REFINITIV BENCHMARK SERVICES (UK) LIMITED

USD IBOR INSTITUTIONAL CASH FALLBACKS BENCHMARK

USD IBOR CONSUMER CASH FALLBACKS (1 WEEK, 2 MONTHS) BENCHMARK

USD IBOR CONSUMER CASH FALLBACKS (1, 3, 6 MONTHS) PROTOTYPE

METHODOLOGY

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Contents

1. INTRODUCTION

1.1 Overview

This document specifies the methodology (“Methodology”) of (i) the USD IBOR Institutional Cash Fallbacks benchmark, (ii) the USD IBOR Consumer Cash Fallbacks (1 Week, 2 Months) benchmark (together the “Benchmarks”) and (iii) the USD IBOR Consumer Cash Fallbacks (1, 3, 6 Months) prototype (“Prototype”), collectively the “USD IBOR Cash Fallbacks” benchmark family. This Methodology, the Benchmarks and the Prototype are subject to the disclaimer in Section 8 below.

The purpose of the USD IBOR Institutional Cash Fallbacks benchmark, the USD IBOR Consumer Cash Fallbacks (1 Week, 2 Months) benchmark and the USD IBOR Consumer Cash Fallbacks (1, 3, 6 Months) prototype is to provide fallbacks for existing institutional and consumer cash financial products such as adjustable rate mortgages, bilateral business loans, floating rate notes, securitizations, syndicated loans and variable rate private student loans that currently reference US dollar LIBOR. ICE LIBOR® and LIBOR® are registered trade marks of ICE Benchmark Administration Limited (IBA), and are used by Refinitiv with permission under licence by IBA. The UK Financial Conduct Authority (FCA) has confirmed that all LIBOR settings will either cease to be provided by any administrator or no longer be representative[1]:

- Immediately after December 31st 2021, in the case of all sterling, euro, Swiss franc and Japanese yen settings, and the 1-week and 2-month US dollar settings, and
- Immediately after June 30th 2023, in the case of the remaining US dollar settings.

1.2 Benchmark Administrator and Prototype Publisher

Refinitiv Benchmark Services (UK) Limited ("RBSL") is the Administrator of the USD IBOR Institutional Cash Fallbacks benchmark and the USD IBOR Consumer Cash Fallbacks (1 Week, 2 Months) 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.

Refinitiv is the publisher of the USD IBOR Consumer Cash Fallbacks (1, 3, 6 Months) prototype. As publisher, Refinitiv is responsible for collecting input data, determining and publishing the prototype, and for all aspects of governance, oversight and integrity prototype.

[1] www.fca.org.uk/publication/documents/future-cessation-loss-representativeness-libor-benchmarks.pdf

1.3 Description of the Refinitiv USD IBOR Cash Fallbacks

The USD IBOR Institutional Cash Fallbacks benchmark comprises two types of rates:

- In-Arrears for institutional cash financial products,
- In-Advance for institutional cash financial products.

The USD IBOR Consumer Cash Fallbacks (1 Week, 2 Months) benchmark and the USD IBOR Consumer Cash Fallbacks (1, 3, 6 Months) prototype each comprise one type of rate:

- In-Advance for consumer cash financial products.

Each “All In” fallback rate is composed of an “Adjusted SOFR” rate, which is based on the daily SOFR rate published by the Federal Reserve Bank of New York, and a “Spread Adjustment”.

Adjusted SOFR for In-Arrears USD IBOR Institutional Cash Fallbacks is the average of daily SOFR over the interest accrual period following the publication of a LIBOR setting. Two versions of the average are produced resulting in two All In rates for each type of In-Arrears fallback (except for the O/N tenor): compounded SOFR and simple SOFR.

The Spread Adjustment is calculated in accordance with the ISDA USD LIBOR fallback rate methodology for each USD LIBOR tenor as of March 5th, 2021. Each Spread Adjustment for a specific USD LIBOR tenor is added to the Adjusted SOFR to produce the All In In-Arrears USD IBOR Institutional Cash Fallback benchmark of the equivalent tenor on both a compound and simple basis. Each In-Arrears USD IBOR Institutional Cash Fallback benchmark setting is published toward the end of the interest accrual period that follows the publication of the corresponding LIBOR setting once the final required daily SOFR rate is available.

The three Adjusted SOFRs for In-Advance USD IBOR Institutional Cash Fallbacks are the three compounded averages of daily SOFR with tenors of 30-, 90-, and 180-calendar days published daily by the Federal Reserve Bank of New York. The Spread Adjustment calculation methodology is consistent with the ISDA USD LIBOR fallback rate for the corresponding tenor (1 month, 3 months and 6 months respectively) as of March 5th, 2021.

The three Adjusted SOFRs for the In-Advance USD IBOR Consumer Cash Fallbacks (1 Week, 2 Months) and the In-Advance USD IBOR Consumer Cash Fallbacks (1, 3, 6 Months) are the three compounded averages of daily SOFR with tenors of 30-, 90-, and 180-calendar days published daily by the Federal Reserve Bank of New York.

The Spread Adjustment for each In-Advance USD IBOR Consumer Cash Fallback will be a linear interpolation over one year (the “Transition Period”) between (i) the average SOFR-LIBOR spread over the ten business days leading up to the cessation of publication or date of non-representativeness of each LIBOR tenor and (ii) the spread calculated in accordance with the ISDA USD LIBOR fallback rate methodology for the corresponding USD LIBOR tenor as of March 5th, 2021. Prior to each Transition

Period, the Spread Adjustment is the average SOFR-LIBOR spread on a rolling ten business day basis and during its pre-Transition Period phase, each In-Advance USD IBOR Consumer Cash Fallback is for indicative purposes only.

For each of the two In-Advance USD IBOR Consumer Cash Fallbacks (1 Week, 2 Months) benchmark tenors and three In-Advance USD IBOR Consumer Cash Fallbacks (1, 3, 6 Months) prototype tenors, two versions of the All In rate are published: one version that is floored at zero and another that is not floored.

All USD IBOR Cash Fallbacks (benchmarks and prototype) are published at approximately 08:20am ET, around 20 minutes after the Federal Reserve Bank of New York publishes the daily SOFR rate and the SOFR averages. SOFR is published at approximately 08:00am ET.

1.4 Purpose of the Benchmarks and Prototype

The purpose of the USD IBOR Institutional Cash Fallbacks benchmark and USD IBOR Consumer Cash Fallbacks (1 Week, 2 Months) benchmark is to provide fallbacks for existing institutional and consumer cash financial products such as bilateral business loans, floating rate notes, securitizations, and syndicated loans that currently reference the relevant US dollar LIBOR tenors. On March 17th, 2021, the Alternative Reference Rates Committee (ARRC) announced[2] that it had selected Refinitiv to publish its recommended spread adjustments and spread-adjusted rates for cash products that transition away from USD LIBOR. The benchmarks provides such spread adjustments and spread-adjusted rates for institutional and consumer cash products that reference the relevant US dollar LIBOR tenors. Refinitiv will release similar benchmarks for consumer cash products with additional tenors once a representative USD LIBOR is no longer available for such tenors.

The USD IBOR Consumer Cash Fallbacks (1, 3, 6 Months) prototype is provided for informational purposes only. It is not intended to be construed or used as a benchmark whether as a reference rate in financial instruments or financial contracts or for valuation and pricing activities (see disclaimer in Section 8).

The purpose of the Prototype is to enable market participants to assess its behaviour over a period of time. Pending feedback from market participants during the prototype phase, Refinitiv intends to finalise the Methodology and release the USD IBOR Consumer Cash Fallbacks (1, 3, 6 Months) prototype as a benchmark subject to relevant benchmark governance standards once a representative USD LIBOR is no longer available for the 1, 3 and 6 month tenors.

[2] www.newyorkfed.org/medialibrary/Microsites/arrc/files/2021/20210317-press-release-Spread-Adjustment-Vendor-Refinitiv.pdf

2. REFINITIV USD IBOR CASH FALLBACKS

2.1 In-Arrears USD IBOR Institutional Cash Fallbacks

The In-Arrears USD IBOR Institutional Cash Fallbacks comprise the following 103 rates:

Tenor	No Lookback or Lockout	Lookback (no observation shift)	Lookback (with observation shift)	Lockout
O/N	✓	-	-	-
1W	✓	3 days	2 and 3 days	2 and 3 days
1M	✓	3, 5 and 10 days	2, 3 and 5 days	2 and 3 days
2M	✓	3, 5 and 10 days	2, 3 and 5 days	2 and 3 days
3M	✓	3, 5 and 10 days	2, 3 and 5 days	2 and 3 days
6M	✓	3, 5 and 10 days	2, 3 and 5 days	2 and 3 days
12M	✓	3, 5 and 10 days	2, 3 and 5 days	2 and 3 days
Compounded Rates	6	16	17	12
Simple Rates	7	16	17	12
Total Rates	13	32	34	24

Each rate has both an All In value and an Adjusted SOFR value.

2.2 In-Advance USD IBOR Institutional Cash Fallbacks

The In-Advance USD IBOR Institutional Cash Fallbacks comprise the following three rates. Each rate has both an All In value and an Adjusted SOFR value.

- 1 Month
- 3 Months
- 6 Months

2.3 In-Advance USD IBOR Consumer Cash Fallbacks

The In-Advance USD IBOR Consumer Cash Fallbacks comprise the following four benchmarks and six prototype rates. Each is published with an All In rate and a Spread Adjustment rate (the Spread Adjustment rate is the same for floored and unfloored benchmarks with the same tenor). The Adjusted SOFR rates are published by the Federal Reserve Bank of New York.

Tenor	Adjusted SOFR	Adjusted SOFR	Benchmark Status
1W	30-day SOFR Average	30-day SOFR Average All In Rate Floored at Zero	Benchmark
1M	30-day SOFR Average	30-day SOFR Average All In Rate Floored at Zero	Prototype
2M	30-day SOFR Average	30-day SOFR Average All In Rate Floored at Zero	Benchmark
3M	90-day SOFR Average	90-day SOFR Average All In Rate Floored at Zero	Prototype
6M	180-day SOFR Average	180-day SOFR Average All In Rate Floored at Zero	Prototype

3. INPUT DATA

3.1 Daily SOFR and SOFR Averages

Daily SOFR rates and the 30-, 90- and 180-day SOFR averages are published on each SIFMA business day by the Federal Reserve Bank of New York. Daily SOFR rates are used to calculate Adjusted SOFR rates for In-Arrears USD IBOR Institutional Cash Fallbacks and the SOFR averages are used as Adjusted SOFR rates for all In-Advance USD IBOR Cash Fallbacks.

3.2 USD LIBOR

Overnight, 1-Week, 1-Month, 2-Month, 3-Month, 6-Month and 12-Month USD LIBOR is published on each London business day by ICE Benchmark Administration Limited.

USD LIBOR® is used to calculate the Spread Adjustment in accordance with the ISDA USD LIBOR fallback rate methodology for each USD LIBOR tenor as of March 5th, 2021. 1-Month, 3-Month and 6-Month USD LIBOR® are also used to calculate the interpolated Spread Adjustment for the USD IBOR Consumer Cash Fallbacks (1 Week, 2 Months) benchmark and the USD IBOR Consumer Cash Fallbacks (1, 3, 6 Months) prototype during the relevant Transition Period and, prior to each Transition Period, to calculate the average SOFR-LIBOR® spread on a rolling ten business day basis.

4. DETERMINATION OF THE BENCHMARK AND PROTOTYPE

4.1 In-Arrears USD IBOR Institutional Cash Fallbacks Benchmark

4.1.1 Adjusted SOFR for Overnight Tenor

The Adjusted SOFR $ASR_{O/N,t}^{simp}$ for the overnight tenor and LIBOR setting date t is the SOFR rate for the date t. As only one SOFR rate is used for the Adjusted SOFR rate, there is no compound version of the Adjusted SOFR rate for the overnight tenor.

4.1.2 Adjusted SOFR for 1W to 12M Tenors

Adjusted SOFR on a compound basis $ASR_{f,t}^{comp}$ for tenor f and LIBOR setting date t, is calculated in accordance with equation 1.

$$\boldsymbol{ASR_{f,t}^{comp}} = \frac{\mathbf{360}}{\boldsymbol{N(t_0 - r, T_{f,t} - r)}} \cdot \left[\prod_{\boldsymbol{u \in AP_{f,t_0}}} \left(\mathbf{1} + \frac{\boldsymbol{n_{u-r,u-r+1}}}{\mathbf{360}} \cdot \boldsymbol{SOFR_{D(u)}} \right) - \mathbf{1} \right] \tag{1}$$

Adjusted SOFR on a simple basis $ASR_{f,t}^{simp}$ for tenor f and LIBOR setting date t, is calculated in accordance with equation 2.

$$\boldsymbol{ASR_{f,t}^{simp}} = \frac{\mathbf{360}}{\boldsymbol{N(t_0 - r, T_{f,t} - r)}} \cdot \left[\sum_{\boldsymbol{u \in AP_{f,t_0}}} \frac{\boldsymbol{n_{u-r,u-r+1}}}{\mathbf{360}} \cdot \boldsymbol{SOFR_{D(u)}} \right] \tag{2}$$

The following definitions apply to equations 1 and 2:

- t_0 is the start of the LIBOR interest accrual period corresponding to a LIBOR setting on day t and is defined for the 1W to 12M tenors as $t + 2$ London business days and if such day is not both a London and a SIFMA business day, t is rolled forward to the first subsequent day that is both a London and SIFMA business day.

- For the 1W tenor, $T_{f,t}$ is t_0 plus 7 calendar days. If such day is not both a London and SIFMA business day, $T_{f,t}$ is rolled forward to the first subsequent day that is both a London and SIFMA business day.

- For the 1M-12M tenors, $T_{f,t}$ is t_0 plus the relevant number of calendar months. If there is no corresponding day in the final month, $T_{f,t}$ is set as the last calendar day of the final month (for example, for March 31st plus 1 calendar month, $T_{f,t}$ would be April 30th). If such day is not both a London and a SIFMA business day, $T_{f,t}$ is adjusted to the nearest day that is both a London and SIFMA business day in accordance with the modified following day adjustment convention.

- Interest accrual period AP_{f,t_0} is from and including t_0 up to but excluding $T_{f,t}$.

- u is a SIFMA business day in the interest accrual period AP_{f,t_0} and r is the number of SIFMA business days for the observation shift for In-Arrears USD IBOR Institutional Cash Fallbacks with such an observation shift (and is zero otherwise).
- $D(u)$ is the SIFMA business day u adjusted for In-Arrears USD IBOR Institutional Cash Fallbacks with a lookback or lockout as applicable. If a lookback applies, $D(u)$ is u minus the number of SIFMA business days in the lookback period. If a lockout applies, $D(u)$ is the earlier of (i) u and (ii) the final u in the Interest accrual period AP_{f,t_0} minus the number of SIFMA business days in the lockout. If no lookback or lockout applies for the IBOR Cash Fallback being calculated, $D(u)$ is simply u.
- $SOFR_{D(u)}$ is the daily SOFR rate published by the Federal Reserve Bank of New York in respect of day $D(u)$.
- $n_{u-r,u-r+1}$ is the number of calendar days from $u-r$ to $u-r$ plus one SIFMA business day.
- $N(t_0-r, T_{f,t}-r)$ is the number of calendar days from t_0-r to $T_{f,t}-r$ where r is the number of SIFMA business days for the observation shift for In-Arrears USD IBOR Institutional Cash Fallbacks with such an observation shift (and is zero otherwise).

4.1.3 Spread Adjustment

The Spread Adjustment S_f for tenor f is calculated in accordance with the ISDA USD LIBOR fallback rate methodology for each USD LIBOR tenor and is the median of the spread between each LIBOR tenor and compounded SOFR over the five year period ending on March 5th, 2021. The values are:

Tenor	Spread Adjustment
O/N	0.00644%
1W	0.03839%
1M	0.11448%
2M	0.18456%
3M	0.26161%
6M	0.42826%
12M	0.71513%

4.1.4 All In In-Arrears USD IBOR Institutional Cash Fallbacks

The All In USD IBOR Institutional Cash Fallbacks $CFR_{f,t}$ for tenor f and LIBOR setting date t is calculated in accordance with equation 3.

$$\boldsymbol{CFR_{f,t}^{comp/simp} = ASR_{f,t}^{comp/simp} + S_f} \quad (3)$$

4.2 In-Advance USD IBOR Institutional Cash Fallbacks

Each In-Advance USD IBOR Institutional Cash Fallback, $CFR_{f,t}$, is calculated using the SOFR average $AVS_{f,t}$ with corresponding tenor f as published on day t by the Federal Reserve Bank of New York and the Spread Adjustment S_f for tenor f described in section 4.1.3 in accordance with equation 4.

$$\boldsymbol{CFR_{f,t} = AVS_{f,t} + S_f} \quad (4)$$

4.3 In-Advance USD IBOR Consumer Cash Fallbacks

4.3.1 Transition Period for 1W and 2M Benchmark Tenors

The Transition Period for the 1 week and 2 month benchmark tenors is from Monday January 3rd 2022 to Friday December 30th 2022. During this Transition Period a linearly interpolated daily spread is derived using an initial spread and the final Spread Adjustment S_f for tenor f described in section 4.1.3.

The initial spread, $S_{f,0}$, is the spread between USD LIBOR, $LIBOR_{f,t}$, and the 30-day SOFR average, $AVS_{30D,t}$, and is calculated in accordance with equation 5. Only days that are both London and SIFMA business days are included in equation 5[3].

$$\boldsymbol{S_{f,0} = \sum_{t=15.Dec.21}^{31.Dec.21} \left[LIBOR_{f,t} - AVS_{30D,t}\right]/10} \quad (5)$$

During the Transition Period, the interpolated daily spread, $S_{f,t}^{Int}$, is derived in accordance with equation 6 where $n_{31.Dec.21,t}$ is the number of calendar days from December 31st 2021 to t.

$$\boldsymbol{S_{f,t}^{Int} = S_{f,0} + \left[S_f - S_{f,0}\right] \cdot \frac{n_{31.Dec.21,t}}{365}} \quad (6)$$

Following the Transition Period (from Monday January 2nd 2023 onwards), $S_{f,t}^{Int} = S_f$.

4.3.2 Transition Period for 1M, 3M and 6M Prototype Tenors

The Transition Period for the 1, 3 and 6 month prototype tenors is from Monday July 3rd 2023 to Friday June 28th 2024. During the Transition Period, a linearly interpolated daily spread is derived using an initial spread and the final the Spread Adjustment S_f for tenor f described in section 4.1.3.

The initial spread, $S_{f,0}$, is the spread between LIBOR, $LIBOR_{f,t}$, and the SOFR average, $AVS_{f,t}$ of corresponding tenor f, and is calculated in accordance with equation 7. Only days that are both London and SIFMA business days are included in equation 7.

$$\boldsymbol{S_{f,0} = \sum_{t=19.Jun.23}^{30.Jun.23} \left[LIBOR_{f,t} - AVS_{f,t}\right]/10} \quad (7)$$

[3] The initial spread for 1 week and 2 month tenors is calculated for the period December 15, 2021 to December 31, 2021 as December 24, 2021 is a SIFMA holiday and December 27 and December 28 are London holidays.

During the Transition Period, the interpolated daily spread, $S_{f,t}^{Int}$, is derived in accordance with equation 8 where $n_{30.Jun.23,t}$ is the number of calendar days from June 30th 2023 to t[4].

$$\boldsymbol{S_{f,t}^{Int} = S_{f,0} + \left[S_f - S_{f,0}\right] \cdot \frac{n_{30.Jun.23,t}}{366}} \tag{8}$$

Following the Transition Period (from Monday July 1st 2024 onwards), $S_{f,t}^{Int} = S_f$.

4.3.3 All In USD IBOR Consumer Cash Fallbacks Benchmark and Prototype

Both the USD IBOR Consumer Cash Fallbacks (1 Week, 2 Months) benchmark and the USD IBOR Consumer Cash Fallbacks (1, 3, 6 Months) prototype, $CFR_{f,t}$ are derived in accordance with equation 9.

$$\boldsymbol{CFR_{f,t} = AVS_{f,t} + S_{f,t}^{Int}} \tag{9}$$

The USD IBOR Consumer Cash Fallbacks (1 Week, 2 Months) benchmark and the USD IBOR Consumer Cash Fallbacks (1, 3, 6 Months) prototype floored at zero, $CFR_{f,t}^{floored}$, are derived in accordance with equation 10.

$$\boldsymbol{CFR_{f,t}^{floored} = Max\left[AVS_{f,t} + S_{f,t}^{Int}, 0\right]} \tag{10}$$

In both cases, the USD IBOR Consumer Cash Fallbacks (1 Week, 2 Months) benchmark use the 30-day SOFR average, $AVS_{30D,t}$, whereas the USD IBOR Consumer Cash Fallbacks (1, 3, 6 Months) prototype use the SOFR average, $AVS_{f,t}$ of corresponding tenor f.

4.3.4 In-Advance USD IBOR Consumer Cash Fallbacks Prior To Transition Period

Prior to each Transition Period, the relevant In-Advance USD IBOR Consumer Cash Fallbacks benchmark and prototype will be produced on an indicative basis using a spread between LIBOR and the SOFR averages calculated on a rolling ten (London and SIFMA) business day basis up to and including the publication date t but otherwise in accordance with equations 5 and 7 as appropriate.

[4] The Transition Period for 1, 3 and 6 month tenors is 366 days as 2024 is a leap year.

5. PUBLICATION AND REFIX POLICY

5.1 Publication

The USD IBOR Institutional Cash Fallbacks benchmark, the USD IBOR Consumer Cash Fallbacks (1 Week, 2 Months) benchmark and the USD IBOR Consumer Cash Fallbacks (1, 3, 6 Months) prototype are published at approximately 08:20am ET, around 20 minutes after the Federal Reserve Bank of New York publishes the daily SOFR rate and SOFR averages. SOFR is published at approximately 08:00am ET.

The In-Arrears USD IBOR Institutional Cash Fallbacks are published toward the end of the interest accrual period that follows the publication of the corresponding LIBOR setting once the final required daily SOFR rate has been published by the Federal Reserve Bank of New York. The In-Advance USD IBOR Cash Fallbacks benchmark and prototype are published on the same day that the corresponding SOFR averages are published.

5.2 Delayed Publication

The Administrator of the USD IBOR Institutional Cash Fallbacks benchmark and the USD IBOR Consumer Cash Fallbacks (1 Week, 2 Months) benchmark, RBSL, and the publisher of the USD IBOR Consumer Cash Fallbacks (1, 3, 6 Months) prototype, Refinitiv, may at their discretion delay publication of the benchmarks and/or the prototype in the event that technical difficulties prevent receipt of input data or if RBSL and/or Refinitiv as appropriate have/has reason to believe that either the input data or the determination of the benchmarks and/or prototype includes a potential error. In such cases, all reasonable efforts will be made to publish the benchmarks and/or prototype at the earliest opportunity.

5.3 Refix Policy

If following publication, a material error is identified in the input data or the determination of the benchmarks and/or prototype before 09:30am ET, Refinitiv will refix the benchmark and/or prototypes as appropriate.

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

5.4 Publication RIC Identifiers

The USD IBOR Institutional Cash Fallbacks benchmark, the USD IBOR Consumer Cash Fallbacks (1 Week, 2 Months) benchmark and USD IBOR Consumer Cash Fallbacks (1, 3, 6 Months) prototype are made available on the Refinitiv RICs listed below. The benchmarks and prototype is also published on a delayed basis at www.refinitiv.com/USDIBORCashFallbacks.

Consumer benchmark and prototype products

All In Rates:

Feature	1W	1M	2M	3M	6M
N/A	USDCFCFCADA1W=	USDCFCFCADA1M=	USDCFCFCADA2M=	USDCFCFCADA3M=	USDCFCFCADA6M=
Floored	USDCFCFCADE1W=	USDCFCFCADE1M=	USDCFCFCADE2M=	USDCFCFCADE3M=	USDCFCFCADE6M=

Adjusted SOFR:

Feature	1W	1M	2M	3M	6M
N/A	SOFR1MAVG=	SOFR1MAVG=	SOFR1MAVG=	SOFR3MAVG=	SOFR6MAVG=

Spread Adjustment:

Feature	1W	1M	2M	3M	6M
N/A	USDCFCSCADA1W=	USDCFCSCADA1M=	USDCFCSCADA2M=	USDCFCSCADA3M=	USDCFCSCADA6M=

Institutional benchmark products

All In Rates, Compounded In Arrears:

Feature	O/N	1W	1M	2M	3M	6M	12M
No lookback or lockout	USDCFIFSARAON=	USDCFIFCARA1W=	USDCFIFCARA1M=	USDCFIFCARA2M=	USDCFIFCARA3M=	USDCFIFCARA6M=	USDCFIFCARA1Y=
3 day lookback (no observation shift)		USDCFIFCAR3B1W=	USDCFIFCAR3B1M=	USDCFIFCAR3B2M=	USDCFIFCAR3B3M=	USDCFIFCAR3B6M=	USDCFIFCAR3B1Y=
5 day lookback (no observation shift)			USDCFIFCAR5B1M=	USDCFIFCAR5B2M=	USDCFIFCAR5B3M=	USDCFIFCAR5B6M=	USDCFIFCAR5B1Y=
10 day lookback (no observation shift)			USDCFIFCAR10B1M=	USDCFIFCAR10B2M=	USDCFIFCAR10B3M=	USDCFIFCAR10B6M=	USDCFIFCAR10B1Y=
2 day lookback (observation shift)		USDCFIFCAR2C1W=	USDCFIFCAR2C1M=	USDCFIFCAR2C2M=	USDCFIFCAR2C3M=	USDCFIFCAR2C6M=	USDCFIFCAR2C1Y=
3 day lookback (observation shift)		USDCFIFCAR3C1W=	USDCFIFCAR3C1M=	USDCFIFCAR3C2M=	USDCFIFCAR3C3M=	USDCFIFCAR3C6M=	USDCFIFCAR3C1Y=
5 day lookback (observation shift)			USDCFIFCAR5C1M=	USDCFIFCAR5C2M=	USDCFIFCAR5C3M=	USDCFIFCAR5C6M=	USDCFIFCAR5C1Y=
2 day lockout		USDCFIFCAR2D1W=	USDCFIFCAR2D1M=	USDCFIFCAR2D2M=	USDCFIFCAR2D3M=	USDCFIFCAR2D6M=	USDCFIFCAR2D1Y=
3 day lockout		USDCFIFCAR3D1W=	USDCFIFCAR3D1M=	USDCFIFCAR3D2M=	USDCFIFCAR3D3M=	USDCFIFCAR3D6M=	USDCFIFCAR3D1Y=

All In Rates, Simple In Arrears:

Feature	O/N	1W	1M	2M	3M	6M	12M
No lookback or lockout	USDCFIFSARAON=	USDCFIFSARA1W=	USDCFIFSARA1M=	USDCFIFSARA2M=	USDCFIFSARA3M=	USDCFIFSARA6M=	USDCFIFSARA1Y=
3 day lookback (no observation shift)		USDCFIFSAR3B1W=	USDCFIFSAR3B1M=	USDCFIFSAR3B2M=	USDCFIFSAR3B3M=	USDCFIFSAR3B6M=	USDCFIFSAR3B1Y=
5 day lookback (no observation shift)			USDCFIFSAR5B1M=	USDCFIFSAR5B2M=	USDCFIFSAR5B3M=	USDCFIFSAR5B6M=	USDCFIFSAR5B1Y=
10 day lookback (no observation shift)			USDCFIFSAR10B1M=	USDCFIFSAR10B2M=	USDCFIFSAR10B3M=	USDCFIFSAR10B6M=	USDCFIFSAR10B1Y=
2 day lookback (observation shift)		USDCFIFSAR2C1W=	USDCFIFSAR2C1M=	USDCFIFSAR2C2M=	USDCFIFSAR2C3M=	USDCFIFSAR2C6M=	USDCFIFSAR2C1Y=
3 day lookback (observation shift)		USDCFIFSAR3C1W=	USDCFIFSAR3C1M=	USDCFIFSAR3C2M=	USDCFIFSAR3C3M=	USDCFIFSAR3C6M=	USDCFIFSAR3C1Y=
5 day lookback (observation shift)			USDCFIFSAR5C1M=	USDCFIFSAR5C2M=	USDCFIFSAR5C3M=	USDCFIFSAR5C6M=	USDCFIFSAR5C1Y=
2 day lockout		USDCFIFSAR2D1W=	USDCFIFSAR2D1M=	USDCFIFSAR2D2M=	USDCFIFSAR2D3M=	USDCFIFSAR2D6M=	USDCFIFSAR2D1Y=
3 day lockout		USDCFIFSAR3D1W=	USDCFIFSAR3D1M=	USDCFIFSAR3D2M=	USDCFIFSAR3D3M=	USDCFIFSAR3D6M=	USDCFIFSAR3D1Y=

All In Rates, Compounded In Advance:

Feature	1M	3M	6M
N/A	USDCFIFCADA1M=	USDCFIFCADA3M=	USDCFIFCADA6M=

Adjusted SOFR, Compounded In Arrears:

Feature	O/N	1W	1M	2M	3M	6M	12M
No lookback or lockout	USDSOFR=	USDCFIJCARA1W=	USDCFIJCARA1M=	USDCFIJCARA2M=	USDCFIJCARA3M=	USDCFIJCARA6M=	USDCFIJCARA1Y=
3 day lookback (no observation shift)		USDCFIJCAR3B1W=	USDCFIJCAR3B1M=	USDCFIJCAR3B2M=	USDCFIJCAR3B3M=	USDCFIJCAR3B6M=	USDCFIJCAR3B1Y=
5 day lookback (no observation shift)			USDCFIJCAR5B1M=	USDCFIJCAR5B2M=	USDCFIJCAR5B3M=	USDCFIJCAR5B6M=	USDCFIJCAR5B1Y=
10 day lookback (no observation shift)			USDCFIJCAR10B1M=	USDCFIJCAR10B2M=	USDCFIJCAR10B3M=	USDCFIJCAR10B6M=	USDCFIJCAR10B1Y=
2 day lookback (observation shift)		USDCFIJCAR2C1W=	USDCFIJCAR2C1M=	USDCFIJCAR2C2M=	USDCFIJCAR2C3M=	USDCFIJCAR2C6M=	USDCFIJCAR2C1Y=
3 day lookback (observation shift)		USDCFIJCAR3C1W=	USDCFIJCAR3C1M=	USDCFIJCAR3C2M=	USDCFIJCAR3C3M=	USDCFIJCAR3C6M=	USDCFIJCAR3C1Y=
5 day lookback (observation shift)			USDCFIJCAR5C1M=	USDCFIJCAR5C2M=	USDCFIJCAR5C3M=	USDCFIJCAR5C6M=	USDCFIJCAR5C1Y=
2 day lockout		USDCFIJCAR2D1W=	USDCFIJCAR2D1M=	USDCFIJCAR2D2M=	USDCFIJCAR2D3M=	USDCFIJCAR2D6M=	USDCFIJCAR2D1Y=
3 day lockout		USDCFIJCAR3D1W=	USDCFIJCAR3D1M=	USDCFIJCAR3D2M=	USDCFIJCAR3D3M=	USDCFIJCAR3D6M=	USDCFIJCAR3D1Y=

Adjusted SOFR, Simple In Arrears:

Feature	O/N	1W	1M	2M	3M	6M	12M
No lookback or lockout	USDSOFR=	USDCFIJSARA1W=	USDCFIJSARA1M=	USDCFIJSARA2M=	USDCFIJSARA3M=	USDCFIJSARA6M=	USDCFIJSARA1Y=
3 day lookback (no observation shift)		USDCFIJSAR3B1W=	USDCFIJSAR3B1M=	USDCFIJSAR3B2M=	USDCFIJSAR3B3M=	USDCFIJSAR3B6M=	USDCFIJSAR3B1Y=
5 day lookback (no observation shift)			USDCFIJSAR5B1M=	USDCFIJSAR5B2M=	USDCFIJSAR5B3M=	USDCFIJSAR5B6M=	USDCFIJSAR5B1Y=
10 day lookback (no observation shift)			USDCFIJSAR10B1M=	USDCFIJSAR10B2M=	USDCFIJSAR10B3M=	USDCFIJSAR10B6M=	USDCFIJSAR10B1Y=
2 day lookback (observation shift)		USDCFIJSAR2C1W=	USDCFIJSAR2C1M=	USDCFIJSAR2C2M=	USDCFIJSAR2C3M=	USDCFIJSAR2C6M=	USDCFIJSAR2C1Y=
3 day lookback (observation shift)		USDCFIJSAR3C1W=	USDCFIJSAR3C1M=	USDCFIJSAR3C2M=	USDCFIJSAR3C3M=	USDCFIJSAR3C6M=	USDCFIJSAR3C1Y=
5 day lookback (observation shift)			USDCFIJSAR5C1M=	USDCFIJSAR5C2M=	USDCFIJSAR5C3M=	USDCFIJSAR5C6M=	USDCFIJSAR5C1Y=
2 day lockout		USDCFIJSAR2D1W=	USDCFIJSAR2D1M=	USDCFIJSAR2D2M=	USDCFIJSAR2D3M=	USDCFIJSAR2D6M=	USDCFIJSAR2D1Y=
3 day lockout		USDCFIJSAR3D1W=	USDCFIJSAR3D1M=	USDCFIJSAR3D2M=	USDCFIJSAR3D3M=	USDCFIJSAR3D6M=	USDCFIJSAR3D1Y=

Adjusted SOFR, Compounded In Advance

Feature	1M	3M	6M
N/A	SOFR1MAVG=	SOFR3MAVG=	SOFR6MAVG=

6. METHODOLOGY REVIEW AND CHANGE PROCEDURES

6.1 Review of the Methodology and Input Data Providers

RBSL will carry out a review of the Methodology in respect of the USD IBOR Institutional Cash Fallbacks benchmark and the USD IBOR Consumer Cash Fallbacks (1 Week, 2 Months) 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 and the availability and sufficiency of input data.

The aim of the review will be to ensure that the benchmarks continue to be a suitable fallback for institutional and consumer financial products that reference USD dollar LIBOR and that the input data continues to be available in an accurate and timely manner. The oversight committee will provide input into the review.

6.2 Changes to the Methodology

Changes to the Methodology in respect of the USD IBOR Institutional Cash Fallbacks benchmark and the USD IBOR Consumer Cash Fallbacks (1 Week, 2 Months) benchmark shall be made in accordance with the RBSL Benchmark Methodology Change and Cessation Policy in order to seek feedback from a range of stakeholders including the Federal Reserve and the ARRC (or any successor to the ARRC). The combined RBSL Benchmark Methodology Change and Cessation Policy is available at www.refinitiv.com/content/dam/marketing/en_us/documents/methodology/rbsl-benchmark-methodology-change-cessation-policy.pdf.

6.3 Objective of the Methodology

The objective of this Methodology in respect of the USD IBOR Institutional Cash Fallbacks benchmark and the USD IBOR Consumer Cash Fallbacks (1 Week, 2 Months) benchmark is to provide a suitable fallback for institutional and consumer financial products that reference USD dollar LIBOR. The dependence of the benchmarks on other benchmarks as input data minimizes the risk of data insufficiency. The Methodology shall also comply with UK Benchmark Regulation (BMR).

6.4 Identification of Potential Limitations of the Benchmark

The principal limitation of the USD IBOR Institutional Cash Fallbacks benchmark and the USD IBOR Consumer Cash Fallbacks (1 Week, 2 Months) benchmark are their dependence on the availability of SOFR and the SOFR averages published by the Federal Reserve Bank of New York as input data. In the event that SOFR or the SOFR averages are unavailable, RBSL will consult with stakeholders as well as the oversight committee.

7. GOVERNANCE AND FURTHER INFORMATION

7.1 Benchmark Administrator and Prototype Publisher

Refinitiv Benchmark Services (UK) Limited (RBSL) is the Administrator of the USD IBOR Institutional Cash Fallbacks benchmark and the USD IBOR Consumer Cash Fallbacks (1 Week, 2 Months) 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.

Refinitiv is the publisher of the USD IBOR Consumer Cash Fallbacks (1, 3, 6 Months) prototype. As publisher, Refinitiv is responsible for collecting input data, determining and publishing the prototype, and for all aspects of governance, oversight and integrity of the prototype.

7.2 Oversight Committee

The oversight committee is responsible for oversight of all aspects of the provision of the benchmarks including the reviews of the 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.

7.3 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.

7.4 User Feedback

RBSL may communicate periodically with stakeholders in order 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.

7.5 Further Information

Further information is available at www.refinitiv.com/USDIBORCashFallbacks.

Refinitiv welcomes feedback. Any comments or questions regarding this Methodology, the USD IBOR Institutional Cash Fallbacks benchmark, the USD IBOR Consumer Cash Fallbacks (1 Week, 2 Months) benchmark or the USD IBOR Consumer Cash Fallbacks (1, 3, 6 Months) prototype should be sent to index_queries@refinitiv.com and include 'USD IBOR Cash Fallbacks' in the email subject line.

8. DISCLAIMER

USD IBOR Cash Fallbacks (shown as “Production” rates).

From 1 January 2022 if you have not signed up to a licensing agreement with Refinitiv for the use of Refinitiv USD IBOR Cash Fallbacks (**“Fallback Rates”**) you will be unable to use Fallback Rates for any commercial purpose or use whatsoever including, but not limited to as a reference rate in financial instruments, financial contracts or for valuation and pricing activities, or as an input into a benchmark or an index or otherwise.

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Third party accreditation/disclaimers

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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 benchmark administrator.	Refinitiv Benchmark Services (UK) Limited
Item 2. Type of benchmark or family of benchmarks. Choose the relevant underlying asset from the list provided in Annex II to Commission Delegated Regulation (EU)2020/1816.	Other
Item 3. Name of the benchmark or family of benchmarks.	Refinitiv USD IBOR Cash Fallbacks
Item 4. Does the benchmark methodology for the benchmark or family of benchmarks take into account ESG factors?	☐ Yes ☒ No
Date on which information has been last updated and reason for the update:	January 3rd, 2022 Initial version updated for launch of USD IBOR Consumer Cash Fallbacks (1 Week, 2 Months) benchmark