LMA Loan Market Association

LIBOR/RFR
Glossary of terms

1 June 2022

Key terms

In alphabetical order

Active transition

The consensual transition of legacy LIBOR facilities in advance of the operation of a fallback based on a cessation or loss of representativeness (pre-cessation) event.

Amendment approach

The so-called amendment approach, provides for a streamlined amendment mechanism (such as a lower consent threshold) to allow, following occurrence of a trigger event, for negotiation of a benchmark's replacement. The approach does not itself define the benchmark that would apply although it sets out some parameters for its selection.

Backward-looking overnight rates

Backward-looking overnight rates (such as **RFRs**) are rates which are calculated by reference to historic transaction data and are published on an overnight basis.

Backward-looking term rates

Backward-looking term rates are rates that are known or realised after the beginning of an interest period. This is in contrast to, for example, **LIBOR**, which is published on a forward-looking basis and is known at the beginning of the interest period. In the context of **RFRs**, backward-looking term rates can be constructed mathematically from past realised daily fixings of the relevant overnight RFR over a given period of time (for example, see **compounded / averaged in arrear**).

Banking days

Banking days are used for sourcing **RFRs** based on the days when the rates are published in the country of publication. This is to ensure all market participants consistently use all available published rates based on the banking day calendar in the country of publication.

Compounded / averaged in advance

The compounded / averaged in advance method of calculating an interest rate would involve compounding / averaging an **RFR** over the period prior to the interest period to produce a rate known in advance. For example, to determine an interest payment obligation of 3 months, the overnight RFRs compounded over the 3-month period prior to the start of the interest period would be used. Therefore, the rate is known at the beginning of the interest period. The rates used would be historic and not take account of future rate expectations over the interest period or match the actual interest period. This method is also known as "**last reset**".

Compounded / averaged in arrear

The compounded / averaged in arrear method of calculating an interest rate involves compounding / averaging an **RFR** over an interest period (or an **observation period**) to produce a backward-looking rate. To determine an interest payment obligation of say 3 months, the RFR compounded during the 3-month interest period (or observation period) would be used. The final interest payment is therefore only known when it becomes due, or a few days prior to it becoming due if a Lookback is used.

This method can be used with a **CCR** approach or **NCCR** approach.

Compounding the balance

This is a method of calculating compound interest by applying the daily **RFR** to each of the principal balance and accrued accumulated unpaid interest (i.e. interest on interest) on a daily basis.

Compounding the rate

This is a method of compounding the daily **RFR** to produce a rate for a period by applying the RFR compounding formula to the RFR only and applying the compounded rate to the principal to calculate the interest due.

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Credit Adjustment Spread (CAS)

A credit adjustment spread (also known as "**credit spread adjustment**" or "**CSA**") is designed to minimise the economic impact of moving from **LIBOR** to **RFRs**: historically RFRs have been lower rates than LIBOR. This is because LIBOR includes a bank credit risk component and reflects a variety of other factors (e.g. liquidity, fluctuations in supply and demand) which are not reflected in the RFRs. Therefore, if parties wish to mitigate value transfer, a credit adjustment spread will be needed when transitioning to RFRs from LIBOR (either through a **Fallback** mechanism or an **Amendment** to facilitate transition).

In the derivatives market, **ISDA** consulted on adjustments required to RFRs to account for the differences with LIBOR in respect of fallbacks applying on the cessation of LIBOR. A significant majority of respondents to the ISDA consultations felt that the most appropriate methodology for calculating a credit adjustment spread for fallbacks on cessation of LIBOR would be a historical median over a five-year lookback period (see the definition of **ISDA Historical Median Approach**). This credit adjustment spread methodology applies to all LIBOR tenors, however, the actual credit adjustment spread would differ across the different tenors. ISDA selected **BISL** to publish the credit adjustment spreads for derivatives contracts. The **BISL** credit adjustment spreads were fixed as of 5 March 2021 following an FCA announcement on the cessation and pre-cessation of all 35 LIBOR settings.

Various national RFR working groups issued recommendations (following public consultations) on methodologies for calculating credit adjustment spreads for fallbacks in legacy cash products. Each of the **Sterling RFR Working Group**, the **ARRC**, the Cross Industry Committee on Japanese Yen Interest Rate Benchmarks and the Swiss National Working Group recommended a credit adjustment spread methodology for cessation and pre-cessation fallbacks using the ISDA Historical Median Approach. The Euro Working Group also recommended the use of the ISDA Historical Median Approach for EURIBOR fallbacks.

In December 2020, the Sterling RFR Working Group separately published a paper on credit adjustment spreads for active transition of cash products. This did not contain any recommendations but provides a consideration of the two methods seen in the sterling market for calculating the spread in this context, namely the **ISDA Historical Median Approach** and the **Forward Spread Approach**.

Credit sensitive rates

Credit sensitive rates (**CSRs**) are reference rates which seek to reflect the credit risk aspect of unsecured borrowing in certain markets. This credit risk component is not contained in RFRs. CSRs emerged in the market as possible alternatives to USD LIBOR, particularly following demand from regional US banks. Examples include the Bloomberg Short-Term Bank Yield (BSBY) and AMERIBOR.

Regulators, including the **FCA** and **IOSCO**, have warned market participants against using CSRs on the basis that they have insufficient underlying transaction volumes (and declining liquidity in stress periods) which could result in similar issues to those with using LIBOR.

Critical Benchmarks Act

The *Critical Benchmarks (References and Administrators' Liability) Act 2021* is a piece of UK legislation introduced by HM Treasury. It provides for changes to the **UK BMR**, including to provide that contractual references to a benchmark (i.e. LIBOR) will continue to be treated as references to that benchmark where the FCA has directed a change to the benchmark methodology, i.e. **Synthetic LIBOR**. The Act received Royal Assent on 15 December 2021.

The Act makes it clear that any such change to a benchmark calculation methodology does not constitute "cessation" of that benchmark and so prevents the operation of fallback clauses that are triggered on the cessation or unavailability of the relevant benchmark. However, it does not override fallbacks or express provisions for the contract or arrangement to be varied or operate by reference to something other than the benchmark in question (i.e. LIBOR).

The Act applies to contracts or arrangements, whenever formed, made under the laws of England and Wales, Scotland or Northern Ireland and the contractual continuity provisions apply to all contracts and arrangements, not just those within the scope of the UK BMR.

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Cumulative Compounded Rate (CCR)

The *Cumulative Compounded Rate* (**CCR**) is a percentage rate per annum calculated by a **compounding the rate** methodology which takes each daily RFR rate from the start of an interest period (or **observation period**) and compounds these rates cumulatively on successive business days up to and including the final day in the period. It allows calculation of interest for the whole period using a single compounded rate.

Since this method calculates a single compounded rate from the beginning of the interest period (or observation period), complexity may be added when supporting intra period events, such as prepayments, if proportional accrued interest is not also prepaid, and for those firms involved in loan trading activity.

The **NCCR** can be derived from the CCR. See definition of NCCR.

EFFR

In the United States, *Effective Fed Funds Rate*, is the interest rate at which depository institutions lend reserve balances to other depository institutions overnight on an uncollateralised basis. Reserve balances are amounts held at the Federal Reserve to maintain depository institutions' reserve requirements. Institutions with surplus balances in their accounts lend those balances to institutions in need of larger balances. The rate is calculated by the Federal Open Market Committee using data on overnight federal funds transactions provided by US depository institutions and is considered to be the most influential interest rate in the US economy, since it affects employment, growth and inflation. The **New York Fed** publishes the EFFR for the prior business day on the New York Fed's website at approximately 9:00 (Eastern Standard Time).

EONIA

Euro Overnight Index Average, was a daily interest reference rate published by **EMMI**. The underlying interest was the rate at which banks of sound financial standing in the European Union and European Free Trade Area countries lent funds in the interbank money market in euro. EONIA ceased being published from 3 January 2022 due to non-compliance with the **BMR**. Market participants were expected to transition from the use of EONIA to **€STR**.

Before cessation, EONIA was calculated with a reformed methodology tracking €STR, plus a spread of 8.5 basis points (this reflects the historical difference between the underlying interests of the two benchmarks: interbank lending rate for EONIA vs. wholesale borrowing rate for €STR). EONIA for day T was available every TARGET2 day on T+1, at or shortly after 09:15 (Brussels time). Prior to being reformed, EONIA expressed the weighted average of unsecured overnight interbank lending by panel banks in the European Union and the European Free Trade Area in euros. Reformed EONIA was first published on 2 October 2019 (reflecting data for 1 October 2019).

€STR

The *Euro Short-Term Rate* is an unsecured overnight interest rate administered by the **ECB**. The **Euro RFR Working Group** selected €STR as the **RFR** for the euro and as a replacement for **EONIA**. Its key characteristics are set out below. €STR:

- reflects the wholesale euro unsecured overnight borrowing costs of banks located in the euro area;
- is published on each TARGET2 business day by the ECB at 08:00 (Brussels time) based on transactions conducted and settled on the previous TARGET2 business day with a maturity date of T+1;
- is based entirely on daily confidential statistical information relating to money market transactions collected in compliance with the Money Market Statistical Reporting Regulation; and
- is subject to correction and republication at any time up to 09:00 (Brussels time).

€STR Averages

The **ECB** began publishing **€STR** compounded average rates from 15 April 2021. The formula for calculating compounded €STR average rates uses the historical daily values of the €STR and yields an average rate for the respective tenor over which the €STR values were recorded (e.g. the past week or month). Compounded €STR average rates are published every TARGET2 business day at 09:15 (Brussels time). The tenors for which compounded €STR average rates are published are one week, one month, three months, six months and twelve months. Compounded €STR average rates are published as percentages to five decimal places.

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€STR Index

The **ECB** began publishing an **€STR** compounded index from 15 April 2021. The compounded €STR index represents the evolving daily value of a notional instrument that accrues compounded interest on an initial sum of €100 starting on 1 October 2019, which was the first trade date of the €STR. The compounded €STR index is published for every TARGET2 business day at 09:15 (Brussels time) and has a starting value of 100.00000000 on 1 October 2019. The daily compounded index is published to eight decimal places.

EU BMR

European Benchmarks Regulation (Regulation (EU) 2016/1011).

In February 2021, the EU BMR was amended by EU delegated regulation 2021/168 to include, amongst other changes, a power to designate a statutory replacement rate for any critical or third-country benchmark that is to be discontinued, is no longer representative, or is no longer authorised for use in the EU. The new rules give the European Commission the power to designate a statutory replacement of a benchmark, such as LIBOR, if their termination would result in a significant disruption in the functioning of financial markets in the EU. A statutory benchmark would replace benchmarks in financial instruments and contracts that contain either no or unsuitable fallback provisions. The Commission's powers apply to: (i) EU law-governed contracts that reference a benchmark; and (ii) non-EU law-governed contracts that reference a benchmark, where the contracting parties are EU entities and the applicable jurisdiction does not provide for the orderly wind-down of a benchmark.

EURIBOR

Euro Interbank Offered Rate, is a daily interest reference rate calculated and published daily at about 11:00 (Brussels time) by **EMMI** in five different tenors: 1 week; 1 month; 3 months; 6 months; and 12 months. The underlying interest of EURIBOR is the rate at which wholesale funds in euro could be obtained by credit institutions in the EU and EFTA countries in the unsecured money market. Unlike LIBOR, EURIBOR is not scheduled to be discontinued. EURIBOR moved from a quote-based methodology to a hybrid methodology in 2019.

Exposure Drafts

Documentation published by the LMA in respect of **LIBOR** transition which is open for comment from market participants. These do not constitute recommended forms of the LMA given insufficient established market practice to enable the LMA to publish recommended forms.

Fallback language / triggers

Fallback language sets out the alternative rates (usually in the form of a waterfall of priority) which may become the benchmark rate where the originally referenced benchmark rate is no longer to be used. Fallback language in documentation is contingent on a trigger (i.e. an event that initiates that switch from one interest rate to another). There are three different fallback triggers discussed and adopted by market participants:

- **"cessation fallback triggers"**: cessation of a rate (e.g. the cessation of certain **LIBOR** tenors and currencies at the end of 2021);
- **"pre-cessation fallback triggers"**: which operate before the cessation of LIBOR and trigger as a consequence of a regulatory announcement of non-representativeness; and
- **"early opt-in fallback triggers"**: which operate before any such regulatory announcement of non-representativeness and allow parties to move to an alternative rate if certain conditions are met.

Forward Spread Approach

This approach to calculating the **Credit Adjustment Spread (CAS)** is based on the forward-looking basis swap market. It is calculated as the linear interpolation between differing tenors of **LIBOR** vs **RFR** basis swaps, which is then added to the original margin.

For example, the Associated British Ports consent solicitation in May 2019 involved notes which had between 3 and 4 years to run. The credit adjustment spread was the interpolation between the 3 year and 4 year 3m GBP LIBOR vs **SONIA** basis for sterling basis swap transactions. The South West Water bilateral loan amendment in October 2019 used the linear interpolation to the final maturity date of the 3m GBP LIBOR vs SONIA basis.

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The forward spread approach is a similar construct to the **ISDA Historical Median Approach**, with both methods attempting to compensate parties for the difference between LIBOR (and **EURIBOR**) and RFRs, except one is based on a realised calculation and the other on a projected basis.

See the Sterling RFR Working Group Paper on Credit adjustment spread methods for active transition of GBP LIBOR referencing loans for further details and worked examples.

Also known as the Linear Interpolation Approach.

Forward-looking term rates

Forward-looking term rates are rates for an interest period that are known or realised at the beginning of that period. For example, **LIBOR** is known at the beginning of each respective tenor and therefore the interest due at the end of an interest period is known at the beginning of that period. This is to be contrasted with **backward-looking overnight rates** which do not have a "term" element and are calculated by reference to historical transaction data. However, it should be noted that forward-looking term rates derived from **RFRs** can be created based on **OIS** or futures markets. Such a rate would be calculated and known at the beginning of the period. This would be a similar construct to LIBOR (i.e. a forward-looking expectation), although it would not reflect a bank term credit risk.

The various national RFR working groups have looked at creating forward-looking term RFR rates (except in Switzerland). **TSRRs** have been available for use since 11 January 2021, **TORF** since 26 April 2021, and Term SOFR since 20 April 2021 (and formally recommended by the ARRC since 29 July 2021). Administrators have been invited to produce Term €STR rates. The FSB has stated that use of forward-looking term RFR rates should be limited and the national RFR working groups have also published use cases in relation to the rates.

FRN

Floating Rate Notes, are bonds (debt instruments) that have a variable c oupon, equal to a money market reference rate such as **IBORs** or **RFRs**, plus a quoted spread. The spread is a rate that remains constant. Most FRNs have quarterly coupons, which means that they pay out interest every three months.

Hardwired approach

Fallback language can be hardwired, which means that it is built into the facility agreement and identifies the new rate that will apply in the event that a fallback trigger occurs. This approach provides certainty upfront by defining the trigger events that start the transition away from **LIBOR** and outlines a 'waterfall' approach to determine an **RFR**-based or other successor rate. Note that some forms of hardwired language would require documentation to be further amended in order for it to operate with the relevant RFR-based or other successor rate. This can be contrasted with **Switch Mechanisms.**

IBOR(s)

Interbank Offered Rate(s) – for example, **EURIBOR, LIBOR** and **TIBOR.**

ICE RFR Indices

On 13 April 2021, the IBA launched its ICE SONIA indices for use by licensees. Following this, on 22 September 2021, the IBA launched ICE RFR indices for US dollar (SOFR), Euro (€STR) and Japanese Yen (TONA). All ICE RFR Indices use the same underlying calculation methodology. They are all published using a base value of 100 and to 8 decimal places. They are published daily at or around 09:30 London time. The ICE RFR Indices include the option to add a zero floor. They also include the option for a lag (i.e. lookback without observation shift) and provide values for every calendar day.

IOSCO Principles

International Organization of Securities Commission Principles for Financial Benchmarks.

ISDA Historical Median Approach

This approach to calculating the **Credit Adjustment Spread (CAS)** is based on the difference between **LIBOR** and the **RFR**-derived rate (i.e. a **compounded in arrear** RFR rate or a **forward-looking term rate** derived from RFRs) that is calculated using a median over a five-year **lookback period** prior to a **fallback** being activated. This approach therefore looks into the past, i.e. historical differences between LIBOR and a compounded in arrear RFR rate over a given period of time. The historical median approach derives a single value for

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the credit adjustment spread. The credit adjustment spread is calculated and published for each LIBOR tenor based on historical differences between LIBOR for that tenor and the RFR compounded rate over the relevant tenor (so the credit adjustment spread could differ across different tenors).

ISDA 2020 IBOR Fallbacks Protocol and IBOR Fallbacks Supplement

The ISDA IBOR Fallbacks Protocol and the amendments to the 2006 ISDA Definitions to include new IBOR fallbacks (the ISDA IBOR Fallbacks Supplement) came into effect on 25 January 2021 with the aim of ensuring the incorporation of robust fallbacks to IBORs.

The fallbacks automatically occur for outstanding derivatives contracts that incorporate the IBOR Fallbacks Supplement or are subject to adherence of the ISDA 2020 IBOR Fallbacks Protocol on the following dates:

- after 31 December 2021: for outstanding derivatives referenced to all euro, sterling, Swiss franc and yen LIBOR settings; and
- after 30 June 2023: for outstanding derivatives referenced to all US dollar LIBOR settings.

ISDA Rate Options

In May 2021, ISDA published supplements to its 2006 Definitions to allow market participants to tailor their hedges to linked cash products. The supplements are intended to provide options for compounding RFRs which align with the RFR compounding methodologies being used in loans and bonds (for example, using a five day rather than a two day lookback as is usual with swap documentation). The provisions allow for, amongst other things, the **lag** and **observation shift** approaches.

Lag

See definition of **Lookback without observation shift.**

LIBOR

The *London Interbank Offered Rate*, was the most widely used interest rate benchmark in the world. Up until the end of 2021, LIBOR was calculated and published daily at around 11:45 (London time) by **IBA** based on submissions by panel banks for five currencies: Sterling, U.S. Dollars, Euros, Swiss Francs and Japanese Yen and in seven different tenors: overnight/spot next; 1 week; 1 month; 2 months; 3 months, 6 months; and 12 months.

This benchmark was meant to reflect the cost at which large, globally-active banks can borrow on an unsecured basis in wholesale markets, which includes borrowing from other banks as well as using commercial paper or uninsured certificates of deposit. LIBOR is designed to provide an indication of the average rates at which submitter banks could obtain wholesale unsecured funding for set periods and incorporates both a credit premium (to reflect term bank credit risk) and a term liquidity premium (to reflect the risk inherent in longer-dated funding).

Over the years LIBOR has evolved through reforms aimed at reducing its risk profile. These reforms were completed in 2019 when IBA announced the full transition of LIBOR panel banks to the waterfall methodology. However, LIBOR became increasingly based on the expert judgment of panel banks due to the declining amount of unsecured, wholesale borrowings by banks since the financial crisis. For this reason, LIBOR became less of a robust, transactions-based market interest rate as envisioned by international standards for benchmarks. The scarcity of underlying transactions also makes LIBOR potentially unsustainable.

On 5 March 2021, the FCA confirmed that the publication of:

- all seven euro LIBOR settings, all seven Swiss franc LIBOR settings, overnight, one-week, 2- month and 12-month sterling LIBOR, spot next, one week, 2- month and 12-month Japanese yen LIBOR and one-week and 2- month US dollar LIBOR would permanently cease immediately after 31 December 2021; and
- the overnight and 12-month US dollar LIBOR settings would permanently cease immediately after 30 June 2023.

For the remaining LIBOR rates and settings, the FCA announced that:

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- the 1-month, 3-month and 6- month Japanese yen LIBOR settings and the 1-month, 3- month and 6-month sterling LIBOR settings would cease to be provided or, subject to consultation by the FCA, would be provided but will be determined by reference to an alternative "synthetic" methodology immediately after 31 December 2021 (see **Synthetic LIBOR**);
- publication of the 1-month, 3- month and 6-month Japanese yen LIBOR settings will in any event cease after 30 December 2022; and
- the 1-month, 3-month and 6- month US dollar LIBOR settings will cease to be provided or, subject to consultation by the FCA, will be provided but will be determined on an alternative "synthetic" basis immediately after June 30, 2023.
  The FCA confirmed that if such settings are determined by reference to an alternative methodology, they will no longer be representative of the underlying market and economic reality they are intended to measure and that representativeness will not be restored.

LIBOR or EURIBOR floor

A contractually agreed floor on **LIBOR** or **EURIBOR** in the event that LIBOR or **EURIBOR** falls below a specified rate. For example, a zero LIBOR floor means that if the benchmark rate is less than zero, LIBOR shall be deemed to be zero. Inclusion of a floor will depend on the commercial terms of a transaction.

Lock-out

Under the lock-out mechanism, the compounded average **RFR** applicable to an interest period is calculated over that interest period but for the purposes of the calculation the daily RFR is frozen or 'locked' a specified number of days from the end of the interest period at the then current rate. The calculation uses that locked rate for the remaining days in the interest period instead of the actual overnight RFR for each of those days. The effect is that the compounded average RFR for the interest period (and therefore the interest due in respect of that interest period) can be ascertained on the day that the lock takes effect. This structure is also referred to as a **"suspension"**.

Lookback

Under a lookback mechanism the **Observation Period** for the interest rate calculation starts and ends a certain number of days prior to the interest period. As a result, the interest payment can be calculated prior to the end of the interest period. The rate is calculated over the interest period itself – but for each day in that period the rate used is that from the relevant number of days before.

For example, for a one month interest period of 1 March to 1 April with a 5 London business day lookback, the rate for 1 March would be taken from 22 February (the day falling 5 London business days' prior) and so on. On 25 March, the agent would know the full month's interest amount and would be able to invoice the borrower for payment at the end of the interest period. The borrower would then have approximately five days' notice of the interest payment due on the last day of the period (depending on what time the compounded **RFR** is ascertainable). This structure is also referred to as "**offset**" and "**reset days prior**". The method is intended to help to alleviate some of the operational challenges associated with calculating interest using the **Compounded / averaged in arrear** method.

Lookback with observation shift

See definition of Observation Shift. This methodology is an optional feature of the LMA's recommended forms of compounded rate facilities agreements.

Lookback without observation shift

Lookback without observation shift (also known as "**Lag**" or "**compounding with lookback**") provides for each risk-free overnight rate to be weighted according to the number of days that apply in the actual interest period. This is in contrast to the Observation Shift mechanism which weights the rate according to the number of days that apply in the Observation Period.

This methodology is an optional feature of the LMA's recommended forms of compounded rate facilities agreements.

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Non-Cumulative Compounded Rate (NCCR)

The *Non-Cumulative Compounded Rate* is a daily compounded rate derived from the **CCR** by, in essence, taking the CCR as of the current day minus the CCR as of the prior banking day. This generates a daily compounded rate which helps to calculate daily interest using the compounded rate for that day or days (usually it will be for one day, but the rate may apply for longer periods where a rate needs to be determined for days which are not banking days such as weekends and holidays (for example, on Fridays it will be for three days, or more if there are bank holidays)). This may be helpful for those market participants who need to regularly deal with mid-period events, such as frequent prepayments or loan trading.

The sum of accrued NCCR-derived amounts should always equal the CCR-derived amount for the relevant period. To ensure that the sum of the NCCR daily amounts always equals the interest accrual produced if using the CCR calculation, the interest payment amount should be rounded to two decimal places at the end of the period only.

See definition of **CCR.**

OBFR

In the United States, the *Overnight Bank Funding Rate*, is a measure of wholesale, unsecured, overnight bank funding costs. It is calculated using federal funds transactions, certain Eurodollar transactions, and certain US deposit transactions. Those Eurodollar transactions that are included are unsecured borrowings of U.S. dollars booked at international banking facilities and at offshore branches that are managed or controlled by a U.S. banking office. The OBFR is calculated as a volume-weighted median of overnight federal funds transactions, Eurodollar transactions, and the domestic deposits. The **New York Fed** publishes the OBFR for the prior business day on the New York Fed website at approximately 9:00 (Eastern Standard Time).

Observation Period

This is a period over which a compounded **RFR** applicable to any loan is calculated. It operates by reference to a specified **Lookback** which determines both the first day of the observation period and the last day of the observation period. For example, in respect of an interest period for two weeks beginning on Monday 10 February with a specified lookback of 5 business days and no public holidays in the month of February, the first day of the observation period for this interest period is Monday 3 February (being the date falling 5 business days prior to the first day of the interest period) and the last day of the observation period for this interest period is Monday 17 February (being the date falling 5 business days prior to the last day of the interest period).

Observation Shift

The observation shift mechanism provides for the rate to be calculated and weighted by reference to the **Observation Period** rather than the relevant interest period.

The observation shift weights the rate according to the number of days that apply in the observation period; this is in contrast to the **Lookback without observation shift** which weights the rate according to the number of days that apply in the interest period. Using the example of a 2-business day lookback period, the lookback uses the rate from 2 days ago to calculate today's interest owed. So if today were Friday, one would use Wednesday's rate in calculating today's interest:

- The Lookback without observation shift would imply that you should apply Friday's weighting (i.e. of 3, since Friday covers three calendar days until payment is due) to Wednesday's rate.
- The **Lookback with observation** shift in contrast would apply Wednesday's weighting to Wednesday's rate (i.e. of 1).

Note that with a 5-banking day lookback, the differences in weighting solely occur with bank holidays.

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Applying an observation shift will match **OIS** contracts while a lookback with no observation shift will have some basis. ISDA has produced **ISDA Rate Options** to allow for parties to tailor their hedging to lookback with no observation shift. The **SOFR Index**, **SONIA Index** and **€STR Index** envisage an observation shift.

Also known as 'observation period shift'.

OIS

Overnight Indexed Swap, refers to an interest rate swap involving the overnight rate being exchanged for a fixed interest rate. An overnight index swap uses an overnight rate index such as an **RFR** as the underlying rate for the floating leg, while the fixed leg would be set at a pre-agreed rate.

Reference Rate Selection Agreement

The LMA's reference rate selection agreement is for use in relation to legacy transactions transitioning from **LIBOR** to alternative reference rates. Under the agreement, the parties would agree the basic commercial terms for the selection of the applicable alternative reference rate(s) and then authorise the agent and the obligors to determine the necessary amendments to the relevant facility agreement in accordance with the terms set out in the Reference Rate Selection Agreement. Whilst this is a two stage process, the intention is that this would make the process of agreement to such amendments easier to manage in syndicated loans for the agent and also the lenders (who would not need to approve all of the changes to the relevant facility agreement). It is not intended as a recommendation for any particular form of amendment process.

Replacement of Screen Rate Clause

In May 2018, the LMA published a *Recommended Revised Form of Replacement Screen Rate Clause*. This was developed in conjunction with members of the LMA and the **ACT** (including lenders, borrowers and major law firms) in order to facilitate further flexibility than the then-existing clause allowed (which had been published in November 2014). The main purpose of the clause is to provide the parties to the facility agreement with greater flexibility to make amendments with a lower consent level than would otherwise be required. In this respect, it allows amendments to be made to facilitate inclusion of a replacement benchmark which:

- is formally selected as a replacement for **LIBOR** by the LIBOR administrator or by an appropriate regulator; or
- is otherwise accepted by the relevant markets; or
- is deemed appropriate by the requisite majority of lenders and the obligors.

The clause therefore facilitates a so-called **Amendment approach**, as opposed to a **Hardwired approach.**

The LMA published further supplements to the Replacement of Screen Rate Clause in August 2020 and October 2020 to provide for, respectively, a set date for negotiations to make amendments and a pre-cessation trigger.

Repo

A *Repurchase Agreement* is a form of short-term borrowing for dealers in government securities. In the case of a repo, a dealer sells government securities to investors, usually on an overnight basis, and buys them back the following day at a slightly higher price. That small difference in price is the implicit overnight interest rate.

RFRs

Risk-Free Rates were identified by the national working groups as alternatives to **IBORs**. RFRs have, for example, been identified for all the **LIBOR** currencies and the euro. The RFRs chosen are overnight risk-free (or near risk-free) rates measured from transactions in interbank unsecured lending markets or **Repo** markets.

There are a number of key differences between IBORs and RFRs:

- An IBOR is a **forward-looking term rate** published for various tenors (i.e. overnight/spot next; 1 week; 1 month; 2 months; 3 months, 6 months; and 12 months), whereas RFRs are backward-looking overnight rates;
- An IBOR includes bank credit risk in its calculation, whereas RFRs are near risk-free; and
- An IBOR will include the premium paid on longer-dated funds, whereas RFRs will not include a premium for term funding.

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In most cases, the RFRs are lower than their IBOR equivalents and, unlike an IBOR, they do not reflect periods of credit stress.

The overnight RFR could be referenced directly on a daily basis. This would effectively mean daily interest periods. Alternatively, the overnight rates can be averaged / aggregated in some way to derive a term rate (such as by taking a simple average or compounding the overnight rate over a certain period) (see **Compounded / averaged in advance** and **Compounded / averaged in arrear**).

SARON

The *Swiss Average Rate Overnight* was named by the **Swiss franc RFR Working Group** as its overnight **RFR.**

SARON is administered by the **SIX**. Its key characteristics are set out below:

- SARON is a secured reference rate reflecting both actual transactions and binding quotes in the underlying Swiss **Repo** market;
- SARON is under the surveillance of SIX Exchange Regulation and is regulated under the Swiss Financial Market Infrastructure Act as a multilateral trading facility; and
- the rate is fixed at 12:00; 16:00 and 18:00 (Central European Time) on the same day (the 18.00 fixing serves as a reference reading for derivative financial products and the valuation of financial assets).

Screen Rate

Frequently referred to in documentation to identify the benchmark being used as a reference rate. For example, **LIBOR**, published by **IBA** and displayed on pages LIBOR01 or LIBOR02 of the Thomson Reuters screen or on the appropriate page of such other information service which publishes the rate from time to time in place of Thomson Reuters.

The concept of a Screen Rate is no longer a feature of RFR documentation given that RFRs and term RFRs are not defined by reference to a specified information source.

Simple RFRs

For interest calculations on the basis of daily simple RFRs, the relevant RFRs are sourced, and interest calculated, daily during the interest period (by multiplying the applicable RFR by the outstanding principal on the loan to arrive at the amount of interest owed). They are typically available on a T+1 basis.

A daily simple average (the arithmetic mean) can be calculated and used for a period provided the principal amount remains constant during that period. If the principal changes, it will not be possible to apply the simple average of the RFR to the fixed principal at the end of the interest period.

Simple RFRs can be used in conjunction with a **lookback** mechanism to provide visibility of interest due before the end of the interest period.

SOFR

The *Secured Overnight Financing Rate* was named by the **ARRC** as its recommended **RFR** alternative to **LIBOR** for US dollar denominated sums.

SOFR is produced by the **New York Fed** and is a secured risk-free rate. Its key characteristics are set out below. SOFR:

- measures the broad cost of borrowing US dollar sums overnight collateralised by US Treasury securities;
- is calculated by reference to the transactions executed in the overnight US Government securities **Repo** market;
- is produced as a percentage rate per annum for an overnight tenor only;
- is published for every New York business day on a backward-looking T+1 basis: meaning that SOFR for any given New York business day is published at 08:00 (Eastern Standard Time) on the following New York business day; and
- is subject to correction and republication at any time up to 14:30 (Eastern Standard Time) on the day of publication.

Key terms

In alphabetical order

SOFR Averages

The **New York Fed** began publishing SOFR Averages on 2 March 2020. SOFR Averages for a given publication date will incorporate all the **SOFR** values starting exactly 30, 90 and 180 calendar days before the publication date, regardless of whether or not that date is a weekend or holiday and extend through the SOFR published that day. In order to preserve the fixed-day count structure, the SOFR Averages will be assigned the SOFR value from the preceding business day when the start of a given tenor falls on a weekend or a holiday. For example, if the start date falls on a Saturday, the SOFR for the preceding Friday would be applied for 2 calendar days (Saturday and Sunday). If the start date falls on a Sunday, the SOFR for the preceding Friday would be applied for 1 calendar day (Sunday).

SOFR Index

The **New York Fed** began publishing a SOFR Index on 2 March 2020. The SOFR Index measures the cumulative impact of compounding **SOFR** on a unit of investment over time and is published on the New York Fed's website shortly after SOFR is published at 08:00 (Eastern Standard Time). The Index employs daily compounding on business days, as determined by the SOFR publication calendar and simple interest will apply to any day that is not a business day, at a rate of interest equal for the SOFR value for the preceding day. For transactions that reference this index, a calculation of the compounded SOFR will still need to be made in order to apply the index data to the relevant period although this would be significantly simpler than manually calculating the compounded rate. The SOFR Index envisages an observation shift.

SONIA

The *Sterling Overnight Index Average* was named by the **Sterling RFR Working Group** as its preferred **RFR** for sterling markets.

SONIA is administered by the **BoE**. Its key characteristics are set out below. SONIA:

- measures the rate at which interest is paid on sterling short-term wholesale funds in circumstances where credit, liquidity and other risks are minimal;
- is calculated by reference to the rates paid by banks on overnight unsecured deposits in sterling made by other financial institutions;
- is produced as a percentage rate per annum for an overnight tenor only;
- is published for every London business day on a backward-looking T+1 basis: meaning that SONIA for any given London business day is published at 09:00 (London time) on the following London business day; and
- is subject to correction and republication at any point up to midday (London time) on the day of publication.

SONIA Index

The **BoE** began publishing a SONIA Compounded Index on 3 August 2020. The SONIA Compounded Index measures the cumulative returns over time from earning interest of **SONIA** on a unit of investment. The BoE has stated that it is mindful of the benefits of international consistency to support cross border business and reduce operational complexity. Therefore, the methodology of the SONIA Index is consistent with the approach taken by the **New York Fed** in the design of its SOFR Index. The SONIA Index envisages an **observation shift.**

The SONIA Compounded Index for a given London business day is published at 09:00 on the same London business day and is rounded to 8 decimal places.

Note that IBA has also launched its own SONIA Indices. See **ICE RFR Indices** for further information.

Switch Mechanisms

Switch mechanisms in loan documentation provide for an in-built switch from an **IBOR** to **RFRs** upon a specified trigger and the loan documentation includes the mechanics and provisions for the use of that rate. A benefit of this approach is that it requires a consideration of the same calculation, convention and documentation issues as a new loan directly referencing RFRs. It also eliminates the need for a further amendment process.

Also known as "rate switch mechanisms" or "rate switch mechanics".

Key terms

In alphabetical order

Synthetic LIBOR

Under the **UK BMR**, the FCA has the power to direct the change of methodology of a benchmark designated as permanently unrepresentative of the market it seeks to measure. The FCA can direct the administrator to continue publication under an 'unrepresentative' synthetic methodology.

The 1, 3 and 6 month sterling and Japanese yen LIBOR settings have been designated by the FCA as 'Article 23A benchmarks' under the UK BMR, meaning they are now permanently unrepresentative of the underlying market they seek to measure. From 4 January 2022, these 6 LIBOR settings have been calculated in a way that does not rely on submissions from panel banks (and are now calculated using the relevant forward-looking RFR term rate plus CAS based on the ISDA Historical Median Approach). This is referred to as Synthetic LIBOR. Synthetic LIBOR appears as one amount (rate + CAS), on the same screen page and at the same time on which the relevant LIBOR used to appear.

The FCA is currently allowing use of these synthetic rates in all legacy contracts except cleared derivatives. The FCA has prohibited new use of synthetic LIBOR.

Synthetic LIBOR will not be published indefinitely and is only intended as a bridge to transition for **tough legacy** contracts. The FCA is required to review its decision to require publication of synthetic LIBOR at least annually and so synthetic LIBOR cannot be guaranteed after 2022. Market participants must therefore continue to actively transition to RFRs. For the three Japanese yen settings, the FCA has already expressed its intention to not renew the requirement, and publication will therefore cease at end-2022. The FCA intends to assess the need for continuation of synthetic LIBOR for the sterling LIBOR settings.

Term SOFR

Term SOFR is a **forward-looking term rate** based on **SOFR** derivatives markets. It is the first step in the benchmark replacement waterfall in the **ARRC** recommended **fallback language.**

CME Group's Term SOFR was officially recommended by the ARRC in July 2021. CME Group's Term SOFR is published daily and is currently available in four tenors: 1-month; 3-month; 6-month; and 12-month subject to licence arrangements. The 12-month tenor has not yet been officially endorsed by the ARRC, which is in the process of considering an ARRC recommendation of the 12-month rate.

The use of Term SOFR is subject to the ARRC's Best Practice Recommendations Related to Scope of Use of the Term Rate.

In March 2022, the IBA also began publishing Term SOFR. ICE Term SOFR is available daily and is currently available in four tenors: 1-month; 3-month; 6-month; and 12-month subject to licence arrangements. ICE Term SOFR has not been recommended by the ARRC.

TIBOR

Tokyo Interbank Offered Rate, is a daily interest reference rate calculated and published by the **JBA** every business day at 13:00 Japan Standard Time of the same day. The JBA publishes two types of TIBOR rates: the Japanese Yen TIBOR and the Euroyen TIBOR for six different tenors: 1 week; 1 month; 3 months; 6 months; and 12 months.

The JPY TIBOR rates reflect prevailing rates on the unsecured call market, whereas the Euroyen TIBOR rates reflect the Japan offshore market.

TONA

The *Tokyo Overnight Average Rate* was named by the **Japanese Yen RFR Working Group** as the **RFR** replacement benchmark for JPY **LIBOR**.

TONA has been published daily by the Bank of Japan since 1996.

TONA is currently referenced for **OIS** in Japanese Yen and the current framework for its calculation and publication is likely to remain the same. TONA is an unsecured benchmark, based on transactions in the uncollateralised overnight call rate market and is calculated as a volume-weighted average.

TONA is published at 10:00 (Japan Standard Time) the next business day.

Key terms

In alphabetical order

TORF

The *Tokyo Term Risk-Free Rate* is a **forward-looking term rate** based on transactions in the JPY OIS market.

QUICK Benchmarks Inc. (QBS) began calculating and publishing production **TORF** rates for actual trading from 26 April 2021. QUICK Corp. published daily prototype TORF rates since October 2020 following its selection by the Cross-Industry Committee on Japanese Yen Interest Rate Benchmarks as a calculating and publishing entity of prototype rates. TORF is published each business day on the same day at 17:00 for 1-month, 3-month and 6-month tenors.

TSRR (Term SONIA)

Term SONIA Reference Rates refer to a **forward-looking term rate** which reflects the expected average **SONIA** over a given period. This allows the rate to be fixed at the outset of a given interest period. In principle, such forward-looking term rates can be generated from the prices of **RFR**-referencing derivatives such as futures or **OIS**, because these provide information on market expectations of SONIA over a future period. The **Sterling RFR Working Group** produced a Use Cases of Benchmark Rates to help frame consideration of use of TSRRs in the loan market.

The publication of TSRRs is being undertaken by both Refinitiv and IBA and their TSRRs have been available for use since January 2021.

Tough legacy

Tough legacy is a term generally used to describe contracts which reference LIBOR but which cannot practicably be transitioned to RFRs, or be amended to include appropriate fallbacks, in time for cessation or pre-cessation of the relevant benchmark.

Across various jurisdictions, so-called tough legacy legislation has been adopted to mitigate the risk posed by tough legacy contracts to financial market stability. In the UK, amendments were made to the UK BMR to provide the FCA with powers to change the methodology of LIBOR. In other jurisdictions, such as the EU and the US, the focus has been on statutory replacement rates.

UK BMR

At the end of the EU exit transition period, the EU BMR formed part of retained EU law and continues to apply in the UK. In order to ensure that the regime continued to work effectively, the BMR was amended via the Benchmarks (Amendment and Transitional Provision) (EU Exit) Regulations 2019 (S.I. 2019/657).

Amendments were made by the Financial Services Act 2021 to the UK BMR to provide the **FCA** with new and enhanced powers to oversee the orderly wind-down of critical benchmarks, such as LIBOR.

Institutions

In alphabetical order

ACT

Association of Corporate Treasurers

APLMA

Asia Pacific Loan Market Association

ARRC

The *US Alternative Reference Rates Committee*, is a group of private market participants convened by the Federal Reserve Board and the **New York Fed** in 2014 to help ensure a successful transition from USD **LIBOR** to a more robust reference rate, its recommended alternative, **SOFR**. The ARRC is comprised of a diverse range of private-sector entities that have an important presence in markets affected by USD LIBOR and a wide array of official-sector entities, including banking and financial sector regulators, as ex-officio members. To fulfil its mandate, the ARRC established a number of working groups which issue conclusions and recommendations that help the ARRC to facilitate discussions and to make informed decisions.

BISL

Bloomberg Index Services Limited

BoE

Bank of England

BoJ

Bank of Japan

CME

CME Group. CME was chosen as the administrator for Term SOFR by the ARRC in May 2021. CME's **Term SOFR** was officially recommended by the **ARRC** for use in July 2021.

Cross Industry Committee on JPY

The *Cross-Industry Committee on Japanese Yen Interest Rate Benchmarks* was established in August 2018 to facilitate market participants and interest rate benchmark users to appropriately choose and use Japanese yen interest rate benchmarks. The Committee comprised a diverse range of private-sector market participants and interest rate benchmark users, including financial institutions, institutional investors, and non-financial corporates, and official-sector entities – including the Bank of Japan, as ex officio members.

Cross Industry Forum on JPY

The *Cross-Industry Forum on Interest Rate Benchmarks* was established in March 2022 following the reorganisation of the Cross-Industry Committee on JPY. The Forum is intended to provide opportunities to exchange opinions for a wide range of market participants and interest rate benchmark users, aiming to facilitate smooth transactions referencing Japanese yen interest rate benchmarks in the Japanese markets.

ECB

European Central Bank

EMMI

The *European Money Markets Institute* is the administrator of **EURIBOR**. EURIBOR is a critical benchmark – for which EMMI was granted authorisation under Article 34 of the **BMR** in July 2019.

ESMA

European Securities and Markets Authority. Since 1 January 2022, ESMA is the supervisor of EU critical benchmarks administrators and EU recognised third-country administrators under the EU BMR.

Institutions

In alphabetical order

Euro RFR Working Group

The *Working Group on Euro Risk-Free Rates* is a group of private-market participants convened by the **ECB, FSMA, ESMA** and the European Commission in 2018 in response to the **FSB's** 2014 report on interest rate benchmark reform. The Euro RFR Working Group is intended to help ensure a successful transition from a range of benchmarks used in a variety of financial instruments and contracts in the Euro area to a more robust reference rate, its recommended alternative, **€STR**. The Euro RFR Working Group is comprised of a diverse range of private-sector entities that have an important presence in the Euro area and official-sector entities – including the ECB and European Commission, as ex-officio members.

FCA

UK Financial Conduct Authority

FOMC

Federal Open Market Committee

FINMA

Swiss Financial Market Supervisory Authority

FRB

US Federal Reserve Board of Governors

FRBNY / Fed / New York Fed

Federal Reserve Bank of New York

FSB

The *Financial Stability Board* is an international body that monitors and makes recommendations about the global financial system. The FSB promotes international financial stability; it does so by coordinating national financial authorities and international standard-setting bodies as they work toward developing strong regulatory, supervisory and other financial sector policies. It fosters a level playing field by encouraging coherent implementation of these policies across sectors and jurisdictions.

FSB OSSG

The *Financial Stability Board Official Sector Steering Group* was established by the **FSB** in 2013. The FSB OSSG comprises senior officials from central banks and regulatory authorities and focuses on interest rate benchmarks which are considered to play the most fundamental role in the global financial system. In 2014, the FSB OSSG published a report entitled "*Reforming Major Interest Rate Benchmarks*", where it published its recommendations on interest rate benchmarks. Since then, the FSB OSSG published a series of annual progress reports to assess implementation of its recommendations.

FSMA

Belgian Financial Services and Markets Authority

IBA

ICE Benchmark Administration Ltd. In February 2014, IBA took over the administration of **LIBOR**.

IOSCO

The *International Organization of Securities Commissions* is the international body that brings together the world's securities regulators and is recognised as the global standard setter for the securities sector. IOSCO develops, implements and promotes adherence to internationally recognised standards for securities regulation. It works intensively with the G20 and the **FSB** on the global regulatory reform agenda.

ISDA

International Swaps and Derivatives Association

JBA

Japanese Bankers Association

JBATA

Japanese Bankers Association TIBOR Administration

Institutions

In alphabetical order

JFSA

Japan Financial Services Agency

LSTA

Loan Syndications and Trading Association (US)

NWG / Swiss franc RFR Working Group

The *National Working Group on Swiss Franc Reference Rates (Switzerland)* is a group of private/public-market participants convened by the Swiss National Bank in 2013 to reform the TOIS fixing, and then in 2016, focused on helping to ensure a successful transition from the Swiss franc **LIBOR** to a more robust reference rate, its recommended alternative, **SARON**. The NWG is comprised of a diverse range of private-sector entities that have an important presence in markets affected by Swiss franc LIBOR and is co-chaired by a representative of the private sector and a representative of the Swiss National Bank. The NWG publishes recommendations based on consensus.

In February 2022, the Co-Chairs of the NWG decided to dissolve the NWG by the end of Q1 2022.

PRA

UK Prudential Regulation Authority

QUICK Benchmarks Inc.

QUICK Benchmarks Inc. is the chosen administrator for the Tokyo Term Risk Free Rate (**TORF**).

Refinitiv

Refinitiv is a part of LSEG (London Stock Exchange Group) and is a provider of financial markets data and infrastructure.

SIX

SIX is Switzerland's principal stock exchange. SIX is also the benchmark administrator of SARON and is responsible for its calculation and publication.

SNB

Swiss National Bank

Sterling RFR Working Group

The *Working Group on Sterling Risk-Free Reference Rates* is a group of private-market participants convened by the Bank of England in 2015 in response to the **FSB's** 2014 report on interest rate benchmark reform, to help ensure a successful transition from Sterling **LIBOR** to a more robust reference rate, its recommended alternative, **SONIA**. The Sterling RFR Working Group is comprised of a diverse range of private-sector entities that have an important presence in markets affected by Sterling LIBOR and official-sector entities – the Bank of England and the **FCA** as ex-officio members. To fulfil its mandate, the Sterling RFR Working Group established a number of sub-groups which focus on market-specific issues, sector-specific issues or cross-cutting issues. The sub-groups issue conclusions and recommendations for the Sterling RFR Working Group's review and approval.