID	6.0%	7.6%	100.0%	0.0%	0.0%

Equity: Preferred/Preference shares

Tick size liquidity bands 5 and 6 (from 2,000 trades per day)

Identifier	Proportion of volume traded	Proportion of orders executed	Percent of passive orders	Percent of aggressive orders	Percent of directed orders
XETRA - REGULIERTER MARKT	46 70/	10.0%	40.49/	E0.0%	0.0%
XETA	16.7%	10.0%	49.1%	50.9%	0.0%
CBOE Europe - CXE Order Books		04.00/	70 50/	00.5%	0.00/
CHIX	15.1%	21.9%	73.5%	26.5%	0.0%
CBOE Europe - BXE Periodic Auctions	40.40/		0.00/	0.00/	0.00/
BATP	12.1%	14.0%	0.0%	0.0%	0.0%
CBOE Europe - CXE Dark Order Books	0.0%	0.40/	00.0%	4.00/	0.0%
CHID	9.2%	8.4%	96.0%	4.0%	0.0%
TURQUOISE DARK	7.00/	0.0%	07.00/	0.494	
TRQM	7.3%	3.8%	97.6%	2.4%	0.0%

Equity: Common/Ordinary convertible shares

Tick size liquidity bands 1 and 2 (from 0 to 79 trades per day)

Average below one trade per business day: N

Identifier	Proportion of volume traded	Proportion of orders executed	Percent of passive orders	Percent of aggressive orders	Percent of directed orders
Credit Suisse Securities Eur Ltd	75 40/	22.20/	0.0%	0.00/	0.0%
E58DKGMJYYYJLN8C3868	75.4%	33.3%		0.0%	
JP Morgan Securities Plc	04.00/		0.001	0.00/	0.007
K6Q0W1PS1L1O4IQL9C32	24.6%	66.7%	0.0%	0.0%	0.0%

Equity: Common/Ordinary shares

Tick size liquidity bands 1 and 2 (from 0 to 79 trades per day)

Average below one trade per business day: Y

Identifier	Proportion of volume traded	Proportion of orders executed	Percent of passive orders	Percent of aggressive orders	Percent of directed orders
Instinet Europe Ltd	05.0%	00.40/	00.5%	00.5%	0.00/
213800MXAKR2LA1VBM44	65.6%	68.1%	39.5%	60.5%	0.0%
Liquidnet Europe Limited	47.00/	0.00/	00.0%	44.00/	0.00/
213800ZIRB79BE5XQM68	17.8%	0.6%	88.2%	11.8%	0.0%
Virtu ITG Europe Limited	7.00/			00.4%	0.00/
213800EEC95PRUCEUP63	7.9%	3.6%	69.6%	30.4%	0.0%
JP Morgan Securities Plc	4.00/	00.0%	70.40/	04.00/	0.00/
K6Q0W1PS1L1O4IQL9C32	4.2%	23.2%	78.4%	21.6%	0.0%
UBS AG	4.00/	0.0%	07.00/	00.00/	
BFM8T61CT2L1QCEMIK50	1.2%	2.2%	67.2%	32.8%	0.0%

Equity: Common/Ordinary shares

Tick size liquidity bands 3 and 4 (from 80 to 1,999 trades per day)

Average below one trade per business day: Y

Identifier	Proportion of volume traded	Proportion of orders executed	Percent of passive orders	Percent of aggressive orders	Percent of directed orders
Instinet Europe Ltd	75.00/	co. co/	F0 F0/	40 50/	0.0%
213800MXAKR2LA1VBM44	75.2%	63.6%	53.5%	46.5%	0.0%
JP Morgan Securities Plc	0.70/	04.00/	F4 3 0/	40.00/	0.0%
K6Q0W1PS1L1O4IQL9C32	8.7%	21.3%	51.7%	48.3%	0.0%
Liquidnet Europe Limited	4.00/		00.0%	4 70/	0.0%
213800ZIRB79BE5XQM68	4.6%	0.1%	98.3%	1.7%	0.0%
Virtu ITG Europe Limited	2 70/	1.00/	92 50/	16 50/	0.0%
213800EEC95PRUCEUP63	3.7%	1.9%	83.5%	16.5%	0.0%
UBS AG	2.5%	0.00/	<u> </u>	24.20/	
BFM8T61CT2L1QCEMIK50	3.5%	6.2%	68.7%	31.3%	0.0%

Equity: Common/Ordinary shares

Tick size liquidity bands 5 and 6 (from 2,000 trades per day)

	Proportion of	Proportion of	Percent of	Percent of	Percent of
Identifier	volume traded	orders executed	passive orders	aggressive orders	directed orders

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Instinet Europe Ltd	40.00/	00.49/	50.00/	10,404	0.00/
213800MXAKR2LA1VBM44	42.8%	33.1%	50.9%	49.1%	0.0%
JP Morgan Securities Plc	47.00/	00.0%	00.70/	00.0%	0.00/
K6Q0W1PS1L1O4IQL9C32	17.6%	33.8%	36.7%	63.3%	0.0%
UBS AG	40.00/	40.4%	00.70/	7.00/	0.00/
BFM8T61CT2L1QCEMIK50	12.9%	16.4%	92.7%	7.3%	0.0%
Goldman Sachs International	7.00/	C 49/	F0.00/	40.0%	0.00/
W22LROWP2IHZNBB6K528	7.8%	6.4%	58.0%	42.0%	0.0%
Virtu ITG Europe Limited	0.70/	0.4%	00.0%	40 70/	0.00/
213800EEC95PRUCEUP63	6.7%	2.1%	89.3%	10.7%	0.0%

Equity: Depositary receipts on equities

Tick size liquidity bands 1 and 2 (from 0 to 79 trades per day)

Average below one trade per business day: Y

Identifier	Proportion of volume traded	Proportion of orders executed	Percent of passive orders	Percent of aggressive orders	Percent of directed orders
Instinet Europe Ltd	07.00/	50.70/	0.1.0%	75.00/	0.00/
213800MXAKR2LA1VBM44	67.9%	56.7%	24.8%	75.2%	0.0%
Goldman Sachs International	10.0%	40.00/	0.00/	0.00/	0.00/
W22LROWP2IHZNBB6K528	13.9%	10.6%	0.0%	0.0%	0.0%
JP Morgan Securities Plc	40.00/		0.00/	0.00/	0.00/
K6Q0W1PS1L1O4IQL9C32	13.0%	25.4%	0.0%	0.0%	0.0%
Tower Research Capital Eur Ltd	0.00/	0.0%	0.00/	0.00/	0.00/
5493009004QNGA8IEC21	3.3%	2.9%	0.0%	0.0%	0.0%
Credit Suisse Securities Eur Ltd	4.00/	0.00/	0.00/	0.00/	0.00/
E58DKGMJYYYJLN8C3868	1.2%	2.6%	0.0%	0.0%	0.0%

Equity: Depositary receipts on equities

Tick size liquidity bands 3 and 4 (from 80 to 1,999 trades per day)

Average below one trade per business day: Y

Identifier	Proportion of volume traded	Proportion of orders executed	Percent of passive orders	Percent of aggressive orders	Percent of directed orders
Instinet Europe Ltd	04.00/	50.00/	44.00/	55.00/	0.00/
213800MXAKR2LA1VBM44	31.0%	50.6%	44.8%	55.2%	0.0%
JP Morgan Securities Plc	00.70/	05.0%	20.0%	64.40/	0.00/
K6Q0W1PS1L1O4IQL9C32	23.7%	25.2%	38.9%	61.1%	0.0%
Liquidnet Europe Limited	16.4%	0.400	100.0%	0.0%	0.0%
213800ZIRB79BE5XQM68	10.4%	0.4%		0.0%	0.0%
UBS AG	40.00/	44.00/	70.00/	00.40/	0.00/
BFM8T61CT2L1QCEMIK50	13.9%	11.8%	76.9%	23.1%	0.0%
Goldman Sachs International	6.20/	2 70/	50.00/	44.00/	0.0%
W22LROWP2IHZNBB6K528	6.3%	3.7%	58.8%	41.2%	

Equity: Depositary receipts on equities

Tick size liquidity bands 5 and 6 (from 2,000 trades per day)

Identifier	·	,	Proportion of volume traded	Proportion of orders executed	Percent of passive orders	Percent of aggressive orders	Percent of directed orders
					P	-33	

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JP Morgan Securities Plc	00 70/	05.00/	10.00/	00.00/	0.00/
K6Q0W1PS1L1O4IQL9C32	23.7%	35.3%	12.0%	88.0%	0.0%
Instinet Europe Ltd	00.4%	00.0%	70.0%	00.0%	0.00/
213800MXAKR2LA1VBM44	23.1%	30.2%	79.2%	20.8%	0.0%
UBS AG	20.0%	40.40/		44 50/	0.00/
BFM8T61CT2L1QCEMIK50	20.9%	18.1%	55.5%	44.5%	0.0%
Virtu ITG Europe Limited	44.00/	0.5%	05 70/	4.00/	0.00/
213800EEC95PRUCEUP63	11.0%	2.5%	95.7%	4.3%	0.0%
Goldman Sachs International		F 00/	00.00/	16.7%	0.0%
W22LROWP2IHZNBB6K528	9.0%	5.8%	83.3%		

Equity: Others (miscellaneous)

Tick size liquidity bands 1 and 2 (from 0 to 79 trades per day)

Average below one trade per business day: Y

Identifier	Proportion of volume traded	Proportion of orders executed	Percent of passive orders	Percent of aggressive orders	Percent of directed orders
JP Morgan Securities Plc	04.0%	70.40/	00.4%	70.00/	0.00/
K6Q0W1PS1L1O4IQL9C32	81.9%	78.4%	23.4%	76.6%	0.0%
Instinet Europe Ltd	44.40/	40.0%	0.0%	400.00/	0.00
213800MXAKR2LA1VBM44	14.1%	16.2%		100.0%	0.0%
UBS AG	2.00/	F 00/	F 00/	05.00/	0.0%
BFM8T61CT2L1QCEMIK50	3.8%	5.2%	5.0%	95.0%	0.0%
Virtu ITG Europe Limited	0.0%	0.00/	400.00/	0.00/	
213800EEC95PRUCEUP63	0.2%	0.2%	100.0%	0.0%	0.0%

Equity: Others (miscellaneous)

Tick size liquidity bands 3 and 4 (from 80 to 1,999 trades per day)

Average below one trade per business day: Y

Identifier	Proportion of volume traded	Proportion of orders executed	Percent of passive orders	Percent of aggressive orders	Percent of directed orders
Virtu ITG Europe Limited	20.20/	0.0%	0.4.00/	45.00/	0.0%
213800EEC95PRUCEUP63	38.3%	9.3%	84.8%	15.2%	0.0%
UBS AG	10.0%	00.0%	75.00/	05.00/	0.00/
BFM8T61CT2L1QCEMIK50	12.2%	20.0%	75.0%	25.0%	0.0%
Goldman Sachs International	11.00/		0.0%	100.000	0.00/
W22LROWP2IHZNBB6K528	11.8%	9.7%		100.0%	0.0%
Goodbody	44 70/	0.0%	0.00/	0.00/	0.0%
635400IL71G3SXS7OE16	11.7%	0.2%	0.0%	0.0%	0.0%
JP Morgan Securities Plc	40.0%	20.0%	70.00/	2% 23.8%	0.0%
K6Q0W1PS1L1O4IQL9C32	10.9%	39.9%	76.2%		

Equity: Preferred/Preference shares

Tick size liquidity bands 3 and 4 (from 80 to 1,999 trades per day)

Identifier	Proportion of volume traded	Proportion of orders executed	Percent of passive orders	Percent of aggressive orders	Percent of directed orders
Instinet Europe Ltd	46.5%	55.6%	45.0%	55.0%	0.0%
213800MXAKR2LA1VBM44	40.5%	55.0%	45.0%	55.0%	0.0%

Top Brokers

JP Morgan Securities Plc K6Q0W1PS1L1O4IQL9C32	14.7%	18.3%	74.5%	25.5%	0.0%
UBS AG	44 50/	14.00/	100.0%	0.00/	0.0%
BFM8T61CT2L1QCEMIK50	14.5%	14.0%	100.0%	0.0%	0.0%
Virtu ITG Europe Limited	10.9%	2.8%	100.0%	0.0%	0.0%
213800EEC95PRUCEUP63					
Goldman Sachs International	6.2%	3.0%	100.0%	0.0%	0.0%
W22LROWP2IHZNBB6K528					

Equity: Preferred/Preference shares

Tick size liquidity bands 5 and 6 (from 2,000 trades per day)

Identifier	Proportion of volume traded	Proportion of orders executed	Percent of passive orders	Percent of aggressive orders	Percent of directed orders
Instinet Europe Ltd	40.00/	35.6%	49.7%	50.3%	0.0%
213800MXAKR2LA1VBM44	42.0%				
JP Morgan Securities Plc	00.70/	28.6%	20.7%	79.3%	0.0%
K6Q0W1PS1L1O4IQL9C32	20.7%				
UBS AG	4.4.00/	19.3%	93.4%	6.6%	0.0%
BFM8T61CT2L1QCEMIK50	14.3%				
Credit Suisse Securities Eur Ltd	7.00/	7.7%	0.0%	100.0%	0.0%
E58DKGMJYYYJLN8C3868	7.2%				
Goldman Sachs International	0.40/	5.1%	92.3%	7.7%	0.0%
W22LROWP2IHZNBB6K528	6.1%				

Glossary

The numbers in these reports are calculated based on all executions traded with third-parties for the period defined. Only trading on instruments listed as part of the ESMA Transparency Calculations is included. The Percent Passive and Percent Aggressive figures in this report were calculated based on trade data from Q4 2020 only.

Top Brokers

The calculation for Top Brokers looks at all executions traded against a third-party broker. Executions taking place on-exchange through Redburn's member connections are excluded.

Top Venues

The calculation for Top Venues looks at all executions traded against a third-party including both on-exchange member trading and trades through executing brokers. Trades generated internally (e.g. crosses) are excluded from all calculations.

Proportion of volume traded

This is calculated as the share of notional value traded with each liquidity band. This is calculated based on a normalised currency value using a representative FX rate from the day of each execution.

Proportion of orders executed

This is calculated based on the number of executions that took place against the relevant broker or venue as a proportion of the total number of executions within that group. Note that the number of executions is used rather than the number of orders since a single order may trade against multiple brokers or venues.

Percent Passive

The number of Passive and Aggressive executions is calculated based on the number of trades received against a given venue or broker which have a LastLiquidityIndicator or 'Added' or 'Removed' respectively. This number is compared to the total number of executions for that venue or broker where a LastLiquidityIndicator is known. Executions where no liquidity indicator is provided are excluded from the calcuation. Where no trades from a broker/venue provide this information, we will display 'No Data'. As above, the calcuation is based on number of executions since a single order may receive both passive and aggressive executions.

Percent of Directed Orders

Redburn does not offer Directed Order flow to our clients, hence this value will always be zero.