

Top five execution venues

Class of Instrument	Equities - Shares & Depository Receipts Tick size liquidity bands 5 and 6 (from 2000 trades per day)				
Notification if < 1 average trade per business day 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
XETRA - REGULIERTER MARKT (XETA)	1,4%	0,8%	30,1%	67,5%	50,3%
TRADEGATE EXCHANGE - FREIVERKEHR (XGAT)	0,8%	0,3%	0,1%	0,5%	99,0%
XETRA - FREIVERKEHR (XETB)	0,1%	0,1%	35,1%	61,7%	80,7%
BOERSE FRANKFURT - FREIVERKEHR (FRAB)	0,1%	0,1%	0,1%	0,1%	47,9%
BOERSE FRANKFURT - REGULIERTER MARKT (FRAA)	0,0%	0,0%	0,3%	0,6%	18,8%

Class of Instrument	Equities - Shares & Depository Receipts Tick size liquidity bands 3 and 4 (from 80 to 1999 trades per day)				
Notification if < 1 average trade per business day 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
XETRA - REGULIERTER MARKT (XETA)	1,4%	0,8%	48,0%	49,1%	58,8%
TRADEGATE EXCHANGE - FREIVERKEHR (XGAT)	0,4%	0,3%	0,4%	0,5%	99,1%
BOERSE FRANKFURT - FREIVERKEHR (FRAB)	0,1%	0,0%	0,4%	0,0%	51,9%
XETRA - FREIVERKEHR (XETB)	0,1%	0,0%	42,1%	54,6%	100,0%
BOERSE FRANKFURT - REGULIERTER MARKT (FRAA)	0,1%	0,0%	0,5%	0,0%	19,7%

Class of Instrument	Equities - Shares & Depository Receipts Tick size liquidity band 1 and 2 (from 0 to 79 trades per day)				
Notification if < 1 average trade per business day 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
TRADEGATE EXCHANGE - FREIVERKEHR (XGAT)	0,3%	0,3%	0,1%	0,7%	98,5%
XETRA - REGULIERTER MARKT (XETA)	0,2%	0,2%	50,9%	46,3%	75,5%
BOERSE FRANKFURT - FREIVERKEHR (FRAB)	0,1%	0,1%	0,0%	0,4%	62,0%
BOERSE STUTTGART - FREIVERKEHR (STUB)	0,1%	0,0%	0,5%	0,0%	96,5%
XETRA - FREIVERKEHR (XETB)	0,1%	0,1%	72,1%	21,0%	99,8%

Class of Instrument	Debt instruments Bonds				
Notification if < 1 average trade per business day 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
BOERSE STUTTGART - FREIVERKEHR (STUB)	4,6%	4,8%	0,0%	0,0%	15,1%
DZ BANK AG Deutsche Zentral-Genossenschaftsbank, Frankfurt am Main	3,2%	0,2%	0,0%	0,8%	89,6%
BOERSE FRANKFURT - FREIVERKEHR (FRAB)	0,4%	0,4%	0,0%	0,0%	93,1%
TRADEGATE EXCHANGE - FREIVERKEHR (XGAT)	0,3%	0,4%	0,0%	0,0%	100,0%
BOERSE MUENCHEN - FREIVERKEHR (MUNB)	0,3%	0,1%	0,0%	0,0%	100,0%

Class of Instrument	Debt instruments Money markets instruments				
Notification if < 1 average trade per business day in the previous year	N				

Top five investment firms

Class of Instrument	Equities - Shares & Depository Receipts Tick size liquidity bands 5 and 6 (from 2000 trades per day)				
Notification if < 1 average trade per business day in the previous year	N				
Top five investment firms 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
ICF BANK AG Wertpapierhandelsbank (529900E89HA1I45HB613)	6,7%	0,3%	0,0%	0,0%	22,7%
VIRTU ITG EUROPE LIMITED (213800EEC95PRUCEUP63)	0,0%	0,0%	0,0%	0,0%	96,6%
VIRTU FINANCIAL IRELAND LIMITED (549300XG5LFGN1IGYC71)	0,0%	0,0%	0,0%	0,0%	100,0%
UBS Europe SE (5299007QVIQ7IO64NX37)	0,0%	0,0%	0,0%	0,0%	100,0%

Class of Instrument	Equities - Shares & Depository Receipts Tick size liquidity bands 3 and 4 (from 80 to 1999 trades per day)				
Notification if < 1 average trade per business day in the previous year	N				
Top five investment firms 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
ICF BANK AG Wertpapierhandelsbank (529900E89HA1I45HB613)	1,3%	0,2%	0,0%	0,0%	46,9%
VIRTU FINANCIAL IRELAND LIMITED (549300XG5LFGN1IGYC71)	0,0%	0,0%	0,0%	0,0%	100,0%

Class of Instrument	Equities - Shares & Depository Receipts Tick size liquidity band 1 and 2 (from 0 to 79 trades per day)				
Notification if < 1 average trade per business day in the previous year	N				
Top five investment firms 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
ICF BANK AG Wertpapierhandelsbank (529900E89HA1I45HB613)	3,6%	0,4%	0,0%	0,0%	37,7%
VIRTU ITG EUROPE LIMITED (213800EEC95PRUCEUP63)	0,0%	0,0%	0,0%	0,0%	100,0%

Class of Instrument	Debt instruments Bonds				
Notification if < 1 average trade per business day in the previous year	N				
Top five investment firms 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
ICF BANK AG Wertpapierhandelsbank (529900E89HA1I45HB613)	0,0%	0,1%	0,0%	0,0%	41,0%
INTESA SANPAOLO BANK LUXEMBOURG (549300H62SNDRT0PS319)	0,0%	0,0%	0,0%	0,0%	100,0%
Degussa Bank AG (MRFNHBHO7AUDKS46SC62)	0,0%	0,0%	0,0%	0,0%	100,0%

Class of Instrument	Debt instruments Money markets instruments				
Notification if < 1 average trade per business day in the previous year	Y				

Top five execution venues

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
BOERSE STUTTGART - FREIVERKEHR (STUB)	0,3%	1,6%	0,0%	0,0%	60,9%
BOERSE FRANKFURT - FREIVERKEHR (FRAB)	0,0%	0,2%	0,0%	0,0%	100,0%

Top five investment firms

Top five investment firms 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

Class of Instrument	Interest rates derivatives Futures and options admitted to trading on a trading venue				
Notification if < 1 average trade per business day 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
DZ BANK AG Deutsche Zentral-Genossenschaftsbank, Frankfurt am Main	32,2%	50,0%	0,0%	0,0%	100,0%

Class of Instrument	Interest rates derivatives Futures and options admitted to trading on a trading venue				
Notification if < 1 average trade per business day in the previous year	Y				
Top five investment firms 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

Class of Instrument	Interest rates derivatives Swaps, forwards, and other interest rates derivatives				
Notification if < 1 average trade per business day 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

Class of Instrument	Interest rates derivatives Swaps, forwards, and other interest rates derivatives				
Notification if < 1 average trade per business day in the previous year	Y				
Top five investment firms 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

Top five execution venues

Class of Instrument	Credit derivatives Futures and options admitted to trading on a trading venue				
Notification if < 1 average trade per business day 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

Class of Instrument	Credit derivatives Other credit derivatives				
Notification if < 1 average trade per business day 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

Class of Instrument	Currency derivatives Futures and options admitted to trading on a trading venue				
Notification if < 1 average trade per business day 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

Class of Instrument	Currency derivatives Swaps, forwards, and other currency derivatives				
Notification if < 1 average trade per business day 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

Class of Instrument	Structured finance instruments				
Notification if < 1 average trade per business day in the previous year	N				

Top five investment firms

Class of Instrument	Credit derivatives Futures and options admitted to trading on a trading venue				
Notification if < 1 average trade per business day in the previous year	Y				
Top five investment firms 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

Class of Instrument	Credit derivatives Other credit derivatives				
Notification if < 1 average trade per business day in the previous year	Y				
Top five investment firms 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

Class of Instrument	Currency derivatives Futures and options admitted to trading on a trading venue				
Notification if < 1 average trade per business day in the previous year	Y				
Top five investment firms 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

Class of Instrument	Currency derivatives Swaps, forwards, and other currency derivatives				
Notification if < 1 average trade per business day in the previous year	Y				
Top five investment firms 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

Class of Instrument	Structured finance instruments				
Notification if < 1 average trade per business day in the previous year	Y				

Top five execution venues

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
DZ BANK AG Deutsche Zentral-Genossenschaftsbank, Frankfurt am Main	4,2%	0,6%	0,0%	0,0%	50,0%
BOERSE STUTTGART - FREIVERKEHR (STUB)	1,5%	1,7%	0,0%	0,0%	0,0%
BOERSE FRANKFURT - FREIVERKEHR (FRAB)	0,0%	0,1%	0,0%	0,0%	0,0%
BOERSE MUENCHEN - FREIVERKEHR (MUNB)	0,0%	0,4%	0,0%	0,0%	100,0%

Top five investment firms

Top five investment firms 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

Class of Instrument	Equity derivatives Options and futures admitted to trading on a trading venue				
Notification if < 1 average trade per business day 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
EUREX DEUTSCHLAND (XEUR)	51,7%	22,7%	75,7%	23,5%	100,0%

Class of Instrument	Equity derivatives Options and futures admitted to trading on a trading venue				
Notification if < 1 average trade per business day in the previous year	Y				
Top five investment firms 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

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Class of Instrument	Equity derivatives Swaps and other equity derivatives				
Notification if < 1 average trade per business day 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

Class of Instrument	Securitized Derivatives Warrants and Certificate Derivatives				
Notification if < 1 average trade per business day 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
BOERSE STUTTGART - FREIVERKEHR (STUB)	1,8%	0,4%	0,1%	0,5%	52,1%
XETRA - REGULIERTER MARKT (XETA)	0,7%	0,1%	22,4%	73,4%	48,5%
BOERSE FRANKFURT - FREIVERKEHR (FRAB)	0,4%	0,2%	0,0%	0,4%	67,0%
DZ BANK AG Deutsche Zentral-Genossenschaftsbank, Frankfurt am Main	0,1%	0,0%	1,2%	9,8%	69,5%
TRADEGATE EXCHANGE - FREIVERKEHR (XGAT)	0,1%	0,0%	0,0%	1,4%	100,0%

Class of Instrument	Securitized Derivatives Other securitized derivatives				
Notification if < 1 average trade per business day 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

Class of Instrument	Commodities derivatives and emission allowances derivatives Options and futures admitted to trading on a trading venue				
Notification if < 1 average trade per business day 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

Class of Instrument	Commodities derivatives and emission allowances derivatives Other commodities derivatives and emission allowances derivatives				
Notification if < 1 average trade per business day in the previous year	Y				

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Class of Instrument	Equity derivatives Swaps and other equity derivatives				
Notification if < 1 average trade per business day in the previous year	Y				
Top five investment firms 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

Class of Instrument	Securitized Derivatives Warrants and Certificate Derivatives				
Notification if < 1 average trade per business day in the previous year	N				
Top five investment firms 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
JANE STREET FINANCIAL LIMITED (549300ZHEHX8M31RP142)	0,0%	0,0%	0,0%	0,0%	100,0%
Boerse Stuttgart cats GmbH (529900TW3YXY9C6T1G09)	0,0%	0,0%	0,0%	0,0%	100,0%
ICF BANK AG Wertpapierhandelsbank (529900E89HA145HB613)	0,0%	0,0%	0,0%	0,0%	0,0%

Class of Instrument	Securitized Derivatives Other securitized derivatives				
Notification if < 1 average trade per business day in the previous year	Y				
Top five investment firms 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

Class of Instrument	Commodities derivatives and emission allowances derivatives Options and futures admitted to trading on a trading venue				
Notification if < 1 average trade per business day in the previous year	Y				
Top five investment firms 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

Class of Instrument	Commodities derivatives and emission allowances derivatives Other commodities derivatives and emission allowances derivatives				
Notification if < 1 average trade per business day in the previous year	Y				

Top five execution venues

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

Top five investment firms

Top five investment firms 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

Top five execution venues

Class of Instrument	Contracts for difference				
Notification if < 1 average trade per business day 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

Class of Instrument	Exchange traded products (Exchange traded funds, exchange traded notes and exchange traded commodities)				
Notification if < 1 average trade per business day 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
XETRA - REGULIERTER MARKT (XETA)	7,7%	2,3%	15,4%	79,8%	25,8%
TRADEGATE EXCHANGE - FREIVERKEHR (XGAT)	0,8%	0,2%	0,0%	0,0%	97,3%
BOERSE STUTT GART - FREIVERKEHR (STUB)	0,3%	0,0%	0,0%	0,0%	93,3%
BOERSE DUESSELDORF - QUOTRIX MTF (DUSD)	0,0%	0,0%	0,0%	5,7%	82,9%
BOERSE STUTT GART - REGULIERTER MARKT (STUA)	0,0%	0,0%	0,0%	0,0%	100,0%

Class of Instrument	Emission allowances				
Notification if < 1 average trade per business day 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

Class of Instrument	Other instruments
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Top five investment firms

Class of Instrument	Contracts for difference				
Notification if < 1 average trade per business day in the previous year	Y				
Top five investment firms 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

Class of Instrument	Exchange traded products (Exchange traded funds, exchange traded notes and exchange traded commodities)				
Notification if < 1 average trade per business day in the previous year	N				
Top five investment firms 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
ICF BANK AG Wertpapierhandelsbank (529900E89HA145HB613)	0,2%	0,0%	0,0%	0,0%	72,2%
Flow Traders B.V. (549300CLJ9XDH12XV51)	0,0%	0,0%	0,0%	12,5%	75,0%
Optiver V.O.F. (7245009KRY SAYB2QCC29)	0,0%	0,0%	0,0%	25,0%	100,0%
JANE STREET FINANCIAL LIMITED (549300ZHEHX8M31RP142)	0,0%	0,0%	0,0%	0,0%	100,0%
COMMERZBANK Aktiengesellschaft (851WYGNLUQLFZBSYGB56)	0,0%	0,0%	0,0%	0,0%	100,0%

Class of Instrument	Emission allowances				
Notification if < 1 average trade per business day in the previous year	Y				
Top five investment firms 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

Class of Instrument	Other instruments
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