Putnam Investments Limited Annual Best Execution Report FYE 2018

1. Introduction

In compliance with the requirements of Regulatory Technical Standard 28 adopted by the European Commission in connection with the Markets in Financial Instruments Directive II (MiFID II), Putnam Investments Limited ("PIL") is required to provide on an annual basis additional disclosure relating to the execution venues utilized for each asset class and certain information on the quality of execution.

PIL and its affiliates place orders for the purchase and sale of portfolio investments for its clients on various trading venues and through a substantial number of brokers and dealers. PIL generally places trades for European fixed income investments itself, and its affiliate The Putnam Advisory Company, LLC ("PAC") places trades for equities and other transactions. In both cases, outside brokers and dealers execute the trades. In seeking the best execution reasonably available under the circumstances, PIL and PAC (collectively, Putnam) select broker-dealers to execute trades considering execution factors it believes to be relevant which may include price, size of the transaction, the nature of the market for the investment, the amount of commission, the timing of the transaction, and the quality of the service rendered by the broker-dealer in other transactions. Putnam may also take into account the type of client, the type of order, the type of financial instrument being traded, the execution venues on which the order can be executed and the execution entities with which the order can be executed. Where the execution factors may differ based on asset class, we have set out below the relative importance of the execution factors for each asset class.

Putnam currently does not execute portfolio transactions for client accounts with any affiliated broker-dealers (as defined under relevant securities laws). All of PIL's clients are categorized as Professional Clients under MiFID II and PIL does not trade for retail clients. Further, as required under MiFID II, Putnam does not use brokerage commissions generated by PIL clients to obtain brokerage and research products and services.

Putnam maintains a list of approved counterparties with which it places orders for execution. The list of approved counterparties may change over time. A list of the approved counterparties on whom significant reliance is currently placed is included in PIL's Best Execution and Order Handling Policy.

A transaction cost analysis (TCA) is regularly carried out for transactions in equity securities and enables Putnam to measure implicit costs such as market impact. TCA reports are produced by a third-party vendor and are reviewed by the Head of Equity Trading. Management information is in place to analyse fixed income transactions. Putnam has engaged a third-party vendor to evaluate fixed income trading activity. This evaluation is presently somewhat constrained by a lack of transparency into certain classes of fixed income securities in the market. The Global Co-Heads of Fixed Income along with investment specialists and traders evaluate brokers versus certain execution factors on a periodic basis. Putnam will continue to analyse the data issued by execution venues as required by Regulatory Technical Standard 27 ("RTS 27") (Delegated Regulation (EU) 2017/575) and where applicable, this will be considered as part of Putnam's analysis and oversight of best execution. Putnam did not directly use the output of a consolidated tape provider established under Article 65 of MiFID II Directive 2014/65/EU during the period to which this disclosure relates.

Putnam has in place a Trade Management Oversight Committee comprised of senior investment, compliance, risk and technology employees who review various matters relating to trading activity, including management information related to best execution for equity and fixed income asset classes, at least annually.

2. Equity Instruments

2.1 Top Five Execution Venues

Tick Size Liquidity Bands 5&6 (from 2000 trades per day)

Class of Instrument	Equities – Shares and Depository Receipts				
Notification if < 1 average trade per business day in the	NO				
previous year					
Top 5 execution venues ranked in terms of trading	Proportion of volume	Proportion of orders	Percentage	Percentage of	Percentage
volume (descending order)	executed as a	executed as a	of passive	aggressive	of directed
	percentage of	percentage of	orders	orders	orders
	total in that class	total in that class			
J.P. Morgan Securities LLC	16.06%	18.64%	N/A	N/A	0.00%
LEI: ZBUT11V806EZRVTWT807					
UBS Securities LLC	15.93%	11.05%	N/A	N/A	0.00%
LEI: T6FIZBDPKLYJKFCRVK44					
Credit Suisse Securities (Europe) Limited	15.93%	12.42%	N/A	N/A	0.00%
LEI: DL6FFRRLF74S01HE2M14					
Morgan Stanley & Co. LLC	11.45%	6.15%	N/A	N/A	0.00%
LEI: 9R7GPTSO7KV3UQJZQ078					
Deutsche Bank Securities Inc.	7.07%	17.82%	N/A	N/A	0.00%
LEI: 9J6MBOOO7BECTDTUZW19					

Tick Size Liquidity Bands 3 and 4 (from 80 to 1999 trades per day)

Class of Instrument	Equities – Shares and Depository Receipts NO				
Notification if < 1 average trade per business day in the previous year					
Top 5 execution venues ranked in terms of trading 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	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders
UBS Securities LLC LEI: T6FIZBDPKLYJKFCRVK44	28.71%	22.20%	N/A	N/A	0.00%
Credit Suisse Securities (Europe) Limited LEI: DL6FFRRLF74S01HE2M14	11.94%	8.91%	N/A	N/A	0.00%
Redburn (USA) LLC LEI: 213800TYRTQILMQQLV79	8.99%	5.62%%	N/A	N/A	0.00%
Mizuho Securities USA LLC LEI: 213800TYRTQILMQQLV79	6.25%	0.98%	N/A	N/A	0.00%
Morgan Stanley & Co. International PLC LEI: 4PQUHN3JPFGFNF3BB653	6.05%	3.05%	N/A	N/A	0.00%

Tick Size Liquidity Bands 1 and 2 (from 0 to 79 trades per day)

Class of Instrument	Equities – Shares and Depository Receipts				
Notification if < 1 average trade per business day in the	NO				
Top 5 execution venues ranked in terms of trading 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	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders
Citigroup Inc. LEI: 6SHGI4ZSSLCXXQSBB395	12.26%	6.21%	N/A	N/A	0.00%
Merrill Lynch, Pierce, Fenner & Smith Incorporated LEI: 8NAV47T0Y26Q87Y0QP81	11.43%	10.53%	N/A	N/A	0.00%
Credit Suisse Securities (USA) LLC LEI: 1V8Y6QCX6YMJ2OELII46	11.36%	20.45%	N/A	N/A	0.00%
UBS Securities LLC LEI: T6FIZBDPKLYJKFCRVK44	8.15%	10.77%	N/A	N/A	0.00%
Morgan Stanley & Co. International PLC LEI: 4PQUHN3JPFGFNF3BB653	6.34%	3.04%	N/A	N/A	0.00%

[&]quot;Passive Order" Article 2 Definition: An order entered into the order book that provided liquidity.

Equity Security Execution Factors

- For liquid equity securities (generally defined as 80 trades or more per day), price and cost will normally be the determining factors but other reasons could be more important depending on the circumstances.
- For illiquid securities (generally defined as less than 80 trades per day), in addition to price and cost, the size of the order is normally a determining factor but other reasons could be more important depending on the circumstances.

[&]quot;Aggressive Order" Article 2 Definition: An order entered into the order book that took liquidity.

[&]quot;Directed Order" Article 2 Definition: An order where a specific execution venue was specified by the client prior to the execution of the order.

[&]quot;Volume Traded" Investment Association: "By volume we understand the regulation to mean market value."

[&]quot;Orders Executed" A deal in a specific stock with a specific broker: number of orders.

3. <u>Debt Instruments</u>

3.1 Top Five Execution Venues

Class of Instrument	Debt Instruments – Bonds					
Notification if < 1 average trade per business day in the previous year	NO					
Top 5 execution venues ranked in terms of trading 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	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders	
MarketAxess*	25.68%	26.53%	N/A	N/A	0.00%	
MIC: MAEL						
Deutsche Bank Aktiengesellschaft LEI: 7LTWFZYICNSX8D621K86	12.27%	10.02%	N/A	N/A	0.00%	
Citigroup Global Markets Limited LEI: XKZZ2JZF41MRHTR1V493	7.45%	6.37%	N/A	N/A	0.00%	
Barclays Capital Securities Limited LEI: K9WDOH4D2PYBSLSOB484	7.41%	10.14%	N/A	N/A	0.00%	
Merrill Lynch International LEI: GGDZP1UYGU9STUHRDP48	6.80%	8.25%	N/A	N/A	0.00%	

[&]quot;Passive Order" Article 2 Definition: An order entered into the order book that provided liquidity.

Debt Instrument Execution Factors

• The size of the order and price are normally the most significant factors but other reasons could be more important depending on the circumstances.

[&]quot;Aggressive Order" Article 2 Definition: An order entered into the order book that took liquidity.

[&]quot;Directed Order" Article 2 Definition: An order where a specific execution venue was specified by the client prior to the execution of the order.

[&]quot;Volume Traded" Investment Association: "By volume we understand the regulation to mean market value."

[&]quot;Orders Executed" A deal in a specific stock with a specific broker: number of orders.

Where a request for quotes ("RFQ") system of a trading venue (marked * in table Section 3.1 Top Five Execution Venues) is used to select counterparties in order to obtain quotes and ultimately conclude the transaction.

As per the ESMA's updated MiFID and MiFIR Investor Protection Q&A (dated 3 October 2018), where PIL have used the RFQ systems of trading venues, we provide additional information to the identify of the Top Five Counterparties with whom we have executed trades in the previous year via these venues.

Orders executed on MarketAxess	Debt Instruments – Bonds				
Top 5 execution venues ranked in terms of trading 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	Percentage of passive orders	Percentage of aggressive orders	Percentage of directed orders
UBS Limited LEI: REYPIEJN7XZHSUI0N355	17.48%	15.11%	N/A	N/A	0.00%
HSBC Bank PLC LEI: MP6I5ZYZBEU3UXPYFY54	11.87%	9.78%	N/A	N/A	0.00%
J.P. Morgan Securities PLC LEI: K6Q0W1PS1L1O4IQL9C32	11.66%	10.67%	N/A	N/A	0.00%
Merrill Lynch International LEI: GGDZP1UYGU9STUHRDP48	10.56%	10.67%	N/A	N/A	0.00%
Credit Suisse Securities (Europe) Limited LEI: DL6FFRRLF74S01HE2M14	9.52%	11.11%	N/A	N/A	0.00%

4. Other

During the period, Putnam executed one credit derivative transaction and three structured finance products transactions the results of which are not included above, because, due to the small volumes, their addition would not meaningful.

Important Information

This document has been prepared by Putnam Investments Limited ("PIL"). To the best of PIL's knowledge and belief the data contained in this document

is true and accurate at the date hereof. The document is intended to be of general interest only and does not constitute legal or tax advice, nor is it an offer for shares or an invitation to apply for shares. Investments entail risks. This document is intended for "professional clients" and "eligible

counterparties" (as defined by the FCA) only and should not be relied upon by any other category of customer. Past performance is not a guarantee of

future results. As with any investment, there is a potential for profit as well as the possibility of loss.

This material or any portion hereof may not be reprinted, sold, or redistributed in whole or in part without the express written consent of Putnam

Investments. The information provided relates to Putnam Investments and its affiliates, which include The Putnam Advisory Company, LLC and Putnam

Investments Limited®.

Issued in the United Kingdom by Putnam Investments Limited®. Putnam Investments Limited is authorised and regulated by the Financial Conduct

Authority ("FCA"), FRN # 114721. For the activities carried out in Germany, the German branch of Putnam Investments Limited is also subject to the

limited regulatory supervision of the German Federal Financial Supervisory Authority (Bundesanstalt fürFinanzdienstleistungsaufsicht - BaFin). Putnam

Investments Limited is also permitted to provide cross-border investment services to certain EEA member states. In Europe, this material is directed

exclusively at professional clients and eligible counterparties (as defined under the FCA Rules, or the German Securities Trading Act

(Wertpapierhandelsgesetz) or other applicable law) who are knowledgeable and experienced in investment matters.

Publication, amendments and updates:

Putnam Investments Limited is under no obligation to update or amend the information contained in this document and or correct any errors in the

document following the date it was published and or delivered to you. PIL reserves the right to update this document and or correct any information

contained in the document at any time and without notice. Although the information contained in this document is believed to be correct as at the time

of printing or publication, no assurance can be given that this document is complete or accurate in the light of information that may become available

after its publication.

Putnam Investments Limited

Registered office: 16 St. James's Street, London, SW1A 1ER, United Kingdom

Telephone: +44 (0) 207 907 8200 | Fax: +44 (0) 20 7907 8209

E-mail: mifid2@putnam.com | Website: www.putnam.com/uk

Registered in England and Wales number 01619244