

## ICE Term SONIA Reference Rates (TSRR) - Calculation Methodology

### Overview

The ICE Term SONIA Reference Rate is designed to measure average expected (i.e. forward-looking) SONIA<sup>1</sup> rates over specified tenor periods.

Each published ICE Term SONIA Reference Rate (each an “ICE TSRR Rate”) is calculated using eligible prices and volumes for specified SONIA-linked interest rate derivative products, provided by trading venues in accordance with a “Waterfall” Methodology.

The first level of the Waterfall (“Level 1”) uses eligible, executable prices and volumes for eligible SONIA-linked overnight interest rate swaps provided by regulated, electronic, trading venues to derive the ICE TSRR Rate. If these trading venues do not provide sufficient eligible input data to calculate an ICE TSRR Rate in accordance with Level 1 of the Methodology, then the second level of the Waterfall (“Level 2”) uses eligible dealer to client prices and volumes displayed electronically by trading venues to derive the ICE TSRR Rate. If there is insufficient eligible input data to calculate an ICE TSRR Rate in accordance with Level 2 of the Methodology, then the third level of the Waterfall (“Level 3”) uses the previous trading day’s SONIA-linked futures’ settlement price, published on an electronic trading venue, SONIA rates published by the Bank of England, and scheduled MPC meeting dates, to derive the ICE TSRR Rate. Where it is not possible to calculate an ICE TSRR Rate at Level 1, Level 2 or Level 3 of the Waterfall, then “No Publication” is published for that ICE TSRR Rate.

IBA also intends, to add a new level into the Waterfall, which would use executable SONIA-linked futures prices and volumes, displayed electronically by trading venues, to derive the ICE TSRR Rate. The intention is that this level would be used if there is insufficient eligible input data to calculate an ICE TSRR Rate in accordance with the second level of the Methodology described above.

This document describes the “Methodology” used to calculate and determine the published values for the ICE Term SONIA Reference Rate.

The ICE Term SONIA Reference Rate is administered by ICE Benchmark Administration Limited (“IBA”), which is authorised and regulated by the Financial Conduct Authority for the regulated activity of administering a benchmark.

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This methodology will be reviewed on a regular basis and may be updated from time to time.

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<sup>1</sup> SONIA is the [Sterling Overnight Index Average](#) rate administered and published by the Bank of England

## Calculation steps

The calculation of each ICE TSRR Rate involves the following steps:

### Waterfall Level 1

1. IBA collects tradeable bid and offer prices and volumes for eligible SONIA-linked overnight interest rate swaps available on the central limit order books of regulated, electronic trading venues in respect of a two-hour window before the relevant ICE TSRR Rate calculation.
2. The two-hour window is divided into 24 blocks of five minutes each and a random snapshot time is selected for each of these five-minute blocks (i.e. 24 snapshots).
3. A synthetic order book is created at each snapshot time by combining and ranking (by price) the eligible bids and offers from each trading venue. These prices (and the associated volumes) are used to calculate the volume weighted bid (“VWB”) and the volume weighted offer (“VWO”) of the prices that would result from filling a hypothetical trade of Standard Market Size (“SMS”) on each side of the market. A volume weighted average mid-price (“VWAMP”) is then calculated from the VWB and the VWO.
4. Snapshots with insufficient tradable volume to fill the SMS, or that contain crossed or zero-spread bid and offer prices, are not included in the calculation. Remaining snapshots are ranked in order of their VWAMPs and the snapshots with a VWAMP above the 75<sup>th</sup> percentile or below the 25<sup>th</sup> percentile are also discarded.
5. If at least six snapshots remain, the VWAMPs from these snapshots are quality-weighted based on the difference between the VWB and the VWO and averaged, in order to determine the applicable ICE TSRR Rate.

### Waterfall Level 2

6. If fewer than six snapshots remain after Level 1, IBA will use:
  - a. Dealer to client bid and offer prices and volumes displayed electronically by trading venues in respect of the same two-hour window to calculate the applicable TSRR Rate.
  - b. The two-hour window is again divided into 24 blocks of five minutes each and a random snapshot time is selected for each block.
  - c. Where a trading venue provides prices from dealers for multiple categories of clients within a snapshot, IBA will select the prices from a single client category per dealer, based on the tightest spread and largest volume for each client category within the snapshot.
  - d. The selected, eligible bids and offers from each dealer from each trading venue are combined and ranked (by price) to create a synthetic order book at each snapshot time, and any crossed bid and offer volume within the orderbook is uncrossed. The remaining prices and associated volumes are used to calculate the VWB and the VWO of the prices that would result from filling a hypothetical trade of SMS in the same manner as for Level 1, with the VWAMP also calculated in the same way.

- e. Illiquid snapshots are excluded in the same manner as for Level 1, and remaining snapshots are ranked in order of their VWAMPs and the snapshots with a VWAMP above the 75<sup>th</sup> percentile or below the 25<sup>th</sup> percentile are also discarded.
- f. If at least six snapshots remain, the applicable TSRR Rate is determined as the quality-weighted average of the applicable VWAMPs in the same manner as for Level 1.

### Waterfall Level 3

7. If fewer than six snapshots remain after Level 2, IBA will use:
  - a) SONIA-linked futures' settlement prices for contracts maturing within each calendar month spanned by the relevant tenor period, published on the preceding trading day on an electronic trading venue;
  - b) Overnight SONIA rates on the date the term rate is being derived and from the beginning of the current calendar month; and
  - c) Scheduled MPC meeting dates during the tenors of the relevant futures contracts (being dates that might be expected to result in rate changes over the relevant period),
8. A step function model is then used to determine, from the published SONIA rates and futures' settlement prices, the implied average daily SONIA rates. This is done from the date the term rate is being derived until the end of the last calendar month spanned by the relevant tenor, ascribing implied rate changes for each month to the relevant MPC meeting date (or the first business day of the month if there is no scheduled MPC meeting date).
9. The implied average daily SONIA rates are then compounded over the relevant tenor period to produce the applicable ICE TSRR Rate.

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