



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

Information on whether an average of < 1 trade per business day was executed in the previous year: Y

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)	93,79 %	96,57 %	100,00 %	0,00 %	100,00 %
XASE New York (AMEX) (NAA)	5,17 %	1,14 %	100,00 %	0,00 %	50,00 %
XJSE Johannesburg (KSJ)	0,42 %	0,57 %	100,00 %	0,00 %	0,00 %
XLON London (EUL)	0,41 %	0,57 %	100,00 %	0,00 %	100,00 %
XFRA Frankfurt (EDF)	0,22 %	1,14 %	100,00 %	0,00 %	50,00 %



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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 liquidity band A and liquidity band B

Information on whether an average of < 1 trade per business day was executed in the previous year: N

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)	47,63 %	47,99 %	100,00 %	0,00 %	100,00 %
XNGS New York - NASDAQ (NAD)	39,80 %	37,79 %	100,00 %	0,00 %	100,00 %
PURE Toronto Pure (NCP)	4,35 %	5,18 %	100,00 %	0,00 %	100,00 %
XETR XETRA (EDE)	3,63 %	6,03 %	100,00 %	0,00 %	1,67 %
XTKS Tokio (FJT)	1,10 %	0,40 %	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 AA99  
Equity instruments- Shares and share certificates

Tick Size liquidity band C and liquidity band D

Information on whether an average of < 1 trade per business day was executed in the previous year: N

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)	29,74 %	36,52 %	100,00 %	0,00 %	30,31 %
XPAR Paris (EFP)	18,94 %	20,46 %	100,00 %	0,00 %	98,94 %
XNGS New York - NASDAQ (NAD)	14,36 %	11,61 %	100,00 %	0,00 %	100,00 %
XOSL Oslo (SNO)	5,89 %	5,86 %	100,00 %	0,00 %	100,00 %
XCSE Copenhagen (SDC)	5,37 %	6,02 %	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 AA99  
Equity instruments- Shares and share certificates

Tick Size liquidity band E and liquidity band F

Information on whether an average of < 1 trade per business day was executed in the previous year: N

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)	45,50 %	39,20 %	100,00 %	0,00 %	68,03 %
XPAR Paris (EFP)	13,55 %	14,58 %	100,00 %	0,00 %	96,46 %
XLON London (EUL)	7,80 %	8,64 %	100,00 %	0,00 %	100,00 %
XSWX Zürich (ESE)	6,15 %	7,00 %	100,00 %	0,00 %	100,00 %
XAMS Amsterdam (ENA)	4,98 %	6,49 %	100,00 %	0,00 %	96,44 %



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## 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

Information on whether an average of < 1 trade per business day was executed in the previous year: Y

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)	37,25 %	20,37 %	100,00 %	0,00 %	100,00 %
PINX New York-PinkSh.-OTC (NUP)	30,84 %	40,74 %	100,00 %	0,00 %	100,00 %
XNYS New York (NYSE) (NAY)	25,27 %	34,26 %	100,00 %	0,00 %	100,00 %
XFRA Frankfurt (EDF)	6,64 %	4,63 %	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

Information on whether an average of < 1 trade per business day was executed in the previous year: Y

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)	92,46 %	90,11 %	100,00 %	0,00 %	100,00 %
XETR XETRA (EDE)	7,54 %	9,89 %	100,00 %	0,00 %	11,11 %



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## 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

Information on whether an average of < 1 trade per business day was executed in the previous year: Y

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
XSTO Stockholm (SSS)	64,45 %	42,86 %	100,00 %	0,00 %	100,00 %
XLON London (EUL)	17,85 %	14,29 %	100,00 %	0,00 %	100,00 %
XPAR Paris (EFP)	12,09 %	28,57 %	100,00 %	0,00 %	100,00 %
XETR XETRA (EDE)	5,61 %	14,29 %	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 AC99  
Exchange traded products (ETPs)Exc

Tick Size not used

Information on whether an average of < 1 trade per business day was executed in the previous year: N

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)	66,88 %	88,93 %	100,00 %	0,00 %	33,55 %
XLON London (EUL)	23,25 %	6,06 %	100,00 %	0,00 %	100,00 %
CHIX London - Chi-X Europ (EUI)	6,22 %	1,98 %	100,00 %	0,00 %	100,00 %
XPAR Paris (EFP)	1,48 %	0,35 %	100,00 %	0,00 %	100,00 %
XAMS Amsterdam (ENA)	1,25 %	0,23 %	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 AD99  
other instruments

Tick Size not used

Information on whether an average of < 1 trade per business day was executed in the previous year: Y

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)	77,22 %	84,91 %	100,00 %	0,00 %	100,00 %
XSWX Zürich (ESE)	17,62 %	11,32 %	100,00 %	0,00 %	100,00 %
XETR XETRA (EDE)	5,17 %	3,77 %	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 AE99  
other instruments

Tick Size not used

Information on whether an average of < 1 trade per business day was executed in the previous year: Y

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
XOFF Bloomberg (BLOM)	62,80 %	1,96 %	100,00 %	0,00 %	100,00 %
XSTU Stuttgart (EDS)	18,68 %	40,20 %	100,00 %	0,00 %	63,41 %
XFRA Frankfurt (EDF)	12,46 %	4,90 %	100,00 %	0,00 %	100,00 %
XSWX Zürich (ESE)	5,21 %	3,92 %	100,00 %	0,00 %	75,00 %
XETR XETRA (EDE)	0,82 %	43,14 %	100,00 %	0,00 %	18,18 %



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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

Information on whether an average of < 1 trade per business day was executed in the previous year: N

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
XOFF Bloomberg (BLOM)	92,88 %	84,06 %	100,00 %	0,00 %	100,00 %
XFRA Frankfurt (EDF)	4,06 %	7,11 %	100,00 %	0,00 %	51,85 %
XSTU Stuttgart (EDS)	3,06 %	8,83 %	100,00 %	0,00 %	56,72 %



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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

Information on whether an average of < 1 trade per business day was executed in the previous year: Y

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
XOFF Bloomberg (BLOM)	79,32 %	92,31 %	100,00 %	0,00 %	100,00 %
XSTU Stuttgart (EDS)	20,68 %	7,69 %	100,00 %	0,00 %	100,00 %



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

Class of Instrument BA13  
Debt instruments

Tick Size not used

Information on whether an average of < 1 trade per business day was executed in the previous year: Y

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
XOFF 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 BA14  
Debt instruments

Tick Size not used

Information on whether an average of < 1 trade per business day was executed in the previous year: N

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
XOFF Bloomberg (BLOM)	71,55 %	52,94 %	100,00 %	0,00 %	100,00 %
XSTU Stuttgart (EDS)	18,72 %	37,05 %	100,00 %	0,00 %	94,82 %
XFRA Frankfurt (EDF)	9,02 %	9,53 %	100,00 %	0,00 %	28,93 %
DUSA Düsseldorf (EDD)	0,71 %	0,48 %	100,00 %	0,00 %	100,00 %



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

Class of Instrument BA15  
Debt instruments

Tick Size not used

Information on whether an average of < 1 trade per business day was executed in the previous year: Y

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
XOFF Bloomberg (BLOM)	66,18 %	68,91 %	100,00 %	0,00 %	100,00 %
XFRA Frankfurt (EDF)	23,79 %	17,10 %	100,00 %	0,00 %	27,27 %
XSTU Stuttgart (EDS)	10,04 %	13,99 %	100,00 %	0,00 %	96,30 %



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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

Information on whether an average of < 1 trade per business day was executed in the previous year: Y

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)	80,61 %	85,27 %	100,00 %	0,00 %	99,20 %
XFRA Frankfurt (EDF)	19,39 %	14,73 %	100,00 %	0,00 %	37,21 %





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

Class of Instrument BE24  
securitized derivatives

Tick Size not used

Information on whether an average of < 1 trade per business day was executed in the previous year: Y

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)	100,00 %	100,00 %	100,00 %	0,00 %	100,00 %



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

Class of Instrument BE99  
securitized derivatives

Tick Size not used

Information on whether an average of < 1 trade per business day was executed in the previous year: Y

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)	100,00 %	100,00 %	100,00 %	0,00 %	100,00 %



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

Class of Instrument      BF99  
Exchange traded products (ETPs)

Tick Size                not used

Information on whether an average of < 1 trade per business day was executed in the previous year: Y

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)	100,00 %	100,00 %	100,00 %	0,00 %	57,14 %



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

Class of Instrument C999  
no specific classification

Tick Size not used

Information on whether an average of < 1 trade per business day was executed in the previous year: Y

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)	100,00 %	100,00 %	100,00 %	0,00 %	100,00 %