



REFINITIV BENCHMARK SERVICES (UK) LIMITED

**TOKYO SWAP RATE (FOR SWAPS REFERENCING TONA)
BENCHMARK**

TOKYO SWAP RATE FALLBACK BENCHMARK

METHODOLOGY



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1. INTRODUCTION

1.1 Overview

This document specifies the methodology (“Methodology”) of (i) the Tokyo Swap Rate¹ (for swaps referencing TONA) benchmark and (ii) the Fallback benchmark for the Tokyo Swap Rate (for swaps referencing 6-month JPY interbank offered rates from London banks) (“TSR Fallback”).

This Methodology, the TSR (for swaps referencing TONA) benchmark and the TSR Fallback benchmark are subject to the disclaimer in Section 7 below.

1.2 Benchmark Administrator

Refinitiv Benchmark Services (UK) Limited (“RBSL”) is the Administrator of the TSR (for swaps referencing TONA) benchmark and the TSR Fallback benchmark. RBSL is incorporated in England and Wales and is a wholly owned subsidiary of Refinitiv Limited (“RL”), itself a wholly owned indirect subsidiary of London Stock Exchange Group plc (“LSEG”).

RBSL is authorised and regulated in the UK by the Financial Conduct Authority (“FCA”), FCA Reference Number 610678.

As Administrator, RBSL is responsible for collecting input data, determining and publishing the benchmarks, and for all aspects of governance, oversight, compliance and integrity of the benchmarks.

1.3 Description of the Benchmarks

The TSR (for swaps referencing TONA) benchmark is calculated using a waterfall methodology comprising two levels (“Level 1” and “Level 2”).

Level 1 is based on executable dealer-to-client quotes in spot starting TONA overnight index swap (OIS) contracts from Tradeweb. The data is collected during a 20-minute window from 09:50 to 10:10 (Tokyo time) in the morning and 14:40-15:00 (Tokyo time) in the afternoon and published at 10:30 (Tokyo time) and 15:30 (Tokyo time) respectively. Use of Level 1 for the determination of each benchmark tenor is based on a threshold for input data sufficiency.

Level 2 is based on rates for spot starting TONA OIS contracts from (i) two inter-dealer brokers (Tradition and TP ICAP), (ii) Tradeweb (composite indicative rates) and (iii) any executable dealer-to-client quotes from Tradeweb that, when considered alone, are insufficient to reach the threshold for Level 1. Use of Level 2 for determination of each benchmark tenor is based on a threshold for input data sufficiency.

The benchmark comprises the following tenors: 1 year, 18 months, 2-10 years, 12 years, 15 years, 20 years, 25 years, 30 years and 40 years.

¹ “Tokyo Swap Rate” is abbreviated as “TSR” throughout this Methodology

The TSR Fallback benchmark is derived from the TSR (for swaps referencing TONA) benchmark using a constant spread adjustment. The TSR Fallback benchmark is published at the same time and with the same tenors as the TSR (for swaps referencing TONA) benchmark.

1.4 Purpose of the Benchmark

The purpose of the TSR (for swaps referencing TONA) benchmark is to provide a representative benchmark rate for Japanese yen (JPY) OIS contracts that reference TONA.

The purpose of the TSR Fallback benchmark is to provide a fallback rate for legacy financial products that currently reference the Tokyo Swap Rate (for swaps referencing 6-month JPY interbank offered rates from London banks) for use after the cessation or non-representativeness of JPY LIBOR by stakeholders that elect to use it.

1.5 Intended Readership

This document is intended for Stakeholders of the Benchmark.

1.6 Document Publication

This document is available on the Refinitiv website and on request. In the event of any discrepancies the English language version takes precedence.

2. INPUT DATA

2.1 Tokyo Swap Rate (for Swaps Referencing TONA) Benchmark

Input data for Level 1 of the TSR (for swaps referencing TONA) benchmark is taken from a dealer-to-client trading platform, Tradeweb. Input data comprises quotes from each dealer captured every 30 seconds over 20 minute windows from 09:50 to 10:10 Tokyo time for the morning setting and 14:40 to 15:00 Tokyo time for the afternoon setting. The precise time of capture within each 30 second period varies. Quotes are captured 40 times over each 20 minute window.

Quotes are captured for spot starting TONA OIS contracts cleared by the Japan Securities Clearing Corporation (JSCC) in respect of each tenor of the Benchmark.

Input data for Level 2 of the Benchmark comprises indicative rates for spot starting TONA OIS contracts cleared by the JSCC taken from two inter-dealer brokers (Tradition and TP ICAP) and Tradeweb (composite rates). In addition, any dealer quotes from Tradeweb that are available but, when considered alone, are insufficient to meet the threshold for Level 1 for a specific tenor of the Benchmark will be included as input data for Level 2.

For Level 2, indicative quotes from the inter-dealer brokers and Tradeweb and any available dealer quotes from Tradeweb are captured every 30 seconds over 20 minute windows from 09:50 to 10:10 Tokyo time for the morning setting and 14:40 to 15:00 Tokyo time for the afternoon setting. The precise time of capture within each 30 second period varies.

2.2 Tokyo Swap Rate Fallback Benchmark

The TSR Fallback benchmark uses TSR (for swaps referencing TONA) benchmark settings of the corresponding tenor as input data. The constant JPY LIBOR ISDA 6 month spread adjustment calculated by Bloomberg is used in the determination of the TSR Fallback benchmark.

3. DETERMINATION OF THE BENCHMARKS

3.1 Tokyo Swap Rate (for Swaps Referencing TONA) Benchmark

3.1.1 Waterfall Methodology

The TSR (for swaps referencing TONA) benchmark is calculated using Level 1 of the Methodology subject to a threshold. If the threshold is not reached, the benchmark is calculated using Level 2 of the Methodology subject to a second threshold. If the second threshold is not met, “No Fix” is published for the relevant tenor or tenors. The Level 1 and Level 2 thresholds have been calibrated to ensure a sufficient quantity of eligible input data.

The waterfall is applied individually to each tenor of the benchmark. Consequently, it is possible that different tenors are determined using different levels of the waterfall on the same day.

3.1.2 Level One Determination

Every 30 seconds between 09:50 and 10:10 Tokyo time for the morning setting and 14:40 to 15:00 Tokyo time for the afternoon setting, quotes from a dealer-to-client trading platform (Tradeweb) are captured. In order to be valid, each bid rate to offer rate must be less than or equal to a maximum spread that is specified for each tenor, and the volume on the bid and offer rate must be greater than or equal to a minimum notional amount.

A mid-rate is calculated using each valid bid rate and offer rate pair. The TSR (for swaps referencing TONA) benchmark is then determined as the median rate of the mid-rates.

The threshold for use of Level 1 in the determination of the TSR (for swaps referencing TONA) benchmark is that at least 160 valid mid-rates are available and that these rates comprise at least a minimum number of valid mid-rates from each of a minimum number of separate dealers.

3.1.3 Level Two Determination

Every 30 seconds between 09:50 and 10:10 Tokyo time for the morning setting and 14:40 to 15:00 Tokyo time for the afternoon setting, indicative rates are captured from two inter-dealer brokers (Tradition and TP ICAP) and Tradeweb (composite rates). In addition, any dealer quotes from Tradeweb that are available but, when considered alone, are insufficient to meet the threshold for Level 1 for a specific tenor of the benchmark are also captured.

In order to be valid, each inter-dealer bid rate to offer rate must be less than or equal to a maximum spread that is specified for each tenor. Dealer quotes are subject to the same maximum bid to offer and minimum notional amount criteria as used in Level 1.

A mid-rate is calculated using each valid bid rate and offer rate pair. The TSR (for swaps referencing TONA) benchmark is then determined as the median rate of the mid-rates.

The threshold for use of Level 2 in the determination of the TSR (for swaps referencing TONA) benchmark is either

- 60 valid indicative mid-rates from any combination of Tradition, TP ICAP and Tradeweb (composite rates) are captured, or
- (i) at least 40 valid indicative mid-rates from any combination of Tradition, TP ICAP and Tradeweb (composite rates) and (ii) at least 90 valid mid-rates from Tradeweb dealer quotes (comprising at least a minimum number of valid mid-rates from each of a minimum number of separate dealers) are captured.

3.1.4 No Fix

If the thresholds for both Level 1 and Level 2 of the waterfall are not reached for a particular tenor and setting, “No Fix” will be published for that tenor and setting.

3.2 Tokyo Swap Rate Fallback Benchmark

The TSR Fallback benchmark setting (morning or afternoon) for each tenor is determined using the TSR (for swaps referencing TONA) benchmark with the corresponding setting and corresponding tenor in accordance with equation 1. The constant JPY LIBOR ISDA 6 month spread adjustment is calculated by Bloomberg.

$$TSR\ Fallback = 2 \times \left[\sqrt{1 + TONA\ TSR} - 1 \right] + ISDA\ 6M\ Spread \times \frac{365}{360} \quad (1)$$

3.3 Expert Judgment

RBSL, as Administrator, will not exercise expert judgment or discretion in the determination of the TSR (for swaps referencing TONA) benchmark or TSR Fallback benchmark.

4. PUBLICATION AND REFIX POLICY

4.1 Publication

The Tokyo Swap Rate (for swaps referencing TONA) benchmark and the Tokyo Swap Rate Fallback benchmark are published for the morning setting at approximately 10:30 Tokyo time and for the afternoon setting at approximately 15:30 on each Tokyo business day. Both benchmarks are published as percentages rounded to three decimal places.

4.2 Delayed Publication

The Administrator, RBSL, may at its discretion delay publication of the TSR (for swaps referencing TONA) benchmark and the TSR Fallback benchmark in the event that technical difficulties prevent receipt of input data or if RBSL has reason to believe that either the input data or the determination of the benchmarks includes a potential error. In such cases, all reasonable efforts will be made to publish the benchmarks at the earliest opportunity. If the potential error cannot be resolved or rectified, “No Fix” will be published for the affected tenor(s) and setting.

4.3 Refix Policy

If following publication, a material error is identified in the input data or the determination of any tenor of a Tokyo Swap Rate (for swaps referencing TONA) benchmark or the Tokyo Swap Rate Fallback benchmark setting before 11:30am Tokyo time for the morning setting or 16:30 Tokyo time for the afternoon setting, RBSL will refix the affected tenor(s) of the benchmark settings.

A material error is one that results in a change of + or – 0.1 basis points to the published value of the affected tenor(s) of the benchmarks.

Errors that do not result in an intraday refix of the benchmarks will be reported quarterly to the Oversight Committee and published on the Administrator’s public website.

4.4 Publication RIC Identifiers

The Tokyo Swap Rate (for swaps referencing TONA) benchmark and the Tokyo Swap Rate Fallback benchmark will be made available on the Refinitiv RICs listed below.

4.4.1 Tokyo Swap Rate (for Swaps Referencing TONA) Benchmark RICs

Tenor	TSR All Settings	
Composite Tile	JPTSRT0=RFTB	
	TSR Morning Setting	TSR Afternoon Setting
Composite Tile	JPTSRT0A=RFTB	JPTSRT0P=RFTB
1-Year	JPTSRT0A1Y=RFTB	JPTSRT0P1Y=RFTB
18-Months	JPTSRT0A18M=RFTB	JPTSRT0P18M=RFTB

2-Years	JPTSRTOA2Y=RFTB	JPTSRTOP2Y=RFTB
3-Years	JPTSRTOA3Y=RFTB	JPTSRTOP3Y=RFTB
4-Years	JPTSRTOA4Y=RFTB	JPTSRTOP4Y=RFTB
5-Years	JPTSRTOA5Y=RFTB	JPTSRTOP5Y=RFTB
6-Years	JPTSRTOA6Y=RFTB	JPTSRTOP6Y=RFTB
7-Years	JPTSRTOA7Y=RFTB	JPTSRTOP7Y=RFTB
8-Years	JPTSRTOA8Y=RFTB	JPTSRTOP8Y=RFTB
9-Years	JPTSRTOA9Y=RFTB	JPTSRTOP9Y=RFTB
10-Years	JPTSRTOA10Y=RFTB	JPTSRTOP10Y=RFTB
12-Years	JPTSRTOA12Y=RFTB	JPTSRTOP12Y=RFTB
15-Years	JPTSRTOA15Y=RFTB	JPTSRTOP15Y=RFTB
20-Years	JPTSRTOA20Y=RFTB	JPTSRTOP20Y=RFTB
25-Years	JPTSRTOA25Y=RFTB	JPTSRTOP25Y=RFTB
30-Years	JPTSRTOA30Y=RFTB	JPTSRTOP30Y=RFTB
40-Years	JPTSRTOA40Y=RFTB	JPTSRTOP40Y=RFTB

4.4.2 Tokyo Swap Rate Fallback Benchmark RICs

Tenor	TSR Fallback All Settings	
Composite Tile	JPTSRLF=RFTB	
	TSR Fallback Morning Setting	TSR Fallback Afternoon Setting
Composite Tile	JPTSRLFA=RFTB	JPTSRLFP=RFTB
1-Year	JPTSRLFA1Y=RFTB	JPTSRLFP1Y=RFTB
18-Months	JPTSRLFA18M=RFTB	JPTSRLFP18M=RFTB
2-Years	JPTSRLFA2Y=RFTB	JPTSRLFP2Y=RFTB
3-Years	JPTSRLFA3Y=RFTB	JPTSRLFP3Y=RFTB
4-Years	JPTSRLFA4Y=RFTB	JPTSRLFP4Y=RFTB
5-Years	JPTSRLFA5Y=RFTB	JPTSRLFP5Y=RFTB
6-Years	JPTSRLFA6Y=RFTB	JPTSRLFP6Y=RFTB
7-Years	JPTSRLFA7Y=RFTB	JPTSRLFP7Y=RFTB
8-Years	JPTSRLFA8Y=RFTB	JPTSRLFP8Y=RFTB
9-Years	JPTSRLFA9Y=RFTB	JPTSRLFP9Y=RFTB
10-Years	JPTSRLFA10Y=RFTB	JPTSRLFP10Y=RFTB
12-Years	JPTSRLFA12Y=RFTB	JPTSRLFP12Y=RFTB
15-Years	JPTSRLFA15Y=RFTB	JPTSRLFP15Y=RFTB
20-Years	JPTSRLFA20Y=RFTB	JPTSRLFP20Y=RFTB
25-Years	JPTSRLFA25Y=RFTB	JPTSRLFP25Y=RFTB
30-Years	JPTSRLFA30Y=RFTB	JPTSRLFP30Y=RFTB
40-Years	JPTSRLFA40Y=RFTB	JPTSRLFP40Y=RFTB

5. BENCHMARK METHODOLOGY REVIEWS AND CHANGE PROCEDURES

5.1 Review of the Methodology and Input Data Providers

RBSL will carry out a review of the Methodology in respect of the Tokyo Swap Rate (for swaps referencing TONA) benchmark and the Tokyo Swap Rate Fallback benchmark on at least an annual basis. Additional reviews may be conducted at RBSL's discretion. Reviews will include an analysis of the underlying market that the benchmarks seek to represent, the availability and sufficiency of quotes from the dealer-to-client trading platform and indicative rates from the inter-dealer brokers, and a review of other potential platforms.

The aim of the review will be to ensure that the benchmarks are still representative of the underlying market, that the input data sufficiently represent the underlying market, and that the input data providers have been providing input data in an accurate and timely manner. The independent oversight committee will provide input into the review.

5.2 Changes to the Methodology

Changes to the Methodology in respect of the Tokyo Swap Rate (for swaps referencing TONA) benchmark and the Tokyo Swap Rate Fallback benchmark shall be made in accordance with the RBSL Benchmark Methodology Change and Cessation Policy. The combined RBSL Benchmark Methodology Change and Cessation Policy is available at <https://www.refinitiv.com/en/financial-data/financial-benchmarks>.

5.3 Objective of the Methodology

The objective of this Methodology in respect of the Tokyo Swap Rate (for swaps referencing TONA) benchmark is to reflect best practice across the industry for the calculation and administration of benchmarks that seek to represent the behaviour of markets showing similar characteristics as the market for TONA OIS rates. Certain features of the Benchmark methodology such as the use of 20 minute windows for input data capture and the selection of median rates mitigate the risk of data insufficiency and significant rate movements when determining the Benchmark.

The objective of this Methodology in respect of the Tokyo Swap Rate Fallback benchmark is to provide a fallback rate for legacy financial products that currently reference the Tokyo Swap Rate (for swaps referencing 6-month JPY interbank offered rates from London banks) for use after the cessation or non-representativeness of JPY LIBOR by stakeholders that elect to use it.

The Methodology shall also comply with all applicable regulations and policies.

5.4 Identification of Potential Limitations of the Benchmark

The ability of the dealer-to-client trading platform and inter-dealer broker to provide accurate input data relies on there being a liquid market in TONA OIS contracts. If any ongoing constraint or fragmentation to liquidity in this market is identified or foreseen, RBSL will consult with stakeholders as well as the independent oversight committee.

6. GOVERNANCE AND FURTHER INFORMATION

6.1 Benchmark Administrator

Refinitiv Benchmark Services (UK) Limited (“RBSL”) is the administrator (“Administrator”) of the Tokyo Swap Rate (for swaps referencing TONA) benchmark and the Tokyo Swap Rate Fallback benchmark. As Administrator of the benchmarks, RBSL is responsible for collecting input data, determining and publishing the Benchmark, and for all aspects of governance, oversight, compliance and integrity of the benchmarks.

6.2 Oversight Committee

The oversight committee (“Oversight Committee”) is responsible for oversight of all aspects of the provision of the benchmarks including the reviews of the benchmark definitions and Methodology at least annually, overseeing any changes to the benchmarks Methodology or cessation of the benchmarks, and overseeing RBSL’s control framework, management and operation of the benchmarks.

6.3 Benchmark Manager

A benchmark manager is appointed from time to time by the Administrator who will be a subject matter expert responsible for interpreting the Methodology in respect of the benchmarks.

6.4 User Feedback

RBSL shall communicate periodically with stakeholders in order to assess conditions in the market for TONA OIS contracts over the relevant benchmark tenors and to assess the ongoing fitness and suitability of the Methodology in respect of the benchmarks. Such feedback may be used as part of the periodic review of the Methodology in respect of the benchmarks.

6.5 Further Information

Further information is available at <http://refinitiv.com/tokyoswaprate>.

Refinitiv welcomes feedback. Any comments or questions regarding this Methodology, the Tokyo Swap Rate (for swaps referencing TONA) benchmark or the Tokyo Swap Rate Fallback benchmark should be sent to index_queries@refinitiv.com and include ‘Tokyo Swap Rate’ in the email subject line.

7. DISCLAIMER

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ANNEX CLIMATE RELATED DISCLOSURES

EXPLANATION OF HOW ESG FACTORS ARE REFLECTED IN THE KEY ELEMENTS OF THE BENCHMARK METHODOLOGY	
Item 1. Name of the TSR (for swaps referencing TONA) benchmark and TSR Fallback administrator.	Refinitiv Benchmark Services (UK) Limited
Item 2. Type of benchmark or family of benchmarks.	Other
Item 3. Name of the benchmark or family of benchmarks.	Tokyo Swap Rate
Item 4. Does the benchmark methodology for the benchmark or family of benchmarks take into account ESG factors?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Date on which information has been last updated and reason for the update:	28 April 2022 Inclusion of input data from Tradition and Tradeweb (composite rates)

Refinitiv is one of the world's largest providers of financial markets data and infrastructure, serving over 40,000 institutions in approximately 190 countries. It provides leading data and insights, trading platforms, and open data and technology platforms that connect a thriving global financial markets community – driving performance in trading, investment, wealth management, regulatory compliance, market data management, enterprise risk and fighting financial crime.