

Fact Sheet

# IBOR Fallbacks

With hundreds of trillions of dollars' worth of contracts referencing LIBOR, which is expected to cease after 2021 and may be followed by the demise of other IBORs, public/private sector working groups globally started identifying alternative risk-free reference rates ('RFRs'). These RFRs are inherently different from the IBORs. The International Swaps & Derivatives Association, Inc. ('ISDA') is implementing prescribed adjustments to the RFRs to serve as IBOR fallbacks based on feedback received from several market consultations regarding these inherent differences. ISDA selected Bloomberg as the official adjustment services vendor in connection with these fallbacks. This factsheet provides an overview of the methodology and implementation of IBOR fallback rate calculations.

*"Given the uncertainty about the long-term viability of certain interbank offered rates (IBORs), it is vital that robust fallbacks are included within derivatives contracts. It is also important these fallback rates are independently calculated and widely available across the market. This will dramatically reduce the systemic threat of a permanent discontinuation of LIBOR and other IBORs,"* says **Scott O'Malia, ISDA's Chief Executive.**

*"The publication of robust fallback rates for derivatives referencing key IBORs and the addition of new fallbacks to ISDA's standard documentation reflects four years of work by ISDA, market participants, regulators and infrastructure providers. This is a major step forward in reducing the risks associated with an IBOR discontinuation, and now work can turn to educating the market on how precisely the fallbacks will function,"* says **Ann Battle, ISDA's Head of Benchmark Reform.**

*"Calculating and distributing IBOR fallbacks fits naturally with Bloomberg Index Services Limited's (BISL's) business model. It complements Bloomberg's capabilities and our ongoing efforts to support investors as they prepare for the transition away from LIBOR,"* says **Steve Berkley, BISL's Chief Executive.**

*"ISDA's work on updating the fallbacks for key IBORs has been vital in order to smooth the market impact of IBOR cessation. The creation and documentation of robust fallbacks has been complex and we've been pleased to work with ISDA, Bloomberg and market participants to help deliver this solution to the market,"* says **Deepak Sitlani, Partner at Linklaters.**

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## Background

### Current Market Gap

- \$350tn+ in various financial instruments reference LIBOR, which is expected to cease after the end of 2021 and may be followed by the demise of other IBORs
- Public/private sector working groups globally started identifying alternative RFRs as possible replacements for IBORs (such as SOFR for USD LIBOR)
- Adoption of these alternatives is a significant undertaking, particularly as they are inherently different from the IBORs:
  - These rates lack term structures similar to IBORs (e.g. 1-week, 3-month, etc.)
  - These rates have different behavioral characteristics to IBORs resulting in different historical spreads

### Addressing the Market Gap

- ISDA is implementing fallbacks based on the RFRs for LIBOR and the other key IBORs in its standard definitions and has held several market consultations to address these differences in the event the fallbacks are triggered and the fallback rates apply
- ISDA has selected Bloomberg Index Services Limited ('BISL') as the official adjustment services vendor to calculate these various IBOR fallbacks

### Product Offering

- Calculations to be published are:
  - *Adjusted RFR*: compounded setting in arrears RFR for each relevant term - daily compounding of publicly available RFRs (e.g. SOFR, SONIA)
  - *Spread Adjustment*: median of the historical differences between the IBOR for each tenor and the compounded RFR for that tenor over a five-year period prior to an announcement constituting a Trigger Event (as defined below)
  - *Fallback Rate*: The "all in" fallback rate, which is the combination of the Adjusted RFR and the Spread Adjustment for each relevant tenor
- 11 Fallback Rates are to be published by BISL for each IBOR and Tenor below<sup>1</sup>:
  - AUD BBSW                    1M, 2M, 3M, 4M, 5M, 6M
  - CAD CDOR                 1M, 2M, 3M, 6M, 12M
  - CHF LIBOR                 S/N, 1W, 1M, 2M, 3M, 6M, 12M
  - EUR EURIBOR             1W, 1M, 3M, 6M, 12M
  - EUR LIBOR                 O/N, 1W, 1M, 2M, 3M, 6M, 12M
  - GBP LIBOR                 O/N, 1W, 1M, 2M, 3M, 6M, 12M
  - HKD HIBOR                O/N, 1W, 2W, 1M, 2M, 3M, 6M, 12M
  - JPY Euroyen TIBOR      1W, 1M, 3M, 6M, 12M
  - JPY LIBOR                 S/N, 1W, 1M, 2M, 3M, 6M, 12M
  - JPY TIBOR                 1W, 1M, 3M, 6M, 12M
  - USD LIBOR                 O/N, 1W, 1M, 2M, 3M, 6M, 12M

<sup>1</sup> Given different time zones of the underlying data, Fallback Rates are published periodically throughout the day.

'IBOR' and 'Tenor' are defined in the *IBOR Fallback Rate Adjustments Rule Book*.

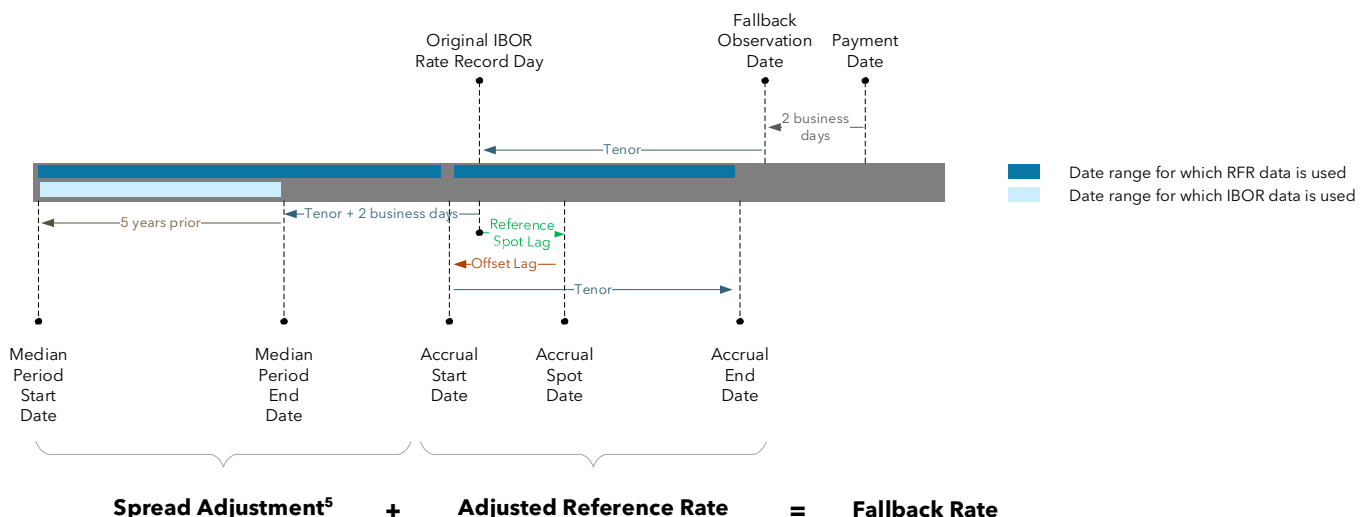
## Overview of IBOR Fallbacks Methodology and 2006 ISDA Definitions<sup>2</sup>

Below is an overview of key terms associated with the IBOR fallbacks methodology and the 2006 ISDA Definitions.

<b>Adjusted RFR<sup>3</sup></b>	To determine the Adjusted RFR, the underlying RFR is compounded over an accrual period corresponding to the tenor of the IBOR. The start of the accrual period is determined firstly by following the market convention Reference Spot Lag, and then applying a two business day backward shift, or Offset Lag. The compounded rate is annualized, and the day count convention adjusted to match that of the IBOR.
<b>Spread Adjustment<sup>3</sup></b>	If the Original IBOR Rate Record Day (defined below under 'Fallback Rate') is prior to the Spread Adjustment Fixing Date (defined below), the Spread Adjustment is the median spread between the IBOR and the Adjusted RFR over the preceding five-year period (from the Median Period Start Date to the Median Period End Date, as each is defined below). The Spread Adjustment is fixed effective the Spread Adjustment Fixing Date (for a given IBOR and Tenor), which is the earlier of: <ul style="list-style-type: none"> <li>(i) the IBOR Cessation Trigger Date (or 'Index Cessation Event' under the updated 2006 ISDA Definitions) for all Tenors of the relevant IBOR; and</li> <li>(ii) the first date on or after the Tenor Cessation Trigger Date for a particular Tenor of the relevant IBOR for which there is either no published Tenor that is shorter than that Tenor or there is no published Tenor that is longer than that Tenor.</li> </ul> <p>Note that in the case of LIBOR, publication refers to publication of a Tenor that is not 'non-representative'.</p>
<b>Fallback Rate</b>	The Fallback Rates each correspond to an 'Original IBOR Rate Record Day', which is the date that the relevant IBOR would have appeared on the screen. For certain IBORs (e.g. GBP LIBOR), this is the Reset Date under the 2006 ISDA Definitions, while for other IBORs (e.g. USD LIBOR), it is two banking days prior to such Reset Date. Note that, for the purpose of calculating a continuous data series, Fallback Rates are also published for 'Original IBOR Rate Record Days' that are non-business day weekdays, even though those dates would not have had IBOR rates published. <p>Fallback Rate = Adjusted Reference Rate + Spread Adjustment.</p>
<b>2006 ISDA Definitions<sup>4</sup></b>	On or after the Index Cessation Effective Date under the updated 2006 ISDA Definitions, one needs to look up the Fallback Rate for a given IBOR and Tenor that corresponds to the Original IBOR Rate Record Day. One looks up this Fallback Rate two payment business days prior to the Payment Date for the relevant transaction (the 'Fallback Observation Date'). If the Fallback Rate for the Original IBOR Rate Record Day is available by the cut off time on the Fallback Observation Date, one should use that. If it is not available, one should use the Fallback Rate that has been published for the most recent Original IBOR Rate Record Day (as at the cut off time on the Fallback Observation Date).

Figure 1

### Interplay of the key dates associated with the IBOR Fallbacks Rule Book and 2006 ISDA Definitions<sup>2</sup>



<sup>2</sup> Please refer to the *IBOR Fallback Rate Adjustments Rule Book* and the 2006 ISDA Definitions for additional details. Please note that, as at the time of publication of this factsheet, the updated 2006 ISDA Definitions are still in draft form and so may be subject to further change which may affect the descriptions in this factsheet.

<sup>3</sup> Capitalized terms used in this row and not otherwise defined in this document have the meaning given to them in the *IBOR Fallback Rate Adjustments Rule Book*.

<sup>4</sup> Capitalized terms used in this row and not otherwise defined in this document have the meaning given to them in the 2006 ISDA Definitions.

<sup>5</sup> Please note that as of the Spread Adjustment Fixing Date, this is fixed and will not change. Therefore, the period between the time period for calculating the Spread Adjustment and the time period for calculating the Adjusted RFR will continuously lengthen.

## Publication Schedule

The determination of dates used in the calculation is based on the relevant calendars and exchange schedules. The dates for which Fallback Rates will or will not be published are set out in the *IBOR Fallback Rate Adjustments Rule Book* (the 'Rule Book'), which is available on ISDA <GO> on the Bloomberg Terminal® and Bloomberg's LIBOR Transition website, as well as ISDA's Benchmark Reform and Transition from LIBOR page.

## Interpolation Associated with the Spread Adjustment

If the publication of one or more Tenors of an IBOR is discontinued prior to the complete cessation of the IBOR, then the Spread Adjustment will continue to be calculated for the Tenors that continue to be published and those Tenors where at least one shorter and at least one longer Tenor are still available. In these latter cases, the values for the discontinued Tenor in the spread calculation shall be determined using linear interpolation between the closest shorter and closest longer available Tenors. Upon a Spread Adjustment Fixing Date for the Tenor that had been discontinued, the calculation of the Spread Adjustment will include as data points the interpolated IBOR rates that were calculated during the relevant portion of the historical period.

As discussed in the 'Discontinued Rates Maturities Provisions' section below, these interpolation mechanisms are consistent with the interpolation that will apply contractually if certain but not all Tenors of an IBOR are discontinued prior to the cessation of the IBOR.

Additional details associated with the calculation of the Fallback Rates can be found in the Rule Book. For further understanding, a Sample Calculation is provided in Appendix 1.

## Trigger Events for Fallback Rates

The fallbacks in the 2006 ISDA Definitions will be triggered upon the following Trigger Events (which are called 'Index Cessation Events' in the 2006 ISDA Definitions):

- A public statement or publication of information by or on behalf of the administrator of the relevant IBOR announcing that it has ceased, or will cease, to provide the relevant IBOR permanently or indefinitely, provided that, at that time, there is no successor administrator that will continue to provide the relevant IBOR; or
- A public statement or publication of information by the regulatory supervisor for the administrator of the relevant IBOR, the central bank for the currency of the relevant IBOR, an insolvency official with jurisdiction over the administrator for the relevant IBOR, a resolution authority with jurisdiction over the administrator for the relevant IBOR or a court or an entity with similar insolvency or resolution authority over the administrator for the relevant IBOR, which states that the administrator of the relevant IBOR has ceased or will cease to provide the relevant IBOR permanently or indefinitely, provided that, at that time, there is no successor administrator that will continue to provide the relevant IBOR.

Please note that this list of Trigger Events will include a pre-cessation event based on a 'non-representativeness' determination in respect of LIBOR for the five currencies in which it is published (but not the other IBORs). An updated version of the Rule Book and this factsheet will be published to reflect the additional Trigger Event.

These Trigger Events are relevant to the calculation of the Spread Adjustment, as described above, because these Trigger Events determine the Spread Adjustment Fixing Date. However, importantly, in connection with the permanent cessation fallbacks, the Fallback Rates will not apply until the actual cessation of the relevant IBOR (or the cessation of the relevant Tenor and all shorter or all longer Tenors) or actual non-representativeness of LIBOR.

## Update to 2006 ISDA Definitions for 'Rate Options'

ISDA is amending various 'rate options' in the 2006 ISDA Definitions for the IBOR benchmarks listed above to provide that the Fallback Rates will apply upon the *permanent discontinuation* of those IBORs and, in the case of LIBOR, if LIBOR becomes '*non-representative*'.<sup>6</sup> As it has done from time to time, ISDA will amend the 2006 ISDA Definitions by publishing a 'Supplement' to the 2006 ISDA Definitions. Upon publication of this Supplement, transactions incorporating the 2006 ISDA Definitions that are entered into on or after the date of the Supplement (i.e. the date on which the 2006 ISDA Definitions are amended) will include the amended rate option (i.e. the rate option with the provisions contemplating the application of the relevant Fallback Rate).

Transactions entered into prior to the date of the Supplement (so called 'legacy derivative contracts') will continue to be based on the 2006 ISDA Definitions as they applied to the legacy derivative contracts before they were amended pursuant to the Supplement, and therefore will not include the amended rate option with references to the relevant Fallback Rate and related triggers.

ISDA therefore also expects to publish a protocol to facilitate the update of rate options in legacy derivative contracts so as to include references to the relevant Fallback Rate and related triggers. By adhering to the protocol, market participants are agreeing that their legacy derivative contracts *with other adherents* will include the amended rate option for the relevant IBOR (or equivalent terms) and will therefore include the references to the relevant Fallback Rate and related triggers. Given that the relevant IBORs are included in a broad range of derivative as well as non-derivative agreements, the protocol goes beyond merely amending legacy derivative contracts that incorporate the 2006 ISDA Definitions. For example, it covers legacy derivative contracts that incorporate previous iterations of interest rate definitional booklets published by ISDA as well as agreements such as the Global Master Repurchase Agreement.

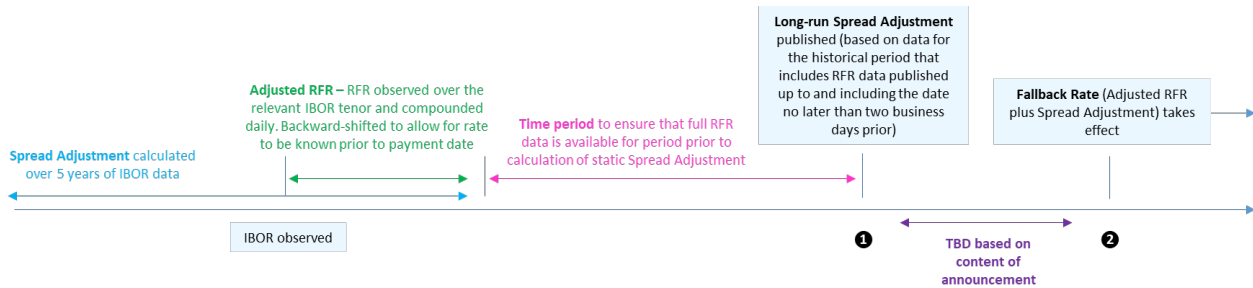
As always, adherence to the protocol will be completely voluntary and will amend contracts only between two adhering parties (i.e. it will not amend contracts between an adhering party and a non-adhering party or between two non-adhering parties). Counterparties could alternatively agree to include the amended rate options via a bilateral amendment agreement.

### Terms of the Amended Rate Options

In the Supplement to the 2006 ISDA Definitions, the Trigger Events are the same as those referenced above but they are called Index Cessation Events (and, as mentioned above, they include a pre-cessation trigger for LIBOR). After an announcement constituting an Index Cessation Event is made, the fallback will apply from the related Index Cessation Effective Date. This is the date on which the IBOR is permanently discontinued or, in the case of LIBOR, is non-representative. During the period between the Index Cessation Event and the Index Cessation Effective Date (if any), the relevant document will continue to reference the relevant IBOR. Whether any such period exists, and the length of the period, is based on the information in the announcement constituting the Index Cessation Event and therefore will not be known until the time of the Index Cessation Event.

See the diagram below for further information regarding when the fallbacks are calculated and when the fallbacks apply in the case of a permanent cessation Index Cessation Event and Index Cessation Effective Date.

<sup>6</sup> ISDA is also amending certain rate options that use USD LIBOR as an input to include fallbacks that would apply if USD LIBOR is permanently discontinued or is non-representative.



- ①: permanent cessation Index Cessation Event, i.e. announcement that IBOR will permanently cease to be available (and therefore will permanently cease to be available as of ② (which may either coincide with ① or be after ①))
- ②: permanent cessation Index Cessation Effective Date, i.e. IBOR actually permanently ceases to be available

The Fallback Rate will be the Fallback Rate for the relevant IBOR and Tenor that corresponds to the Original IBOR Rate Record Day, provided that this Fallback Rate appears on the relevant screen at least two Business Days (as defined in the 2006 ISDA Definitions as applicable for the purposes of payment) prior to the relevant Payment Date. The Payment Date will be specified in the contract and will typically be at the end of the relevant Calculation Period (as defined in the 2006 ISDA Definitions). Parties can define the relevant Business Days in the contract so as to ensure that the Fallback Rate will be known two days in advance of the payment being due based on the Business Day calendar in relevant jurisdictions. If the parties do not specify places for the purposes of the reference to Business Days for payment purposes within the contract, then the 2006 ISDA Definitions will implement default Business Day calendars (e.g. London for GBP LIBOR). This means that two transactions which referenced the same IBOR on the same day may apply a different Fallback Rate if different Business Day calendars apply to those transactions.<sup>7</sup>

As mentioned above, each Fallback Rate that is published will be linked to an Original IBOR Rate Record Day. This is the date that the relevant IBOR would have appeared on the screen. For example, in the context of GBP LIBOR this is the Reset Date under the 2006 ISDA Definitions and in the context of USD LIBOR this is two banking days prior to the Reset Date. Note that, for the purpose of calculating a continuous data series, Fallback Rates are also published for 'Original IBOR Rate Record Days' that are non-business day weekdays, even though those dates would not have had IBOR rates published.

If, however, the Fallback Rate for the Original IBOR Rate Record Day corresponding to the Reset Date (or the day two banking days prior to the Reset Date, as applicable) is not produced by Bloomberg two Business Days prior to the Payment Date, then the Fallback Rate that has been published for the most recent Original IBOR Rate Record Day should be used. This will have the effect of applying a dynamic 'backward shift' (i.e. the standard two-day backward shift that applies under the Bloomberg Rule Book for the Fallback Rates will effectively be lengthened in this scenario to the number of days necessary for the Fallback Rate to be known two Business Days prior to the 'Payment Date').

The Supplement to the 2006 ISDA Definitions also includes provisions dealing with a permanent discontinuation of the Fallback Rates. In this scenario, additional fallbacks are specified which are currency-specific. For example, for GBP LIBOR, there is a further fallback based on the Bank of England's base rate and, for USD LIBOR, there are further fallbacks based on any rate recommended by the Federal Reserve, the Overnight Bank Funding Rate and the FOMC Target Rate.

<sup>7</sup> If, for each transaction, the Fallback Rate for the Original IBOR Rate Record Day is on the screen two Business Days prior to the Payment Date, the same Fallback Rate would be used in each of those transactions. However, if different Business Day calendars mean that this Fallback Rate is not on the screen by that day for one of those transactions, the two transactions may apply different Fallback Rates.

## Discontinued Rates Maturities Provisions

Alongside restating various rate options, the Supplement to the 2006 ISDA Definitions includes a new mechanism to determine a rate if a specific Tenor is discontinued (or, in the case of LIBOR, is 'non-representative') and the provider of that rate continues to publish at least one shorter Tenor and at least one longer Tenor (and, in the case of LIBOR, these Tenors are not 'non-representative'). In this scenario, the relevant rate would be determined by interpolating the nearest remaining shorter rate and the nearest remaining longer rate (assuming, only in the case of LIBOR, that those rates are not 'non-representative').

## Fallbacks for Calculation Periods to which 'Linear Interpolation' applies and Calculation Periods which apply a rate with a tenor that is longer than the period

*Fallbacks to which 'Linear Interpolation' applies:*

The Supplement to the 2006 ISDA Definitions also specifically deals with Calculation Periods to which Linear Interpolation (as such terms are defined in the 2006 ISDA Definitions) is specified to apply. In these cases, the rate for a non-standard period is calculated by reference to two rates with standard Tenors, one of which will often have a Tenor that is longer than the length of the Calculation Period.

If the Fallback Rates apply, however, the Adjusted RFR for the longer Tenor will not be known until the end of that longer Tenor period and so the 'standard' Fallback Rate may not be appropriate in this scenario.

The Supplement to the 2006 ISDA Definitions therefore provides that if Linear Interpolation cannot be used as originally anticipated (for example, if specific Tenors which were to be used have been discontinued) then:

- interpolation of remaining IBOR Tenors (which, in the case of LIBOR, are not 'non-representative') pursuant to the discontinued rates maturities provisions will apply (the discontinued rates maturities provisions apply where an interpolated rate was not originally used but also where a Tenor that was previously used for interpolation has been discontinued or is non-representative in the case of LIBOR); and
- if the only remaining IBOR Tenors (which, in the case of LIBOR, are not 'non-representative') are all shorter or all longer than the Calculation Period, then the Calculation Agent will determine the applicable fallback rate by compounding the RFR over the length of the Calculation Period (backward-shifted by two Business Days) and adding a spread based on interpolation between the Spread Adjustments (published by Bloomberg) for the Tenors originally specified or used for the purposes of Linear Interpolation.

*Calculation Periods which apply a rate with a tenor that is longer than the period:*

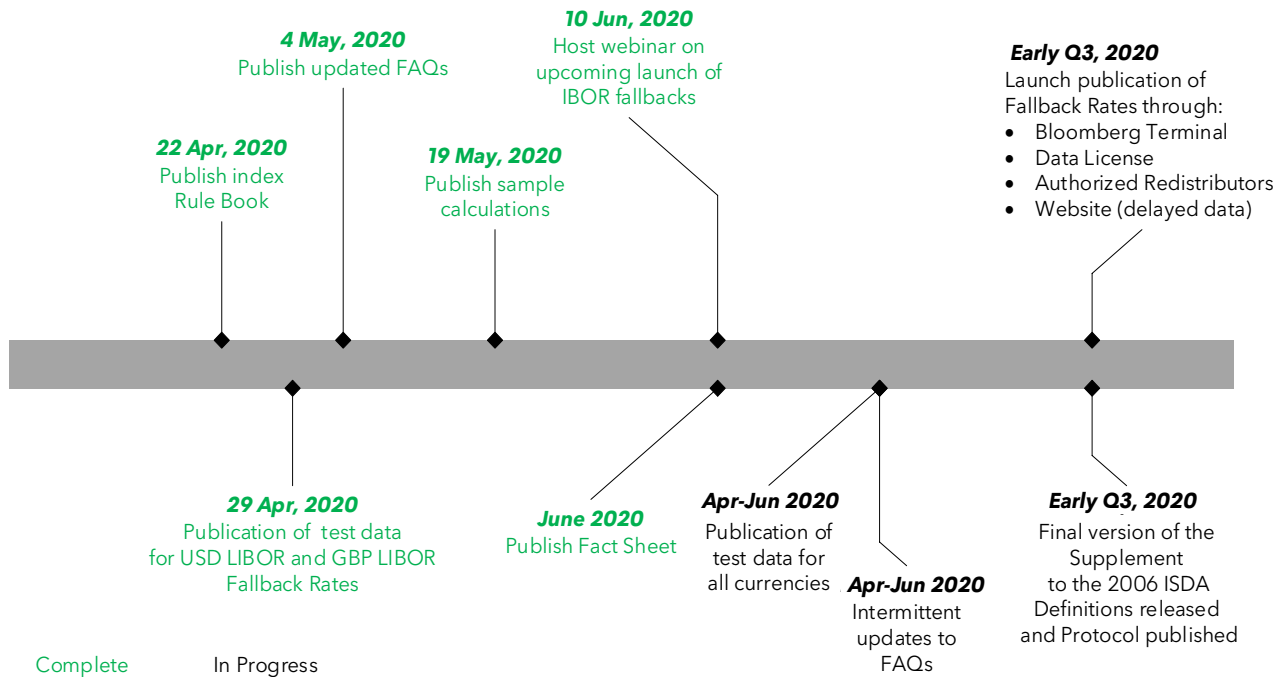
The 'standard' fallbacks will be used for a Calculation Period to which Linear Interpolation is not specified to apply. This means that if (i) an IBOR with a tenor that is longer than the length of the Calculation Period is ordinarily used, (ii) that IBOR tenor is discontinued, (iii) the discontinued rates maturities provisions cannot be applied because there are no other IBOR Tenors remaining or there are only longer or only shorter IBOR Tenors remaining (which, in the case of LIBOR, are not 'non-representative'), then the parties will use the Fallback Rate on the screen two payment Business Days prior to the Payment Date notwithstanding that this Fallback Rate relates to an earlier Original IBOR Rate Record Day.



## Timelines

The Fallback Rates are expected to start becoming available to the market starting in early Q3, 2020. Figure 2 below provides an overview of the key timelines associated with these.

Figure 2  
Key timelines associated with the Fallback Rates



## Accessing Data

Bloomberg will make the Adjusted RFRs, the Spread Adjustments and the Fallback Rates broadly available to industry participants through:

Bloomberg Terminal, Data License and B-Pipe	<p>The data will be available to Bloomberg customers through various distribution channels such as the Bloomberg Terminal, the Desktop API, B-Pipe and Data License. The latest available data will be displayed at &lt;FBAK&gt;&lt;GO&gt;. Data for prior days will be displayed at &lt;HP&gt;&lt;GO&gt;.</p> <p>Separate to this data, Bloomberg Terminal customers already have access to RFRs and compounded RFRs data at &lt;EONC&gt; &lt;GO&gt;. Further information about this, and LIBOR transition more widely, is available at &lt;RFR&gt; &lt;GO&gt;.</p> <p>Please see Appendix 2 for a list of tickers associated with the Adjusted RFRs, the Spread Adjustments and the Fallback Rates.</p>
Authorized Redistributors	The data will be available through authorized redistributors.
Bloomberg website	Delayed data will be publicly available on Bloomberg's website.

## Licensing

A License is required from Bloomberg for the re-distribution or usage of the Adjusted RFRs, the Spread Adjustments and the Fallback Rates.

### Overview

- Three license types are available
  - Re-distribution License
  - Infrastructure Provider Usage License
  - Firm-wide Usage License
- A Usage License permits firm-wide enterprise usage for multiple purposes. This is a group-wide global license and includes affiliates. There is no 'per user' count and no 'product' count
- Annual Redistribution License fees and Usage License fees for infrastructure providers (e.g. CCPs, exchanges, benchmark administrators, index calculators, etc.) apply from the date of subscription
- Annual Usage License fees are waived for all other firms until the earlier of 2022 and the 'Index Cessation Effective Date' for an IBOR in accordance with the terms of the updated 2006 ISDA Definitions

### Additional Details

- Excluding infrastructure providers, Usage License fee waivers continue to apply for smaller institutions with assets below USD5bn, who subscribe to use a single rate set (a rate set includes all tenors for a rate)
- Payable from date of subscription
  - Vendor Re-distribution License
    - Realtime & Delayed data: \$50,000
    - Delayed data (24hr): \$10,000
  - Infrastructure Provider Usage License: *(applicable for CCPs, exchanges, 'for-profit' benchmark administrators and index calculators)*
    - Single rate set: \$50,000
    - Two or more rate sets: \$100,000
- Payable from the effective date of IBOR fallbacks<sup>8</sup>
  - Infrastructure Provider Usage License: *(applicable for government agency / 'not-for-profit' benchmark administrators, for use in benchmarks and derived benchmarks)*
    - Single rate set: \$50,000
    - Two or more rate sets: \$100,000
  - Firm-wide Usage License:
    - Single rate set: \$5,000<sup>9</sup>
    - Two or more rate sets:
      - Financial Institution: \$20,000
      - Non-financial Institution: \$10,000
- Separately, the use of the Adjusted RFRs, Spread Adjustments and Fallback Rates may be licensed for use as fallbacks in use cases not covered by the Supplement to the 2006 ISDA Definitions and related protocol described above, including as fallbacks in cash securities, loans and mortgages. The fees are the same as above for these use cases. However, rather than pay the full charge for dual use, firms requiring usage rights for both use cases will only pay a 25% surcharge on the higher of the applicable rates. For example, a financial institution requiring two or more rate sets for use cases under the Supplement to the 2006 ISDA Definitions and related protocol (\$20,000) and a single rate set for other use cases (\$10,000) is only charged \$25,000 (\$20,000 + \$5,000) for combined usage.

<sup>8</sup> If LIBOR and/or other IBORs continue beyond the end of 2021 and the Index Cessation Effective Date for one or more fallbacks has not occurred, Bloomberg reserves the right to apply Usage License fees.

<sup>9</sup> Usage License fees are waived for institutions using a single rate set and with assets below \$5bn. The waiver does not apply to infrastructure providers, including benchmark administrators.

## Note on Usage

- BISL is authorised and regulated by the Financial Conduct Authority. However, users should note that the IBOR transition is to RFRs produced by central banks. The adjustment calculations described in this fact sheet aim to facilitate this transition and the adoption of these RFRs but the IBOR Fallbacks are not themselves separate benchmarks for purposes of the EU benchmark regulation (including similar applicable frameworks, 'BMR').
- Users should be aware that prior to the Spread Adjustment becoming fixed upon the Spread Adjustment Fixing Date, neither the Spread Adjustment nor IBOR Fallback should be used as a primary reference rate within a financial instrument or financial contract (or other 'use' as defined in the BMR) other than as a contractual fallback. Use of Bloomberg's calculations to the contrary is expressly prohibited.

Further details available in FAQs on ISDA <GO> or [www.bloomberg.com/professional/solution/libor-transition](http://www.bloomberg.com/professional/solution/libor-transition). Bloomberg reserves the right to amend these commercial terms.

## Appendix 1: Sample Calculation of IBOR Fallbacks<sup>10</sup>

### Step 1: Determine the Accrual Start Date

- Let 16-Oct-2019 be the date for which a fallback for 3M USD LIBOR rate needs to be determined. This is the **Rate Record Day**
- Find the **Accrual Spot Date** by adding the spot lag for USD LIBOR which is two Business Days. This gives 18-Oct-2019, which is the Reset Date.
- Subtract the Offset Lag (two Business Days) from the above to get 16-Oct-2019 as the **Accrual Start Date**.

### Step 2: Determine the Accrual End Date

Add tenor of 3M to the Accrual Start Date based on Modified Following Business Day convention. **Accrual End Date** is thus 16-Jan-2020

### Step 3: Calculation of Adjusted RFR

$$ARR_{f,t} = \underbrace{\frac{\text{DayCount}_t}{\text{DayCount}_{RR}}}_C \times \underbrace{\frac{1}{\delta_{S_{f,t}, E_{f,t}}}}_B \times \underbrace{\left[ \prod_{u \in AP_{f,t}} (1 + \delta_{u,u+1} \times RFR_u) - 1 \right]}_A$$

**A** = Determination of compounded rate, **B** = Annualizing factor,

**C** = Day count adjustment between the IBOR and the RFR (USD LIBOR and SOFR in this case)

### Step 4: Determine the Median Period Start Date and Median Period End Date

- Subtract tenor from Rate Record Day to get 16-July-2019
- Median Period End Date is two Business Days earlier, i.e. 12-July-2019
- Median Period Start Date is five years subtracted from the start date, i.e. 12-July-2014

### Step 5: Determine the spread adjustment

The **Spread Adjustment** is the median spread between the IBOR (in this case, USD LIBOR) and the Adjusted RFR for the above period

### Step 6: Calculating the All in Fallback rate

**Fallback Rate** = Adjusted RFR + Spread Adjustment

<sup>10</sup> Please reference the Rule Book available on ISDA <GO> on Bloomberg Terminal and Bloomberg's LIBOR Transition website, as well as ISDA's Benchmark Reform and Transition from LIBOR page for the associated terminology

## Appendix 2: Bloomberg Tickers

The Fallback Rate for an IBOR ticker can be found by adding 'F' before the relevant IBOR ticker (e.g. 3-month USD LIBOR has the ticker US0003M <Index> and the Fallback Rate for 3-month USD LIBOR has the ticker FUS0003M <Index>). Similarly, the Spread Adjustment for an IBOR ticker can be found by adding 'S' before the relevant ticker. For the Adjusted RFRs, the tickers usually follow the convention of adding the two-character 'tenor' identifier to the RFR name (e.g., the Adjusted RFR for 1-week compounded SOFR is SOFR1W <Index> and for the 3-month compounded SOFR tenor is SOFR3M <Index>). Note the exceptions in the table for SONIA and for TONA where it is the Adjusted RFR for JPY TIBOR. For the Overnight (O/N) or Spot Next (S/N) tenors, the '/' is removed, and in the case of €STR O/N the ticker is ESTRONON <Index>).

### Tickers for IBOR Fallbacks

IBOR Name	O/N	S/N	1W	2W	1M	2M	3M	4M	5M	6M	12M
AUD BBSW	n/a	n/a	n/a	n/a	FBBSW1M	FBBSW2M	FBBSW3M	FBBSW4M	FBBSW5M	FBBSW6M	n/a
CAD CDOR	n/a	n/a	n/a	n/a	FCDOR01	FCDOR02	FCDOR03	n/a	n/a	FCDOR06	FCDOR12
CHF LIBOR	n/a	FSF00SN	FSF0001W	n/a	FSF0001M	FSF0002M	FSF0003M	n/a	n/a	FSF0006M	FSF0012M
EUR EURIBOR	n/a	n/a	FEURO01W	n/a	FEURO01M	n/a	FEURO03M	n/a	n/a	FEURO06M	FEURO12M
EUR LIBOR	FEE00ON	n/a	FEE0001W	n/a	FEE0001M	FEE0002M	FEE0003M	n/a	n/a	FEE0006M	FEE0012M
GBP LIBOR	FBP00ON	n/a	FBP0001W	n/a	FBP0001M	FBP0002M	FBP0003M	n/a	n/a	FBP0006M	FBP0012M
HKD HIBOR	FHIHDON	n/a	FHIHD01W	FHIHD2W	FHIHD01M	FHIHD02M	FHIHD03M	n/a	n/a	FHIHD06M	FHIHD12M
JPY EuroYen TIBOR	n/a	n/a	FEUYNO1W	n/a	FEUYNO1M	n/a	FEUYNO3M	n/a	n/a	FEUYNO6M	FEUYNI2M
JPY LIBOR	n/a	FJY00SN	FJY0001W	n/a	FJY0001M	FJY0002M	FJY0003M	n/a	n/a	FJY0006M	FJY0012M
JPY TIBOR	n/a	n/a	FTI0001W	n/a	FTI0001M	n/a	FTI0003M	n/a	n/a	FTI0006M	FTI0012M
USD LIBOR	FUS00ON	n/a	FUS0001W	n/a	FUS0001M	FUS0002M	FUS0003M	n/a	n/a	FUS0006M	FUS0012M

### Tickers for Adjusted RFRs

IBOR Name	O/N	S/N	1W	2W	1M	2M	3M	4M	5M	6M	12M
AUD BBSW	n/a	n/a	n/a	n/a	AONIA1M	AONIA2M	AONIA3M	AONIA4M	AONIA5M	AONIA6M	n/a
CAD CDOR	n/a	n/a	n/a	n/a	CORRA1M	CORRA2M	CORRA3M	n/a	n/a	CORRA6M	CORRA12M
CHF LIBOR	n/a	SARONSN	SARON1W	n/a	SARON1M	SARON2M	SARON3M	n/a	n/a	SARON6M	SARON12M
EUR EURIBOR	n/a	n/a	ESTRIW	n/a	ESTR1M	ESTR2M	ESTR3M	n/a	n/a	ESTR6M	ESTRI2M
EUR LIBOR	ESTRONON	n/a	ESTRIW	n/a	ESTR1M	n/a	ESTR3M	n/a	n/a	ESTR6M	ESTRI2M
GBP LIBOR	SONIAON	n/a	SONIA1W	n/a	SONIA1M	SONIA2M	SONIA3M	n/a	n/a	SONIA6M	SONIA12M
HKD HIBOR	HONIAON	n/a	HONIA1W	HONIA2W	HONIA1M	HONIA2M	HONIA3M	n/a	n/a	HONIA6M	HONIA12M
JPY EuroYen TIBOR	n/a	n/a	TONA1W	n/a	TONA1M	n/a	TONA3M	n/a	n/a	TONA6M	TONA12M
JPY LIBOR	n/a	TONASN	TONA1W	n/a	TONA1M	TONA2M	TONA3M	n/a	n/a	TONA6M	TONA12M
JPY TIBOR	n/a	n/a	TONAT1W	n/a	TONAT1M	n/a	TONAT3M	n/a	n/a	TONAT6M	TONAT12M
USD LIBOR	SOFRON	n/a	SOFR1W	n/a	SOFR1M	SOFR2M	SOFR3M	n/a	n/a	SOFR6M	SOFR12M

### Tickers for Spread Adjustments

IBOR Name	O/N	S/N	1W	2W	1M	2M	3M	4M	5M	6M	12M
AUD BBSW	n/a	n/a	n/a	n/a	SBBSW1M	SBBSW2M	SBBSW3M	SBBSW4M	SBBSW5M	SBBSW6M	n/a
CAD CDOR	n/a	n/a	n/a	n/a	SCDOR01	SCDOR02	SCDOR03	n/a	n/a	SCDOR06	SCDOR12
CHF LIBOR	n/a	SSF00SN	SSF0001W	n/a	SSF0001M	SSF0002M	SSF0003M	n/a	n/a	SSF0006M	SSF0012M
EUR EURIBOR	n/a	n/a	SEURO01W	n/a	SEURO01M	n/a	SEURO03M	n/a	n/a	SEURO06M	SEURO12M
EUR LIBOR	SEE00ON	n/a	SEE0001W	n/a	SEE0001M	SEE0002M	SEE0003M	n/a	n/a	SEE0006M	SEE0012M
GBP LIBOR	SBP00ON	n/a	SBP0001W	n/a	SBP0001M	SBP0002M	SBP0003M	n/a	n/a	SBP0006M	SBP0012M
HKD HIBOR	SHIHDON	n/a	SHIHD01W	SHIHD2W	SHIHD01M	SHIHD02M	SHIHD03M	n/a	n/a	SHIHD06M	SHIHD12M
JPY EuroYen TIBOR	n/a	n/a	SEUYNO1W	n/a	SEUYNO1M	n/a	SEUYNO3M	n/a	n/a	SEUYNO6M	SEUYNI2M
JPY LIBOR	n/a	SJY00SN	SJY0001W	n/a	SJY0001M	SJY0002M	SJY0003M	n/a	n/a	SJY0006M	SJY0012M
JPY TIBOR	n/a	n/a	STI0001W	n/a	STI0001M	n/a	STI0003M	n/a	n/a	STI0006M	STI0012M
USD LIBOR	SUS00ON	n/a	SUS0001W	n/a	SUS0001M	SUS0002M	SUS0003M	n/a	n/a	SUS0006M	SUS0012M

### RFR and IBOR Tickers underlying IBOR Fallbacks

Currency	IBOR	RFR	IBOR Tenors	IBOR Bloomberg Tickers <Index>	RFR Bloomberg Tickers <Index>
AUD	BBSW	RBA Cash Rate	1M, 2M, 3M, 4M, 5M, 6M	BBSW1M --- 6M	RBACOR
CAD	CDOR	CORRA	1M, 2M, 3M, 6M, 12M	CDOR01 ---12M	CAONREPO
CHF	LIBOR	SARON	S/N, 1W, 1M, 2M, 3M, 6M, 12M	SF00S/N, SF0001W, SF0001M --- 12M	SRFXON3 - 6pm CET
EUR	EURIBOR	€STR	1W, 1M, 3M, 6M, 12M	EUR001W, EURO01M --- 12M	ESTRON
EUR	LIBOR	€STR	O/N, 1W, 1M, 2M, 3M, 6M, 12M	EE00O/N, EE0001W, EE0001M --- 12M	ESTRON
GBP	LIBOR	SONIA	O/N, 1W, 1M, 2M, 3M, 6M, 12M	BP00O/N, BP0001W, BP0001M --- 12M	SONIO/N
HKD	HIBOR	HONIA	O/N, 1W, 2W, 1M, 2M, 3M, 6M, 12M	HIHDO/N, HIHDO1W --- 2W, HIHDO1M ---12M	HOISHKD
JPY	Euroyen TIBOR	TONA	1W, 1M, 3M, 6M, 12M	EUYNO1W, EUYN01M --- 12M	MUTKCALM
JPY	LIBOR	TONA	S/N, 1W, 1M, 2M, 3M, 6M, 12M	JY00S/N, JY0001W, JY0001M --- 12M	MUTKCALM
JPY	TIBOR	TONA	1W, 1M, 3M, 6M, 12M	TI0001W, TI0001M --- 12M	MUTKCALM
USD	LIBOR	SOFR	O/N, 1W, 1M, 2M, 3M, 6M, 12M	US00O/N, US0001W, US0001M --- 12M	SOFRRATE

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