



M.M. WARBURG & CO

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Top 5 venue reporting regarding MIFID II retail clients financial year 2018

Class of Instrument AA99
Equity instruments- Shares and share certificates

Tick Size not used

Top five execution venues ranked in terms of trading volumes (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as percentage of total in that class	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders
XNYS New York (NYSE) (NAY)	75,11 %	71,31 %	100,00 %	0,00 %	100,00 %
XETR XETRA (EDE)	7,58 %	11,56 %	100,00 %	0,00 %	0,00 %
PURE Toronto Pure (NCP)	7,43 %	5,14 %	100,00 %	0,00 %	70,83 %
XNGS New York - NASDAQ (NAD)	4,97 %	3,00 %	100,00 %	0,00 %	100,00 %
XTKS Tokio (FJT)	2,13 %	1,50 %	100,00 %	0,00 %	0,00 %



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Class of Instrument AA99
Equity instruments- Shares and share certificates

Tick Size liquidity band A and liquidity band B

Top five execution venues ranked in terms of trading volumes (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as percentage of total in that class	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders
XNYS New York (NYSE) (NAY)	64,75 %	63,16 %	100,00 %	0,00 %	99,96 %
XNGS New York - NASDAQ (NAD)	21,24 %	21,29 %	100,00 %	0,00 %	99,97 %
XETR XETRA (EDE)	3,56 %	6,22 %	100,00 %	0,00 %	6,88 %
XTSE Toronto (NCT)	3,28 %	3,12 %	100,00 %	0,00 %	100,00 %
XTKS Tokio (FJT)	2,00 %	0,94 %	100,00 %	0,00 %	99,30 %



Top 5 venue reporting regarding MIFID II retail clients financial year 2018

Class of Instrument AA99
Equity instruments- Shares and share certificates

Tick Size liquidity band C and liquidity band D

Top five execution venues ranked in terms of trading volumes (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as percentage of total in that class	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders
XETR XETRA (EDE)	47,83 %	49,90 %	100,00 %	0,00 %	12,89 %
XNGS New York - NASDAQ (NAD)	24,67 %	25,85 %	100,00 %	0,00 %	99,93 %
XNYS New York (NYSE) (NAY)	9,97 %	13,36 %	100,00 %	0,00 %	99,94 %
XPAR Paris (EFP)	9,21 %	6,48 %	100,00 %	0,00 %	81,21 %
XMIL Mailand (EIM)	1,54 %	0,27 %	100,00 %	0,00 %	100,00 %



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Class of Instrument AA99
Equity instruments- Shares and share certificates

Tick Size liquidity band E and liquidity band F

Top five execution venues ranked in terms of trading volumes (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as percentage of total in that class	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders
XETR XETRA (EDE)	56,38 %	58,86 %	100,00 %	0,00 %	44,18 %
XPAR Paris (EFP)	15,65 %	13,20 %	100,00 %	0,00 %	84,88 %
XLON London (EUL)	10,38 %	10,50 %	100,00 %	0,00 %	99,94 %
XOSL Oslo (SNO)	3,59 %	6,66 %	100,00 %	0,00 %	99,97 %
XAMS Amsterdam (ENA)	2,91 %	2,97 %	100,00 %	0,00 %	68,05 %



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Equity instruments- Shares and share certificates

Tick Size not used

Top five execution venues ranked in terms of trading volumes (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as percentage of total in that class	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders
XNGS New York - NASDAQ (NAD)	88,20 %	60,00 %	100,00 %	0,00 %	100,00 %
XNYS New York (NYSE) (NAY)	8,79 %	20,00 %	100,00 %	0,00 %	100,00 %
PINX New York-PinkSh.-OTC (NUP)	3,01 %	20,00 %	100,00 %	0,00 %	100,00 %



Top 5 venue reporting regarding MIFID II retail clients financial year 2018

Class of Instrument AB99
Equity instruments- Shares and share certificates

Tick Size liquidity band A and liquidity band B

Top five execution venues ranked in terms of trading volumes (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as percentage of total in that class	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders
XNGS New York - NASDAQ (NAD)	48,00 %	29,67 %	100,00 %	0,00 %	100,00 %
XNYS New York (NYSE) (NAY)	20,70 %	17,58 %	100,00 %	0,00 %	100,00 %
XFRA Frankfurt (EDF)	13,60 %	26,37 %	100,00 %	0,00 %	58,33 %
XNMS New York (Nasdaq) (NAN)	4,71 %	3,30 %	100,00 %	0,00 %	100,00 %
PINX New York-PinkSh.-OTC (NUP)	4,62 %	4,40 %	100,00 %	0,00 %	100,00 %



Top 5 venue reporting regarding MIFID II retail clients financial year 2018

Class of Instrument AB99
Equity instruments- Shares and share certificates

Tick Size liquidity band C and liquidity band D

Top five execution venues ranked in terms of trading volumes (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as percentage of total in that class	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders
XLON London (EUL)	69,44 %	81,35 %	100,00 %	0,00 %	99,86 %
XFRA Frankfurt (EDF)	13,66 %	9,05 %	100,00 %	0,00 %	53,66 %
XNYS New York (NYSE) (NAY)	11,81 %	4,75 %	100,00 %	0,00 %	100,00 %
XETR XETRA (EDE)	5,04 %	4,75 %	100,00 %	0,00 %	4,65 %
XSTU Stuttgart (EDS)	0,05 %	0,11 %	100,00 %	0,00 %	100,00 %



Top 5 venue reporting regarding MIFID II retail clients financial year 2018

Class of Instrument AB99
Equity instruments- Shares and share certificates

Tick Size liquidity band E and liquidity band F

Top five execution venues ranked in terms of trading volumes (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as percentage of total in that class	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders
XETR XETRA (EDE)	58,43 %	51,41 %	100,00 %	0,00 %	13,70 %
XFRA Frankfurt (EDF)	37,37 %	47,89 %	100,00 %	0,00 %	36,76 %
XLON London (EUL)	4,20 %	0,70 %	100,00 %	0,00 %	100,00 %



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Top 5 venue reporting regarding MIFID II retail clients financial year 2018

Class of Instrument AC99
Exchange traded products (ETPs)Exc

Tick Size not used

Top five execution venues ranked in terms of trading volumes (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as percentage of total in that class	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders
XETR XETRA (EDE)	87,39 %	90,68 %	100,00 %	0,00 %	42,79 %
XLON London (EUL)	9,77 %	7,85 %	100,00 %	0,00 %	98,35 %
XNYS New York (NYSE) (NAY)	0,42 %	0,09 %	100,00 %	0,00 %	100,00 %
XTSE Toronto (NCT)	0,32 %	0,03 %	100,00 %	0,00 %	100,00 %
CHIX London - Chi-X Europ (EUI)	0,32 %	0,14 %	100,00 %	0,00 %	100,00 %



Top 5 venue reporting regarding MIFID II retail clients financial year 2018

Class of Instrument AD99
other instruments

Tick Size not used

Top five execution venues ranked in terms of trading volumes (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as percentage of total in that class	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders
XVTX Zurich - Swiss Blue (ESZ)	43,63 %	23,71 %	100,00 %	0,00 %	97,83 %
XETR XETRA (EDE)	23,47 %	52,06 %	100,00 %	0,00 %	7,92 %
XSWX Zürich (ESE)	15,82 %	8,25 %	100,00 %	0,00 %	100,00 %
XFRA Frankfurt (EDF)	7,64 %	7,22 %	100,00 %	0,00 %	0,00 %
XSTU Stuttgart (EDS)	5,47 %	3,61 %	100,00 %	0,00 %	100,00 %



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Top 5 venue reporting regarding MIFID II retail clients financial year 2018

Class of Instrument AE99
other instruments

Tick Size not used

Top five execution venues ranked in terms of trading volumes (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as percentage of total in that class	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders
XETR XETRA (EDE)	29,89 %	82,41 %	100,00 %	0,00 %	6,12 %
XSTU Stuttgart (EDS)	27,48 %	2,98 %	100,00 %	0,00 %	69,57 %
XSWX Zürich (ESE)	24,11 %	1,29 %	100,00 %	0,00 %	70,00 %
BMTF Bloomberg (BLOM)	9,71 %	0,26 %	100,00 %	0,00 %	100,00 %
XFRA Frankfurt (EDF)	5,99 %	1,81 %	100,00 %	0,00 %	21,43 %



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Top 5 venue reporting regarding MIFID II retail clients financial year 2018

Class of Instrument BA10
Debt instruments

Tick Size not used

Top five execution venues ranked in terms of trading volumes (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as percentage of total in that class	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders
BMTF Bloomberg (BLOM)	92,01 %	78,66 %	100,00 %	0,00 %	99,37 %
XFRA Frankfurt (EDF)	5,24 %	13,96 %	100,00 %	0,00 %	15,19 %
XSTU Stuttgart (EDS)	2,53 %	6,74 %	100,00 %	0,00 %	12,07 %
XHAN Hannover (EDI)	0,11 %	0,42 %	100,00 %	0,00 %	100,00 %
XBER Berlin-Bremen (EDB)	0,10 %	0,16 %	100,00 %	0,00 %	100,00 %



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Top 5 venue reporting regarding MIFID II retail clients financial year 2018

Class of Instrument BA11
Debt instruments

Tick Size not used

Top five execution venues ranked in terms of trading volumes (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as percentage of total in that class	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders
BMTF Bloomberg (BLOM)	91,99 %	56,32 %	100,00 %	0,00 %	97,96 %
XFRA Frankfurt (EDF)	4,92 %	28,74 %	100,00 %	0,00 %	12,00 %
XMUN München (EDM)	1,41 %	2,30 %	100,00 %	0,00 %	100,00 %
XSTU Stuttgart (EDS)	0,93 %	8,05 %	100,00 %	0,00 %	42,86 %
XDUS Düsseldorf (EDD)	0,34 %	1,15 %	100,00 %	0,00 %	100,00 %



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Top 5 venue reporting regarding MIFID II retail clients financial year 2018

Class of Instrument BA12
Debt instruments

Tick Size not used

Top five execution venues ranked in terms of trading volumes (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as percentage of total in that class	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders
BMTF Bloomberg (BLOM)	59,41 %	10,53 %	100,00 %	0,00 %	100,00 %
XFRA Frankfurt (EDF)	36,44 %	86,84 %	100,00 %	0,00 %	0,00 %
XSTU Stuttgart (EDS)	4,15 %	2,63 %	100,00 %	0,00 %	100,00 %



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Top 5 venue reporting regarding MIFID II retail clients financial year 2018

Class of Instrument BA13
Debt instruments

Tick Size not used

Top five execution venues ranked in terms of trading volumes (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as percentage of total in that class	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders
BMTF Bloomberg (BLOM)	97,00 %	80,28 %	100,00 %	0,00 %	91,23 %
XFRA Frankfurt (EDF)	1,57 %	9,86 %	100,00 %	0,00 %	0,00 %
XSTU Stuttgart (EDS)	1,44 %	9,86 %	100,00 %	0,00 %	28,57 %



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Top 5 venue reporting regarding MIFID II retail clients financial year 2018

Class of Instrument BA14
Debt instruments

Tick Size not used

Top five execution venues ranked in terms of trading volumes (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as percentage of total in that class	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders
BMTF Bloomberg (BLOM)	84,64 %	68,74 %	100,00 %	0,00 %	99,87 %
XFRA Frankfurt (EDF)	9,25 %	18,41 %	100,00 %	0,00 %	16,72 %
XSTU Stuttgart (EDS)	4,92 %	10,93 %	100,00 %	0,00 %	21,65 %
XBER Berlin-Bremen (EDB)	0,41 %	0,54 %	100,00 %	0,00 %	93,00 %
XHAN Hannover (EDI)	0,39 %	0,96 %	100,00 %	0,00 %	98,31 %



Top 5 venue reporting regarding MIFID II retail clients financial year 2018

Class of Instrument BA15
Debt instruments

Tick Size not used

Top five execution venues ranked in terms of trading volumes (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as percentage of total in that class	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders
BMTF Bloomberg (BLOM)	61,83 %	43,51 %	100,00 %	0,00 %	99,64 %
XFRA Frankfurt (EDF)	21,62 %	32,80 %	100,00 %	0,00 %	17,43 %
XSTU Stuttgart (EDS)	8,16 %	11,74 %	100,00 %	0,00 %	39,91 %
XHAN Hannover (EDI)	5,49 %	8,55 %	100,00 %	0,00 %	61,45 %
XDUS Düsseldorf (EDD)	1,20 %	0,72 %	100,00 %	0,00 %	100,00 %



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Top 5 venue reporting regarding MIFID II retail clients financial year 2018

Class of Instrument BD21
Equity derivatives

Tick Size not used

Top five execution venues ranked in terms of trading volumes (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as percentage of total in that class	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders
XEUR EUREX (EDT)	84,04 %	85,27 %	100,00 %	0,00 %	0,56 %
XEUE Amsterdam D. (ENEXT) (ENH)	11,49 %	8,09 %	100,00 %	0,00 %	0,00 %
XDMI Mailand-IDEM (EIM1)	2,75 %	2,08 %	100,00 %	0,00 %	0,00 %
XCBO Chicago (CBOE) (NAV)	1,41 %	3,72 %	100,00 %	0,00 %	3,23 %
IFLO London - ICE Fut. Eu (EUL1)	0,29 %	0,72 %	100,00 %	0,00 %	0,00 %



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Top 5 venue reporting regarding MIFID II retail clients financial year 2018

Class of Instrument BE21
securitized derivatives

Tick Size not used

Top five execution venues ranked in terms of trading volumes (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as percentage of total in that class	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders
XFRA Frankfurt (EDF)	62,85 %	59,98 %	100,00 %	0,00 %	11,87 %
XSTU Stuttgart (EDS)	37,09 %	39,95 %	100,00 %	0,00 %	98,63 %
XQMH Zürich SWX Scoach (ESS)	0,05 %	0,05 %	100,00 %	0,00 %	0,00 %
XHAM Hamburg (EDH)	0,02 %	0,02 %	100,00 %	0,00 %	0,00 %



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Top 5 venue reporting regarding MIFID II retail clients financial year 2018

Class of Instrument BE22
securitized derivatives

Tick Size not used

Top five execution venues ranked in terms of trading volumes (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as percentage of total in that class	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders
XFRA Frankfurt (EDF)	53,08 %	50,00 %	100,00 %	0,00 %	0,00 %
XSTU Stuttgart (EDS)	40,46 %	16,67 %	100,00 %	0,00 %	0,00 %
XNYS New York (NYSE) (NAY)	6,46 %	33,33 %	100,00 %	0,00 %	100,00 %



Top 5 venue reporting regarding MIFID II retail clients financial year 2018

Class of Instrument BE23
securitized derivatives

Tick Size not used

Top five execution venues ranked in terms of trading volumes (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as percentage of total in that class	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders
XFRA Frankfurt (EDF)	58,81 %	33,33 %	100,00 %	0,00 %	0,00 %
XSTU Stuttgart (EDS)	41,19 %	66,67 %	100,00 %	0,00 %	75,00 %



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Top 5 venue reporting regarding MIFID II retail clients financial year 2018

Class of Instrument BE24
securitized derivatives

Tick Size not used

Top five execution venues ranked in terms of trading volumes (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as percentage of total in that class	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders
XFRA Frankfurt (EDF)	95,81 %	88,57 %	100,00 %	0,00 %	3,23 %
XSTU Stuttgart (EDS)	4,19 %	11,43 %	100,00 %	0,00 %	75,00 %



Top 5 venue reporting regarding MIFID II retail clients financial year 2018

Class of Instrument BE99
securitized derivatives

Tick Size not used

Top five execution venues ranked in terms of trading volumes (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as percentage of total in that class	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders
XFRA Frankfurt (EDF)	79,40 %	68,75 %	100,00 %	0,00 %	0,00 %
XSTU Stuttgart (EDS)	11,92 %	27,08 %	100,00 %	0,00 %	96,15 %
XDUS Düsseldorf (EDD)	8,68 %	4,17 %	100,00 %	0,00 %	25,00 %



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Top 5 venue reporting regarding MIFID II retail clients financial year 2018

Class of Instrument BF99
Exchange traded products (ETPs)

Tick Size not used

Top five execution venues ranked in terms of trading volumes (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as percentage of total in that class	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders
XETR XETRA (EDE)	75,33 %	79,58 %	100,00 %	0,00 %	5,26 %
XSTU Stuttgart (EDS)	23,21 %	16,23 %	100,00 %	0,00 %	61,29 %
XFRA Frankfurt (EDF)	0,83 %	2,62 %	100,00 %	0,00 %	100,00 %
XHAM Hamburg (EDH)	0,63 %	1,57 %	100,00 %	0,00 %	0,00 %



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Top 5 venue reporting regarding MIFID II retail clients financial year 2018

Class of Instrument BG99
Exchange traded products (ETPs)

Tick Size not used

Top five execution venues ranked in terms of trading volumes (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as percentage of total in that class	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders
XETR XETRA (EDE)	58,12 %	83,33 %	100,00 %	0,00 %	0,00 %
XSTU Stuttgart (EDS)	41,88 %	16,67 %	100,00 %	0,00 %	100,00 %



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Top 5 venue reporting regarding MIFID II retail clients financial year 2018

Class of Instrument C999
no specific classification

Tick Size not used

Top five execution venues ranked in terms of trading volumes (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as percentage of total in that class	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders
XSTU Stuttgart (EDS)	42,25 %	29,13 %	100,00 %	0,00 %	100,00 %
XHAM Hamburg (EDH)	27,82 %	51,30 %	100,00 %	0,00 %	88,98 %
XFRA Frankfurt (EDF)	20,74 %	15,65 %	100,00 %	0,00 %	100,00 %
XBER Berlin-Bremen (EDB)	8,23 %	2,61 %	100,00 %	0,00 %	100,00 %
XSWX Zürich (ESE)	0,52 %	0,43 %	100,00 %	0,00 %	0,00 %



Top 5 venue reporting regarding MIFID II retail clients financial year 2018

Class of Instrument CA99
Debt instruments

Tick Size not used

Top five execution venues ranked in terms of trading volumes (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as percentage of total in that class	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders
BMTF Bloomberg (BLOM)	100,00 %	100,00 %	100,00 %	0,00 %	100,00 %



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Top 5 venue reporting regarding MIFID II retail clients financial year 2018

Class of Instrument CB99
 Other instruments

Tick Size not used

Top five execution venues ranked in terms of trading volumes (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as percentage of total in that class	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders
XSTU Stuttgart (EDS)	36,48 %	18,00 %	100,00 %	0,00 %	100,00 %
XFRA Frankfurt (EDF)	31,98 %	52,00 %	100,00 %	0,00 %	100,00 %
XHAM Hamburg (EDH)	30,92 %	28,00 %	100,00 %	0,00 %	100,00 %
XMUN München (EDM)	0,61 %	2,00 %	100,00 %	0,00 %	100,00 %