



REFINITIV BENCHMARK SERVICES (UK) LIMITED

REFINITIV TERM €STR

METHODOLOGY



Effective Date: 26 September 2023

Last Review Date: 26 September 2023

Refinitiv Document Classification: Public

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1. INTRODUCTION

1.1 Overview

This document specifies the methodology of the Refinitiv Term €STR benchmark (“Benchmark”). It is published on the Refinitiv website¹ and is available on request.

The purpose of the Benchmark is to provide a EURIBOR® fallback in certain cash instruments. The Benchmark is representative of nearly risk-free term rates for the euro.

1.2 Benchmark Administrator

Refinitiv Benchmark Services (UK) Limited (“RBSL”) is the Administrator of the Benchmark. RBSL is incorporated in England and Wales with company number 08541574 and is a wholly owned subsidiary of Refinitiv Limited (“RL”), itself a wholly owned subsidiary within the Refinitiv Group.

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 Benchmark, and for all aspects of governance, oversight, compliance and integrity of the Benchmark.

1.3 Description of the Benchmark

Refinitiv Term €STR comprises five tenors: spot-week, 1 month, 3 months, 6 months and 12 months. It is calculated using a waterfall methodology comprised of two levels: “Level 1” and “Integrated Fallback”.

Input data for the calculation of Level 1 comprises

- committed (i.e. executable) quotes for spot starting €STR Overnight Index Swap (“OIS”) contracts taken from a dealer-to-client trading platform (Tradeweb), and
- rates for transacted spot starting €STR OIS contracts taken from a Central Clearing Counterparty (LCH SwapClear).

Input data for the integrated fallback level is compounded overnight €STR and historical Benchmark values.

The Benchmark is published on TARGET2 business days at approximately 11:00 CET.

¹ www.refinitiv.com/termestr

The Benchmark is calculated for Level 1 as the trimmed mean of

- mid-rates for each 10-minute period over the collection window of 09:00-18:00CET² on the previous TARGET2 business day derived from the dealer-to-client trading platform quotes, and
- transacted rates taken from the CCP for €STR OIS contracts transacted during the collection window of 09:00-18:00CET on the previous TARGET2 business day.

1.4 Intended Readership

This document is intended for stakeholders of the Benchmark.

1.5 Document Publication

This document and further information are available on the Refinitiv website and on request.

² Throughout this Methodology, CET implies CEST (UTC + 2 hours) when summer daylight-saving time applies

2. INPUT DATA

2.1 Level 1 Input Data

Input data for Level 1 of the Methodology is taken from a dealer-to-client trading platform (Tradeweb) and a CCP (LCH SwapClear).

Input data from the dealer-to-client trading platform comprises quotes from each dealer captured every 10 minutes over a collection window from 09:00 to 18:00CET on the previous TARGET2 business day. The precise time of capture within each 10 minute period varies. Quotes are captured 54 times over the collection window for each dealer and are for centrally-cleared €STR OIS contracts.

Input data from the CCP comprises transacted rates for €STR OIS contracts transacted during the collection window of 09:00-18:00CET on the previous TARGET2 business day.

All input data are in respect of spot starting €STR OIS for the relevant tenors for the Benchmark.

2.2 Integrated Fallback Input Data

Input data for the integrated fallback level comprises overnight €STR published by the European Central Bank (ECB) and historical values of the Benchmark .

3. DETERMINATION OF THE BENCHMARK

3.1 Waterfall Methodology

The Benchmark is calculated using Level 1 of the Methodology subject to a threshold. If the threshold is not reached, the Benchmark is calculated using the integrated fallback level.

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.

3.2 Level 1 Determination

Once every 10 minutes between 09:00 and 18:00CET on the previous TARGET2 business day, the quotes from the 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. Quotes that are from the same dealer and for the same tenor but are for €STR OIS contracts that would be cleared by different CCPs if transacted are treated as separate quotes.

A unique mid-rate is calculated for each 10 minute capture by taking the median of all valid dealer quotes for that 10 minute capture. To be valid for use in the Benchmark determination, each unique mid-rate must be derived from a minimum number of separate dealers. Consequently, there is a maximum of 54 unique rates for the collection window.

Additionally, rates for transacted €STR OIS contracts from the CCP (LCH SwapClear) are collected. Each rate must be for an €STR OIS contract that is transacted during the collection window (see 2.1) and has a minimum notional size in order to be valid for use in the Benchmark determination. The number of similar transactions involving the same pair of counterparties for a given tenor is capped.

Both the unique 10 minute mid-rates and the transacted rates are then collected for each tenor and used to determine the Benchmark if one of the following criteria is satisfied:

1. If there are at least a minimum number of valid unique 10 minute mid-rates and a minimum number of valid transacted rates, or
2. If the number of valid unique 10 minute mid-rates is lower than the relevant minimum in criteria 1 above but the number of valid transacted rates is higher than a new minimum that is greater than the relevant minimum in criteria 1 above, or
3. If the number of valid transacted rates is lower than the relevant minimum in criteria 1 above but the number of valid unique 10 minute mid-rates is higher than a new minimum that is greater than the relevant minimum in criteria 1 above.

For each tenor, the collected rates are sorted and a percentage is trimmed from the highest rates and lowest rates. The Benchmark tenor is then calculated as mean of the remaining rates.

If none of the three criteria above are satisfied for a given tenor of the Benchmark, the threshold for use of Level 1 for that tenor is not reached and the tenor is determined using the integrated fallback.

3.3 Integrated Fallback Level Determination

If the thresholds for use of Level 1 of the waterfall is not reached, the Benchmark is determined in accordance with the integrated fallback level.

Under the integrated fallback level for a given tenor, the spread between the Benchmark on the previous TARGET2 business day and overnight €STR compounded to the previous TARGET2 business day is applied to €STR compounded to the day of the Benchmark determination.

On each day t , the spread for Benchmark tenor f , denoted $S(t, f)$ is calculated as

$$S(t, f) = RTE(t - 1, f) - \frac{360}{d(t_0, t - 1)} \cdot \left[\prod_{\tau=t_0}^{t-2} \left(1 + \frac{d(\tau, \tau + 1) \cdot R(\tau)}{360} \right) - 1 \right]$$

where $RTE(t - 1, f)$ is the Benchmark published on the preceding TARGET2 business day ($t - 1$) for tenor f , $R(\tau)$ is the €STR rate published by the ECB on day $\tau + 1$ based on transactions conducted and settled on day τ , $d(\tau, \tau + 1)$ is the number of calendar days from τ to $\tau + 1$ and $d(t_0, t - 1)$ is the number of calendar days from t_0 to $t - 1$. The product is over all TARGET2 business days from t_0 to $t - 2$ where t_0 is 10 TARGET2 business days before $t - 2$. If t_0 does not fall on a TARGET2 business day, it is moved back to the first preceding TARGET2 business day.

The integrated fallback for the Benchmark with tenor f on day t , denoted $IF(t, f)$ is then calculated as

$$IF(t, f) = S(t, f) + \frac{360}{d(t_1, t)} \cdot \left[\prod_{\tau=t_1}^{t-1} \left(1 + \frac{d(\tau, \tau + 1) \cdot R(\tau)}{360} \right) - 1 \right]$$

The product is over all TARGET2 business days from t_1 to $t - 1$ where t_1 is 10 TARGET2 business days before $t - 1$. If t_1 does not fall on a TARGET2 business day, it is moved back to the first preceding TARGET2 business day.

3.4 Exercise of Expert Judgment

RBSL will not exercise expert judgment in the determination of the Benchmark.

4. PUBLICATION AND REFIX POLICY

4.1 Publication

The Benchmark is published at approximately 11:00 CET on each TARGET2 business day and is determined using input data from the preceding TARGET2 business day. The Benchmark is published to 3 decimal places. Any use of the integrated fallback level is indicated when the resulting Benchmark value is published.

The Benchmark will be made available on the page <EURTRR=RFTB> and the following Refinitiv EIKON RICs:

- Spot-week: <EURTRRSW=RFTB>
- 1 month: <EURTRR1M=RFTB>
- 3 months: <EURTRR3M=RFTB>
- 6 months: <EURTRR6M=RFTB>
- 12 months: <EURTRR1Y=RFTB>

The Benchmark will also be published with a 24 hour delay (“Delayed Data”) in due course.

The Benchmark is available via Refinitiv products including Elektron, DataScope and Workspace.

4.2 Delayed Publication

RBSL may at its discretion delay publication of the Benchmark in the event that technical difficulties are preventing receipt of input data or if RBSL has reason to believe that either the input data or the determination of the Benchmark includes a potential error. In such cases, all reasonable efforts will be made to publish the Benchmark at the earliest opportunity.

4.3 Refix Policy

Following publication, if a material error is identified in the input data or the determination of the Benchmark before 12:00 CET, RBSL shall endeavour to refix the affected tenor or tenors of the Benchmark as soon as possible. No refix will be issued after 16:00CET on the day of publication.

A material error is one that results in a change of + or – 0.1 basis points to the published value of a Benchmark setting.

5. BENCHMARK METHODOLOGY REVIEWS AND CHANGE PROCEDURES

5.1 Review of the Methodology and Input Data Providers

The Administrator will carry out a review of the Methodology on at least an annual basis. Additional reviews may be conducted at the Administrator's discretion. Reviews will include an analysis of the underlying market the Benchmark seeks to represent, the availability and sufficiency of quotes from the dealer-to-client trading platform and transaction data from the CCP, and a review of other potential platforms.

The aim of the review will be to ensure that the Benchmark is still representative of the underlying market, that the input data from the dealer-to-client trading platform and CCP sufficiently represent the underlying market, and that the current dealer-to-client trading platform and CCP 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 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 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 forward-looking €STR rates. 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 the CCP to provide accurate input data relies on there being a liquid market in €STR OIS contracts. If any ongoing constraint or fragmentation to liquidity in this market is identified or foreseen, the Administrator 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 of Refinitiv Term €STR. RBSL is a Refinitiv company.

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

6.2 Oversight Committee

The independent Oversight Committee is responsible for oversight of all aspects of the provision of the benchmark including the reviews of the Benchmark definition and Methodology at least annually, overseeing any changes to the Benchmark Methodology or cessation of the Benchmark, and overseeing the Administrator’s control framework, management and operation of the Benchmark.

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.

6.4 User Feedback

RBSL shall communicate periodically with stakeholders in order to assess conditions in the market for risk-free interest rates for the euro over the relevant Benchmark tenors as implied by OIS contracts that reference €STR and to assess the ongoing fitness and suitability of the Methodology. Such feedback may be used as part of the periodic review of the Methodology.

6.5 Further Information

Refinitiv welcomes feedback and any queries or questions regarding this Methodology or the Refinitiv Term €STR benchmark should be sent to index_queries@refinitiv.com and include “Refinitiv Term €STR” in the email subject line.

7. DEFINITION OF KEY TERMS

Capitalised terms used in this document but not otherwise defined are defined in the following table.

Key Term	Definition
Administrator	A natural or legal person that has control over the provision of a benchmark (see Benchmark Regulation)
Authorised Benchmark Administrator	An Administrator that is authorised pursuant to Article 34 of the Benchmarks Regulation
Benchmarks Regulation	Regulation (EU) 2016/1011 (https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016R1011&from=EN) and the Benchmarks (Amendment and Transitional Provision) (EU Exit) Regulations 2019 (the UK Benchmark Regulation) (https://www.legislation.gov.uk/ukSI/2019/657/made)
Business Day	Any day on which the TARGET2 real-time gross settlement system is open
Methodology	The written rules and procedures according to which information is collected and the Benchmark is determined
€STR	The overnight euro benchmark administered and published daily by the European Central Bank

8. DISCLAIMER

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This disclaimer is subject change from time to time without notice from Refinitiv.

ANNEX CLIMATE RELATED DISCLOSURES

EXPLANATION OF HOW ESG FACTORS ARE REFLECTED IN THE KEY ELEMENTS OF THE BENCHMARK METHODOLOGY	
Item 1. Name of the benchmark 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.	Refinitiv Term €STR
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:	26 September 2023 Benchmark launch date

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