

BlackRock Asset Management Deutschland AG

Annual Best Execution Disclosure 2019

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BlackRock®

Contents

Introduction

Quantitative Analysis

- Top five entity reports for the transmission of orders
- Securities Finance Transactions
 - Top five entity reports for the transmission of orders

Qualitative Analysis

- Equities: Shares & Depository Receipts
- Equity derivatives: Futures & Options admitted to trading on a trading venue
- Credit derivatives: Futures & Options admitted to trading on a trading venue
- Securitized derivatives: Warrants and certificate derivatives
- Other Instruments
- Securities Finance Transactions

Introduction

The publication of this report is required under the Markets in Financial Instruments Directive 2014/65/EU (“MIFID II”) and it is designed to provide information on the top five entities to which BlackRock transmits its clients’ orders for execution. It also includes information on how BlackRock monitors the quality of its clients’ trade execution, on BlackRock’s conflicts of interest and other matters, as they relate to the execution by BlackRock of its clients’ trades. The information in this report is in relation to orders transmitted for professional clients only during calendar year 2019. This document comprises two separate sections: a quantitative section, with information about the proportion of orders (and, where applicable, certain attributes of these orders) that were directed by BlackRock to its top five entities for each class of financial instruments as specified in the report; and a qualitative section, with information about monitoring, conflicts, inducements and other relevant matters. The quantitative section is presented first, and the qualitative section follows. Where BlackRock has not transmitted orders for execution in a given class of financial instrument, the relevant quantitative section shows that BlackRock transmitted fewer than 1 trade per business day on average during calendar year 2019, and it shows no other information. BlackRock utilises a centralised trading model such that BlackRock Asset Management Deutschland AG’s orders, are placed with a small number of market facing affiliates for execution, in accordance with BlackRock’s Global Execution and Order Placement Policy. As such, only BlackRock Asset Management Deutschland AG’s market facing affiliates appear in its report of top five entities to which clients’ orders were transmitted for execution. In Europe, centralised trading is carried out through BlackRock International Limited and information about execution venues or entities with which BlackRock International Limited executed or to which it transmitted orders on its own behalf and on behalf of, among others, BlackRock Asset Management Deutschland AG’s can be accessed at the below link

<https://www.blackrock.com/corporate/literature/annual-report/blackrock-international-limited-annual-best-execution-disclosure-2019.pdf>

Quantitative Analysis

Top five entity reports for the transmission of orders

Class of Instrument	Equities – Shares & Depository Receipts				
	Tick Size Liquidity Bands 1 and 2 (from 0 to 79 trades per day)				
Notification if <1 average trade per business day in the previous year	N				
Top 5 Venues ranked in terms of volume (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as a percentage of total in that class	Percentage of Passive Orders	Percentage of Aggressive Orders	Percentage of Directed Orders
BlackRock Asset Management North Asia Limited - 549300538IVQOFAXTY69	40.84%	7.91%	N/A	N/A	N/A
BlackRock International Limited - 5493008YUGP5E01BD70	34.11%	84.19%	N/A	N/A	N/A
BlackRock Financial Management, Inc. - 549300LVXYIVJKE13M84	25.05%	7.89%	N/A	N/A	N/A

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 5 Venues ranked in terms of volume (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as a percentage of total in that class	Percentage of Passive Orders	Percentage of Aggressive Orders	Percentage of Directed Orders
BlackRock International Limited - 5493008YUGP5E01BD70	99.28%	99.51%	N/A	N/A	N/A
BlackRock Asset Management North Asia Limited - 549300538IVQOFAXTY69	0.44%	0.19%	N/A	N/A	N/A
BlackRock Financial Management, Inc. - 549300LVXYIVJKE13M84	0.28%	0.30%	N/A	N/A	N/A

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 5 Venues ranked in terms of volume (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as a percentage of total in that class	Percentage of Passive Orders	Percentage of Aggressive Orders	Percentage of Directed Orders
BlackRock International Limited - 5493008YUGP5E01BD70	94.64%	94.83%	N/A	N/A	N/A
BlackRock Financial Management, Inc. - 549300LVXYIVJKE13M84	4.02%	3.86%	N/A	N/A	N/A
BlackRock Asset Management North Asia Limited - 549300538IVQOFAXTY69	1.34%	1.31%	N/A	N/A	N/A

Class of Instrument	Equity Derivatives: Futures & Options admitted to trading on a trading venue				
Notification if <1 average trade per business day in the previous year	N				
Top 5 Venues ranked in terms of volume (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as a percentage of total in that class	Percentage of Passive Orders	Percentage of Aggressive Orders	Percentage of Directed Orders
BlackRock International Limited - 5493008YUGP5E01BD70	97.34%	95.73%	N/A	N/A	N/A
BlackRock Financial Management, Inc. - 549300LVXYIVJKE13M84	2.66%	4.27%	N/A	N/A	N/A

Class of Instrument	Credit Derivatives: Futures & Options admitted to trading on a trading venue				
Notification if <1 average trade per business day in the previous year	N				
Top 5 Venues ranked in terms of volume (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as a percentage of total in that class	Percentage of Passive Orders	Percentage of Aggressive Orders	Percentage of Directed Orders
BlackRock International Limited - 5493008YUGP5E01BD70	99.34%	96.05%	N/A	N/A	N/A
BlackRock Financial Management, Inc. - 549300LVXYIVJKE13M84	0.66%	3.95%	N/A	N/A	N/A

Class of Instrument	Securitized derivatives: Warrants and certificate derivatives				
Notification if <1 average trade per business day in the previous year	N				
Top 5 Venues ranked in terms of volume (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as a percentage of total in that class	Percentage of Passive Orders	Percentage of Aggressive Orders	Percentage of Directed Orders
BlackRock International Limited - 5493008YUGP5E01BD70	99.94%	94.00%	N/A	N/A	N/A
BlackRock Financial Management, Inc. - 549300LVXYIVJKE13M84	0.06%	6.00%	N/A	N/A	N/A

Class of Instrument	Other Instruments				
Notification if <1 average trade per business day in the previous year	N				
Top 5 Venues ranked in terms of volume (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as a percentage of total in that class	Percentage of Passive Orders	Percentage of Aggressive Orders	Percentage of Directed Orders
BlackRock International Limited - 5493008YUGP5E01BD70	43.83%	71.54%	N/A	N/A	N/A
BlackRock Financial Management, Inc. - 549300LVXYIVJKE13M84	30.01%	17.56%	N/A	N/A	N/A
BlackRock Asset Management North Asia Limited - 549300538IVQOFAXTY69	26.16%	10.91%	N/A	N/A	N/A

Class of Instrument	Interest Rate Derivatives: Futures & Options admitted to trading on a trading venue				
Notification if <1 average trade per business day in the previous year	Y				
Top 5 Venues ranked in terms of volume (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as a percentage of total in that class	Percentage of Passive Orders	Percentage of Aggressive Orders	Percentage of Directed Orders

Class of Instrument	Currency Derivatives: Futures & Options admitted to trading on a trading venue				
Notification if <1 average trade per business day in the previous year	Y				
Top 5 Venues ranked in terms of volume (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as a percentage of total in that class	Percentage of Passive Orders	Percentage of Aggressive Orders	Percentage of Directed Orders

Class of Instrument	Commodities Derivatives: Futures & Options admitted to trading on a trading venue				
Notification if <1 average trade per business day in the previous year	Y				
Top 5 Venues ranked in terms of volume (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as a percentage of total in that class	Percentage of Passive Orders	Percentage of Aggressive Orders	Percentage of Directed Orders

Class of Instrument	Securitized derivatives: Other securitized derivatives				
Notification if <1 average trade per business day in the previous year	Y				
Top 5 Venues ranked in terms of volume (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as a percentage of total in that class	Percentage of Passive Orders	Percentage of Aggressive Orders	Percentage of Directed Orders

Class of Instrument	Equity derivatives: Swaps and other equity derivatives				
Notification if <1 average trade per business day in the previous year	Y				
Top 5 Venues ranked in terms of volume (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as a percentage of total in that class	Percentage of Passive Orders	Percentage of Aggressive Orders	Percentage of Directed Orders

Class of Instrument	Contracts for Difference				
Notification if <1 average trade per business day in the previous year	Y				
Top 5 Venues ranked in terms of volume (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as a percentage of total in that class	Percentage of Passive Orders	Percentage of Aggressive Orders	Percentage of Directed Orders

Class of Instrument	Debt Instruments: Bonds				
Notification if <1 average trade per business day in the previous year	Y				
Top 5 Venues ranked in terms of volume (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as a percentage of total in that class	Percentage of Passive Orders	Percentage of Aggressive Orders	Percentage of Directed Orders

Class of Instrument	Debt Instruments: Money Market Instruments				
Notification if <1 average trade per business day in the previous year	Y				
Top 5 Venues ranked in terms of volume (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as a percentage of total in that class	Percentage of Passive Orders	Percentage of Aggressive Orders	Percentage of Directed Orders

Class of Instrument	Interest rate derivatives: Swaps, forwards and other interest rate derivatives				
Notification if <1 average trade per business day in the previous year	Y				
Top 5 Venues ranked in terms of volume (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as a 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 5 Venues ranked in terms of volume (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as a 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 5 Venues ranked in terms of volume (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as a percentage of total in that class	Percentage of Passive Orders	Percentage of Aggressive Orders	Percentage of Directed Orders

Class of Instrument	Commodities derivatives: Swaps and other commodities derivatives				
Notification if <1 average trade per business day in the previous year	Y				
Top 5 Venues ranked in terms of volume (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as a 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 5 Venues ranked in terms of volume (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as a percentage of total in that class	Percentage of Passive Orders	Percentage of Aggressive Orders	Percentage of Directed Orders

Class of Instrument	Exchange Traded Products				
Notification if <1 average trade per business day in the previous year	Y				
Top 5 Venues ranked in terms of volume (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as a percentage of total in that class	Percentage of Passive Orders	Percentage of Aggressive Orders	Percentage of Directed Orders

Class of Instrument	Emission Allowances				
Notification if <1 average trade per business day in the previous year	Y				
Top 5 Venues ranked in terms of volume (descending order)	Proportion of volume traded as a percentage of total in that class	Proportion of orders executed as a percentage of total in that class	Percentage of Passive Orders	Percentage of Aggressive Orders	Percentage of Directed Orders

Securities Finance Transactions

Top five entity reports for the transmission of orders

Class of Instrument	Equities – Shares & Depository Receipts	
	Tick Size Liquidity Bands 1 and 2 (from 0 to 79 trades per day)	
Notification if <1 average trade per business day in the previous year	N	
Top 5 Venues ranked in terms of volume (descending order)	Proportion of volume executed as a percentage of total in that class	Proportion of orders executed as a percentage of total in that class
BlackRock Advisors (UK) Limited - 549300LM7VWDLE8S3N49	79.13%	98.39%
BlackRock Asset Management North Asia Limited - 549300538IVQOFAXTY69	20.87%	1.61%

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 5 Venues ranked in terms of volume (descending order)	Proportion of volume executed as a percentage of total in that class	Proportion of orders executed as a percentage of total in that class
BlackRock Advisors (UK) Limited - 549300LM7VWDLE8S3N49	99.91%	99.85%
BlackRock Asset Management North Asia Limited - 549300538IVQOFAXTY69	0.09%	0.15%

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 5 Venues ranked in terms of volume (descending order)	Proportion of volume executed as a percentage of total in that class	Proportion of orders executed as a percentage of total in that class
BlackRock Advisors (UK) Limited - 549300LM7VWDLE8S3N49	98.71%	99.39%
BlackRock Asset Management North Asia Limited - 549300538IVQOFAXTY69	1.29%	0.61%

Class of Instrument	Other Instruments	
Notification if <1 average trade per business day in the previous year	N	
Top 5 Venues ranked in terms of volume (descending order)	Proportion of volume executed as a percentage of total in that class	Proportion of orders executed as a percentage of total in that class
BlackRock Advisors (UK) Limited - 549300LM7VWDLE8S3N49	76.95%	96.71%
BlackRock Asset Management North Asia Limited - 549300538IVQOFAXTY69	23.05%	3.29%

Class of Instrument	Equity Derivatives: Futures & Options admitted on a trading venue	
Notification if <1 average trade per business day in the previous year	Y	
Top 5 Venues ranked in terms of volume (descending order)	Proportion of volume executed as a percentage of total in that class	Proportion of orders executed as a percentage of total in that class

Class of Instrument	Interest Rate Derivatives: Futures & Options admitted on a trading venue	
Notification if <1 average trade per business day in the previous year	Y	
Top 5 Venues ranked in terms of volume (descending order)	Proportion of volume executed as a percentage of total in that class	Proportion of orders executed as a percentage of total in that class

Class of Instrument	Currency Derivatives: Futures & Options admitted on a trading venue	
Notification if <1 average trade per business day in the previous year	Y	
Top 5 Venues ranked in terms of volume (descending order)	Proportion of volume executed as a percentage of total in that class	Proportion of orders executed as a percentage of total in that class

Class of Instrument	Commodities Derivatives: Futures & Options admitted on a trading venue	
Notification if <1 average trade per business day in the previous year	Y	
Top 5 Venues ranked in terms of volume (descending order)	Proportion of volume executed as a percentage of total in that class	Proportion of orders executed as a percentage of total in that class

Class of Instrument	Credit Derivatives: Futures & Options admitted on a trading venue	
Notification if <1 average trade per business day in the previous year	Y	
Top 5 Venues ranked in terms of volume (descending order)	Proportion of volume executed as a percentage of total in that class	Proportion of orders executed as a percentage of total in that class

Class of Instrument	Securitized derivatives: Warrants and certificate derivatives	
Notification if <1 average trade per business day in the previous year	Y	
Top 5 Venues ranked in terms of volume (descending order)	Proportion of volume executed as a percentage of total in that class	Proportion of orders executed as a percentage of total in that class

Class of Instrument	Securitized derivatives: Other securitized derivatives	
Notification if <1 average trade per business day in the previous year	Y	
Top 5 Venues ranked in terms of volume (descending order)	Proportion of volume executed as a percentage of total in that class	Proportion of orders executed as a percentage of total in that class

Class of Instrument	Equity derivatives: Swaps and other equity derivatives	
Notification if <1 average trade per business day in the previous year	Y	
Top 5 Venues ranked in terms of volume (descending order)	Proportion of volume executed as a percentage of total in that class	Proportion of orders executed as a percentage of total in that class

Class of Instrument	Contracts for Difference	
Notification if <1 average trade per business day in the previous year	Y	
Top 5 Venues ranked in terms of volume (descending order)	Proportion of volume executed as a percentage of total in that class	Proportion of orders executed as a percentage of total in that class

Class of Instrument	Debt Instruments: Bonds	
Notification if <1 average trade per business day in the previous year	Y	
Top 5 Venues ranked in terms of volume (descending order)	Proportion of volume executed as a percentage of total in that class	Proportion of orders executed as a percentage of total in that class

Class of Instrument	Debt Instruments: Money Market Instruments	
Notification if <1 average trade per business day in the previous year	Y	
Top 5 Venues ranked in terms of volume (descending order)	Proportion of volume executed as a percentage of total in that class	Proportion of orders executed as a percentage of total in that class

Class of Instrument	Interest rate derivatives: Swaps, forwards and other interest rate derivatives	
Notification if <1 average trade per business day in the previous year	Y	
Top 5 Venues ranked in terms of volume (descending order)	Proportion of volume executed as a percentage of total in that class	Proportion of orders executed as a percentage of total in that class

Class of Instrument	Credit Derivatives: Other credit derivatives	
Notification if <1 average trade per business day in the previous year	Y	
Top 5 Venues ranked in terms of volume (descending order)	Proportion of volume executed as a percentage of total in that class	Proportion of orders executed as a percentage of total in that class

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 5 Venues ranked in terms of volume (descending order)	Proportion of volume executed as a percentage of total in that class	Proportion of orders executed as a percentage of total in that class

Class of Instrument	Commodities derivatives: Swaps, and other commodities derivatives	
Notification if <1 average trade per business day in the previous year	Y	
Top 5 Venues ranked in terms of volume (descending order)	Proportion of volume executed as a percentage of total in that class	Proportion of orders executed as a percentage of total in that class

Class of Instrument	Structured Finance Instruments	
Notification if <1 average trade per business day in the previous year	Y	
Top 5 Venues ranked in terms of volume (descending order)	Proportion of volume executed as a percentage of total in that class	Proportion of orders executed as a percentage of total in that class

Class of Instrument	Exchange Traded Products	
Notification if <1 average trade per business day in the previous year	Y	
Top 5 Venues ranked in terms of volume (descending order)	Proportion of volume executed as a percentage of total in that class	Proportion of orders executed as a percentage of total in that class

Class of Instrument	Emission Allowances	
Notification if <1 average trade per business day in the previous year	Y	
Top 5 Venues ranked in terms of volume (descending order)	Proportion of volume executed as a percentage of total in that class	Proportion of orders executed as a percentage of total in that class

Qualitative Analysis

Equities: Shares & Depository Receipts

When executing trades or transmitting orders in shares and depository receipts, all general PM instructions and considerations based on the nature of the order apply to trades in listed instruments. Orders for listed instruments with forward benchmarks typically are executed in the closing auction, in markets where such a mechanism exists. If there is insufficient liquidity in the auction, then trading might also take place earlier or later to mitigate market impact. For orders with a best efforts benchmark, BlackRock typically chooses an execution method most suitable for balancing price and likelihood of execution. Where the size of an order is significant relative to available liquidity in the secondary market, traders may prioritize execution channels which provide supplemental or surrogate sources of liquidity, such as broker capital or primary ETP markets.

Trading activity across all equity execution sources for equity listed financial instruments was reviewed. All relevant factors in seeking best execution including but not limited to execution quality, costs, trade confirmation and settlement capabilities, and risk concentration were taken into consideration. Upon review, all execution sources were deemed to have satisfactorily fulfilled all requirements as defined by the prioritized factors and characteristics of the order and no changes were made to our list of approved execution venues and brokers. BlackRock closely monitors the effectiveness of electronic tools in higher volatility environments.

BlackRock owns directly or indirectly stakes in certain trading venues (and BlackRock personnel may be appointed to serve on their boards) to which BlackRock may also direct clients' orders for execution, subject to its best execution obligations and in accordance with its Best Execution and Order Placement Policy. BlackRock may have strategic partnerships with certain trading venues for the development of electronic trading capabilities. Such arrangements have the purpose of providing lower-cost or more standardized trading or post trade services, or to increase access to liquidity, scalability and reduce risk. A conflict of interest may arise to the extent that BlackRock chooses to direct clients' orders to such venues in circumstances when this may be detrimental to its clients' interests. BlackRock mitigates this conflict by following its Best Execution and Order Placement Policy, including primary focus on appropriate venue selection based upon execution factors.

BlackRock's Affiliates

BlackRock may use order transmission and execution services of one or more of its investment management affiliated companies, who will transmit BlackRock's orders to third parties for execution or act as agent for the purpose of executing such orders in accordance with BlackRock's Best Execution and Order Placement Policy. BlackRock Execution Services ("BES") primarily provides equities and fixed income trade execution services for institutional accounts that are managed by affiliates of BlackRock, Inc. in connection with portfolio transition management advisory engagements. BES does not take any proprietary positions, make any markets, or provide any liquidity from its own account. BES does not maintain customer accounts or take possession of any customer funds or securities.

Luminex

BlackRock, Inc. owns indirectly through its subsidiary BlackRock Financial Management, Inc. a minority stake in a joint venture, Luminex Trading & Analytics LLC ("Luminex"), and it has representation on its board. Luminex is an independent equity trading venue owned and operated by a consortium of leading investment management firms. It provides a platform for investment managers to trade large blocks of stock with other investment managers at a lower cost and uses transparent trading rules and protocols.

Equilend

BlackRock, with nine other financial institutions, is an equal part owner and board member of Equilend LLC. Equilend's services are designed to increase efficiency and automation in the global securities finance marketplace. They provide a standardized and centralized global platform for trading and post trade services to increase access to liquidity, scalability and reduce risk.

Equities: Shares & Depository Receipts

MarketAxess

BlackRock has a strategic partnership with MarketAxess to develop electronic trading in fixed income markets. The two firms collaborate on product design and development, joint marketing and client engagement. BlackRock utilises TRAX, a wholly owned subsidiary of MarketAxess focusing on data and reporting, as its Approved Publication Arrangement provider to meet its post-trade reporting requirements under MiFID II.

TradeWeb

BlackRock and Tradeweb have a strategic alliance to develop electronic trading capabilities in global rates and derivatives products. Tradeweb operates electronic over the counter marketplaces serving a variety of institutions including banks, asset managers, central banks, pension funds, and insurance companies. The firms focus on applying technology to drive greater efficiency and overall performance in fixed income and derivatives products.

BlackRock Asset Management Deutschland AG does not have any specific arrangements regarding payments made or received, discounts, rebates or non-monetary benefits received with any of the execution venues with which it executed trades in shares and depository receipts during the previous year. BlackRock Asset Management Deutschland AG may accept permissible minor non-monetary benefits from third parties which consist of the following: a) Generic information on a financial instrument or investment service, which is personalised to reflect BlackRock's circumstances, b) written material that is commissioned and paid for by a corporate issuer or potential issuer to promote a new corporate issuance, provided that the relationship with the issuer is clearly disclosed in the material and is made available at the same time to all interested firms, or to the general public, c) participation at conferences, seminars and other training events on the benefits and features of specific financial instruments and investment services, d) hospitality of a reasonable de minimis value, including food and drink during a business meeting, seminar, conference or training session, e) research relating to an issue of securities, which is produced by an underwriter/placing agent acting for the issuer and (i) is produced prior to the issue being completed and (ii) is made available to prospective investors in the issue and f) research which is received for limited trial periods so that BlackRock may evaluate a research provider's research service.

All prospective and existing counterparties require the approval of BlackRock's Counterparty and Concentration Risk Group ("CCRG"), who are part of BlackRock's independent Risk & Quantitative Analysis team ("RQA") and are responsible for implementing, updating, and maintaining counterparty credit policies and procedures (collectively the "RQA Counterparty Credit Policy") designed to identify and evaluate counterparty credit risk and establish appropriate practices to manage this risk and maintain the overall quality of client and firm counterparty credit portfolios. All employees responsible for trade execution are required to comply with the RQA Counterparty Credit Policy. For a new counterparty to be approved, a requesting PM or trader (or client relationship manager, when the request originates from a client) is required to submit a request to the CCRG. The CCRG reviews relevant information to assess the financial strength of the proposed counterparty and appropriateness of counterparty exposures arising from the products to be traded. CCRG maintains a list of approved counterparties and reviews the list on an on-going basis alongside a number of sources, including audited and interim financial reports, rating agency reports and bulletins where available, databases and news media, and, if covered, output from the BlackRock Credit Research Group. All trading counterparties undergo a cyclical formal review and renewal on a 12 to 18 month basis, which is documented in a form established and/or agreed by the Chief Counterparty Credit Officer. Additional interim counterparty reviews may be completed in accordance with local regulatory requirements.

This report is in relation to professional clients' orders only.

We have developed data management systems and dedicated personnel to source, analyze, and provide reliable market information on which we base trades. Our platform collects comprehensive price levels from broker-dealers, both indicative and traded, in the cash and synthetic markets, data feeds from third party providers as well as data from electronic exchanges. Further, BlackRock performs comprehensive post-trade analysis which employs proprietary Transaction Cost Analysis (TCA) application and enriches transaction data with further market data.

No consolidated tape was available during the period covered by this report.

Credit Derivatives: Futures & Options admitted to trading on a trading venue

When executing trades or transmitting orders in Credit derivatives: Future & Options admitted to trading on a trading venue, all general PM instructions and considerations based on the nature of the order apply to trades in listed futures and options. Orders for listed instruments with forward benchmarks typically are executed in the closing auction for markets where such a mechanism exists. If there is insufficient liquidity in the auction, then trading might also take place earlier or later to mitigate market impact. For orders with a best efforts benchmark, BlackRock typically chooses an execution method most suitable for balancing price and likelihood of execution. Where the size of an order is significant relative to available liquidity in the secondary market, traders may prioritize execution channels which provide supplemental or surrogate sources of liquidity, such as broker capital markets. For liquid options within a reasonable range of tradeable market sizes, traders will prioritize trading platforms that facilitate price discovery through requests for quotes from multiple market participants.

Trading activity across all fixed income venues for fixed income listed futures and options was reviewed periodically. Consideration was given to all relevant factors for venue selection including but not limited to execution quality, costs, trade confirmation and settlement capabilities, and risk concentration. Upon review, all venues were deemed to have satisfactorily fulfilled all requirements as defined by the prioritized factors and characteristics of the order and no changes were made to our list of approved execution venues and brokers. For large OTC orders where liquidity can be limited, performance monitoring has shown that the use of individual brokers yields positive results in line with our client needs.

BlackRock owns directly or indirectly stakes in certain trading venues (and BlackRock personnel may be appointed to serve on their boards) to which BlackRock may also direct clients' orders for execution, subject to its best execution obligations and in accordance with its Best Execution and Order Placement Policy. BlackRock may have strategic partnerships with certain trading venues for the development of electronic trading capabilities. Such arrangements have the purpose of providing lower-cost or more standardized trading or post trade services, or to increase access to liquidity, scalability and reduce risk. A conflict of interest may arise to the extent that BlackRock chooses to direct clients' orders to such venues in circumstances when this may be detrimental to its clients' interests. BlackRock mitigates this conflict by following its Best Execution and Order Placement Policy, including primary focus on appropriate venue selection based upon execution factors.

BlackRock's Affiliates

BlackRock may use order transmission and execution services of one or more of its investment management affiliated companies, who will transmit BlackRock's orders to third parties for execution or act as agent for the purpose of executing such orders in accordance with BlackRock's Best Execution and Order Placement Policy. BlackRock Execution Services ("BES") primarily provides equities and fixed income trade execution services for institutional accounts that are managed by affiliates of BlackRock, Inc. in connection with portfolio transition management advisory engagements. BES does not take any proprietary positions, make any markets, or provide any liquidity from its own account. BES does not maintain customer accounts or take possession of any customer funds or securities.

Luminex

BlackRock, Inc. owns indirectly through its subsidiary BlackRock Financial Management, Inc. a minority stake in a joint venture, Luminex Trading & Analytics LLC ("Luminex"), and it has representation on its board. Luminex is an independent equity trading venue owned and operated by a consortium of leading investment management firms. It provides a platform for investment managers to trade large blocks of stock with other investment managers at a lower cost and uses transparent trading rules and protocols.

Equilend

BlackRock, with nine other financial institutions, is an equal part owner and board member of Equilend LLC. Equilend's services are designed to increase efficiency and automation in the global securities finance marketplace. They provide a standardized and centralized global platform for trading and post trade services to increase access to liquidity, scalability and reduce risk.

Equity Derivatives: Futures & Options admitted to trading on a trading venue

When executing trades or transmitting orders in Equity derivatives: Future & Options admitted to trading on a trading venue, all general PM instructions and considerations based on the nature of the order apply to trades in listed futures and options. Orders for listed instruments with forward benchmarks typically are executed in the closing auction, in markets where such a mechanism exists. If there is insufficient liquidity in the auction, then trading might also take place earlier or later to mitigate market impact. For orders with a best efforts benchmark, BlackRock typically chooses an execution method most suitable for balancing price and likelihood of execution. Where the size of an order is significant relative to available liquidity in the secondary market, traders may prioritize execution channels which provide supplemental or surrogate sources of liquidity, such as broker capital or primary ETP markets.

Trading activity across all equity execution sources for equity listed financial instruments and contracts for difference (CFDs), futures and listed options, and OTC derivatives was reviewed. All relevant factors in seeking best execution including but not limited to execution quality, costs, trade confirmation and settlement capabilities, and risk concentration were taken into consideration. Upon review, all execution sources were deemed to have satisfactorily fulfilled all requirements as defined by the prioritized factors and characteristics of the order and no changes were made to our list of approved execution venues and brokers. BlackRock closely monitors the effectiveness of electronic tools in higher volatility environments.

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BlackRock's Affiliates

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Credit Derivatives: Futures & Options admitted to trading on a trading venue

MarketAxess

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Securitized Derivatives: Warrants and certificate derivatives

When executing trades or transmitting orders in Securitized derivatives: Warrants and other certificate derivatives, all general PM instructions and considerations based on the nature of the order apply to trades in derivative instruments. While most derivative instruments are primarily traded in a decentralized OTC manner, some products may be admitted to trading on a trading venue. Orders for derivative instruments with forward benchmarks typically are executed around the point in time specified by the PM, because there is no official closing mechanism in these markets. If there is insufficient liquidity available, then trading might also take place earlier or later to mitigate market impact. For orders with a best efforts benchmark, BlackRock applies a variety of execution methods suitable for balancing price and the impact of order size on transaction costs. Further, due to the OTC nature of these instruments, there is a varying degree of price transparency, so traders also need to reduce information leakage, signaling, and market impact. Different regulations could mandate that some of these instruments are required to be traded on venue. Instruments that have a mandatory clearing mandate are centrally cleared with a central counterparty.

Trading activity across all equity execution sources for equity listed financial instruments and contracts for difference (CFDs), futures and listed options, and OTC derivatives was reviewed. All relevant factors in seeking best execution including but not limited to execution quality, costs, trade confirmation and settlement capabilities, and risk concentration were taken into consideration. Upon review, all execution sources were deemed to have satisfactorily fulfilled all requirements as defined by the prioritized factors and characteristics of the order and no changes were made to our list of approved execution venues and brokers. BlackRock closely monitors the effectiveness of electronic tools in higher volatility environments.

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Securitized Derivatives: Warrants and certificate derivatives

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Other Instruments

From time to time, BlackRock may decide to enter into bespoke structured transactions. When it does so, it seeks to gather structuring proposals and pricing from one or more broker dealers depending on their expertise and subject to BlackRock's requirement to diversify its counterparty exposure. Typically, such transactions comprise different components and, in order to satisfy itself of the fairness of the price proposed by the counterparty, BlackRock may request more than one counterparty to provide a quote for entering into the transaction or, alternatively, may deconstruct the transactions and analyse the implied pricing of each component based on historical or empirical data.

Trading activity across all fixed income venues for fixed income listed futures and options, OTC fixed income derivatives, and debt instruments was reviewed periodically. Consideration was given to all relevant factors for venue selection including but not limited to execution quality, costs, trade confirmation and settlement capabilities, and risk concentration. Upon review, all venues were deemed to have satisfactorily fulfilled all requirements as defined by the prioritized factors and characteristics of the order and no changes were made to our list of approved execution venues and brokers. For large OTC orders where liquidity can be limited, performance monitoring has shown that the use of individual brokers yields positive results in line with our client needs.

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Securities Finance Transactions

For securities finance transactions, including securities lending, repurchase agreements, and physical/synthetic financing, the execution factors and criteria that BlackRock takes into account include the supply and demand characteristics for the securities in question and additional considerations such as: current market pricing to lend or finance the specific security, price discovery following a process similar to other OTC markets, in that traders prioritize execution venues that facilitate “requests for price and capacity” from multiple market participants, liquidity of the lending, financing, and cash market for the relevant security, current utilisation/availability of the security and the size of supply or demand relative to the lending or financing market and resulting likelihood of execution and overall utilization of a firm’s balance sheet. Other factors that may include, but are not limited to: collateral type proposed (e.g., cash or non-cash), proposed duration of the securities finance transaction, transaction costs levied by providers such as custodians, triparty banks, or clearing broker and specific or idiosyncratic factors (e.g., a pending corporate action or expected stability of financing).

Securities Lending trading activity for fixed income and equity securities was reviewed periodically by utilizing external market data available. The review found that performance of execution via automated methods such as autoborrow (for liquid securities) and manually with borrowers (for illiquid securities) was in line with the investment objectives. Consideration was given to all relevant factors including but not limited to, current market pricing and current utilization/availability of the security. Consideration was also given to repurchase agreements where financing transactions were executed with approved counterparties that provide sufficient liquidity and competitive pricing. No changes were deemed necessary to our approved list of borrowers or execution methods as a result of the review.

BlackRock owns directly or indirectly stakes in certain trading venues (and BlackRock personnel may be appointed to serve on their boards) to which BlackRock may also direct clients’ orders for execution, subject to its best execution obligations and in accordance with its Best Execution and Order Placement Policy. BlackRock may have strategic partnerships with certain trading venues for the development of electronic trading capabilities. Such arrangements have the purpose of providing lower-cost or more standardized trading or post trade services, or to increase access to liquidity, scalability and reduce risk. A conflict of interest may arise to the extent that BlackRock chooses to direct clients’ orders to such venues in circumstances when this may be detrimental to its clients’ interests. BlackRock mitigates this conflict by following its Best Execution and Order Placement Policy, including primary focus on appropriate venue selection based upon execution factors.

BlackRock’s Affiliates

BlackRock may use order transmission and execution services of one or more of its investment management affiliated companies, who will transmit BlackRock’s orders to third parties for execution or act as agent for the purpose of executing such orders in accordance with BlackRock’s Best Execution and Order Placement Policy. BlackRock Execution Services (“BES”) primarily provides equities and fixed income trade execution services for institutional accounts that are managed by affiliates of BlackRock, Inc. in connection with portfolio transition management advisory engagements. BES does not take any proprietary positions, make any markets, or provide any liquidity from its own account. BES does not maintain customer accounts or take possession of any customer funds or securities.

Equilend

BlackRock, with nine other financial institutions, is an equal part owner and board member of Equilend LLC. Equilend’s services are designed to increase efficiency and automation in the global securities finance marketplace. They provide a standardized and centralized global platform for trading and post trade services to increase access to liquidity, scalability and reduce risk.

Securities Finance Transactions

BlackRock Asset Management Deutschland AG does not have any specific arrangements regarding payments made or received, discounts, rebates or non-monetary benefits received with any of the execution venues with which it executed trades in securities financing transactions during the previous year. BlackRock International Limited may accept permissible minor non-monetary benefits from third parties which consist of the following: a) Generic information on a financial instrument or investment service, which is personalised to reflect BlackRock's circumstances, b) written material that is commissioned and paid for by a corporate issuer or potential issuer to promote a new corporate issuance, provided that the relationship with the issuer is clearly disclosed in the material and is made available at the same time to all interested firms, or to the general public, c) participation at conferences, seminars and other training events on the benefits and features of specific financial instruments and investment services, d) hospitality of a reasonable de minimis value, including food and drink during a business meeting, seminar, conference or training session, e) research relating to an issue of securities, which is produced by an underwriter/placing agent acting for the issuer and (i) is produced prior to the issue being completed and (ii) is made available to prospective investors in the issue and f) research which is received for limited trial periods so that BlackRock may evaluate a research provider's research service.

All prospective and existing counterparties require the approval of BlackRock's Counterparty and Concentration Risk Group ("CCRG"), who are part of BlackRock's independent Risk & Quantitative Analysis team ("RQA") and are responsible for implementing, updating, and maintaining counterparty credit policies and procedures (collectively the "RQA Counterparty Credit Policy") designed to identify and evaluate counterparty credit risk and establish appropriate practices to manage this risk and maintain the overall quality of client and firm counterparty credit portfolios. All employees responsible for trade execution are required to comply with the RQA Counterparty Credit Policy. For a new counterparty to be approved, a requesting PM or trader (or client relationship manager, when the request originates from a client) is required to submit a request to the CCRG. The CCRG reviews relevant information to assess the financial strength of the proposed counterparty and appropriateness of counterparty exposures arising from the products to be traded. CCRG maintains a list of approved counterparties and reviews the list on an on-going basis alongside a number of sources, including audited and interim financial reports, rating agency reports and bulletins where available, databases and news media, and, if covered, output from the BlackRock Credit Research Group. All trading counterparties undergo a cyclical formal review and renewal on a 12 to 18 month basis, which is documented in a form established and/or agreed by the Chief Counterparty Credit Officer. Additional interim counterparty reviews may be completed in accordance with local regulatory requirements.

This report is in relation to professional clients' orders only.

We have developed data management systems and dedicated personnel to source, analyze, and provide reliable market information on which we base trades. Our platform collects comprehensive price levels from broker-dealers, both indicative and traded, in the cash and synthetic markets, data feeds from third party providers as well as data from electronic exchanges. Further, BlackRock performs comprehensive post-trade analysis which employs proprietary Transaction Cost Analysis (TCA) application and enriches transaction data with further market data.

No consolidated tape was available during the period covered by this report

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