Information on the reform of key benchmarks (IBOR Reform)

Compilation by the Helaba IBOR Task Force

Last Update 8 March 2021

Foreword by Dr. Gertrud R. Traud, Chief Economist and Head of Research

Ladies and Gentlemen,

The London Interbank Offered Rate (LIBOR) has already been consigned to the past, even if rates will continue to be published until at least the end of 2021.

This marks the end of an era in London, where since the mid-1980s LIBOR had become a globally respected and dominant benchmark. The importance of London as a financial centre among investors, asset managers, traders and analysts was underlined by the LIBOR acronym. However, success also entails a certain responsibility.

In the aftermath of the global financial crisis and the exposure of manipulation in the setting of LIBOR rates, the G20 countries issued a call for reform of the scandal-ridden benchmarks. Now, this reform is entering a crucial phase and will have an impact on financial instruments worth trillions of dollars.

In the euro area, IBOR reform also applies to EURIBOR and EONIA, as the new regulations mean that the previous method of determining these European benchmarks is no longer fit for purpose. The aim is for the new benchmarks to be more market-based and transparent, which has meanwhile been achieved through reforms and transition.

The significance of the reform goes beyond its consequences for a large number of financial transactions. The credibility of the financial sector suffered during the financial crisis and in particular as a result of the LIBOR scandals. It is vital that this is put right and that long-term confidence in banks and the monetary economy is restored.

We look forward to holding positive and constructive discussions with you so that we are able to provide you with the best possible support in transitioning to the new benchmarks.

Contents (1/2)

Contents (2/2)

Helaba

Background to the reform of critical benchmarks

- Since the mid-1980s, Interbank Offered Rates (IBORs) have served as benchmarks for a variety of financial instruments (e.g. bonds, derivatives, loans and investments) on global financial markets.
- These basic reference rates (benchmarks) include the Euro Interbank Offered Rate (EURIBOR) or the London Interbank Offered Rate (LIBOR).
- In 2013, the Financial Stability Board (FSB), mandated by the G20 governments, examined the use of benchmarks in the financial sector and recommended replacing interbank offered rates with benchmarks that provide greater transparency and security against manipulation and market distortions.
- In the same year, the International Organisation of Securities Commissions (IOSCO) developed a comprehensive framework of principles for benchmarks on financial markets.
- These principles are intended to eliminate conflicts of interest associated with the benchmark-setting process and increase long-term transparency. In addition, requirements as to the quality of the benchmarks and their method of calculation were also addressed as well as issues concerning the transition process and the assumption of responsibility as administrator for a benchmark.

Transition to alternative risk-free overnight rates

- The intention of the EU Benchmark Regulation is to ensure that critical benchmarks which do not meet the requirements of the Benchmark Regulation by 3 January 2022 are no longer used in new or existing contracts (exceptions are only possible with official approval). This also applies to benchmarks operated by third-country administrators. In the meantime, EONIA has been replaced by €STR and EURIBOR has been reformed. Work on the LIBOR transition is still ongoing.

- The transition to alternative risk-free overnight rates (risk-free rates, RFR, or alternative reference rates, ARR) is seen as having significant advantages for all financial market participants.

- RFRs are based on robust markets with abundant liquidity and on actual transactions rather than expert judgements.

- In contrast to interbank offered rates, there is virtually no credit risk premium, as RFRs are - to some extent - based on secured overnight transactions.

- The alternative RFRs that are currently envisaged differ in their calculation methods and individual implementation plans. With this in mind, regulators, industry associations, banks and other institutions around the world are working together, as considerable efforts are required to ensure a smooth transition. It is also vital to protect the interests of all parties involved in the transition.

FCA Announcement on future cessation and loss of representativeness of LIBOR Benchmarks

- On 5 March 2021, the UK Financial Conduct Authority (FCA) announced the future cessation and loss of representativeness of the LIBOR benchmarks:
  - "Publication of all 7 euro LIBOR settings, all 7 Swiss franc LIBOR settings, the Spot Next, 1-week, 2-month and 12-month Japanese yen LIBOR settings, the overnight, 1-week, 2-month and 12-month sterling LIBOR settings, and the 1-week and 2 month US dollar LIBOR settings will cease immediately after 31 December 2021."
  - "Publication of the overnight and 12-month US dollar LIBOR settings will permanently cease immediately after 30 June 2023."
- "The FCA further announced that it will consult on requiring ICE Benchmark Administration (IBA), the administrator of LIBOR, to continue publishing 1-month, 3-month and 6-month sterling LIBOR on a non-representative, synthetic basis for a further period after the end of 2021, and 1-month, 3-month and 6-month yen LIBOR on a non-representative, synthetic basis for an additional year after end-2021, under proposed new powers included in the Financial Services Bill."
- "The FCA will also consider whether to require IBA to continue publishing 1-month, 3-month and 6-month US dollar LIBOR on a non-representative, synthetic basis for a further period after the end of June 2023."

  https://www.fca.org.uk/publication/documents/future-cessation-loss-representativeness-libor-benchmarks.pdf
- Publication of the above mentioned LIBOR rates, especially on a synthetic basis, beyond 31 December 2021 facilitates to legacy business only and shall prevent market disruption. Starting from 2021 new business has to be based on RFRs (to some extent Rate Switch Agreements can be used – please see „Loan documentation – Current market developments").

Key features of the principal IBOR benchmarks and alternative risk-free rates

Jurisdiction						
Previous benchmarks	EONIA	EURIBOR	GBP-LIBOR	USD-LIBOR	CHF-LIBOR	JPY-LIBOR, JPY TIBOR, EUROYEN TIBOR
Administrator	European Money Market Institute (EMMI)		ICE Benchmark Administration (IBA)	ICE Benchmark Administration (IBA)	ICE Benchmark Administration (IBA)	ICE Benchmark Administration (IBA) / JBA TIBOR Administration
Alternative Risk-Free Rate, ARR	€STR (Euro Short-Term Rate)	Hybrid EURIBOR	Reformed SONIA (Sterling Overnight Index Average)	SOFR (Secured Overnight Financing Rate)	SARON (Swiss Average Rate Overnight)	TONA (Tokyo Overnight Average Rate)
ARR Administrator	ECB	EMMI	Bank of England	Federal Reserve Bank of New York (FRBNY)	Swiss National Bank (SNB) + SIX Swiss Exchange	Bank of Japan
Secured/unsecured	Unsecured		Unsecured	Secured	Secured	Unsecured
Transaction-based?	Yes	partially	Yes	Yes	Yes	Yes
Overnight rate	Yes (€STR)		Yes	Yes	Yes	Yes
Underlying transactions	Money-market transactions		Money-market transactions	Repo transactions	Repo transactions	Money-market transactions
Publication time	09:00 CET T+1		09:00 GMT T+1	08:00 ET T+1	12:00, 16:00 and 18:00 CET same day	10:00 JST T+1
Working Group	Working Group on Risk-Free Reference Rates for the Euro Area		Working Group on Sterling Risk-Free Reference Rates	Alternative Reference Rates Committee (ARRC)	National Working Group on Swiss France Reference Rates	Study Group on Risk-Free Reference Rates

Update on the development of forward-looking RFR term rates

- Currently forward-looking RFR term rates are being developed and are already available in the sterling market.
- Use cases are expected to be limited in most cases.
- Availability dependent on liquidity in derivatives markets and robustness of rates

Jurisdiction					
Currency	EUR	GBP	USD	CHF	JPY
Credit term rate	EURIBOR	No	No (but Bloomberg, IBA and IHS working on credit sensitive options)	No forward looking term rate being developed	TIBOR
Potential administrators	IBA/EMMI Refinitiv FTSE Russell	IBA Refinitiv FTSE Russell	ICE Benchmark Administration (IBA)		QUICK Corp.
Prototyp(s) available?	No	Yes	No		Yes
Expected timing for use	None specified (dependent on sufficient derivatives liquidity)	IBA and Refinitiv rates available for use as of 11 January 2021	By 30 June 2021 (if derivatives liquidity sufficiently developed)		By 30 June 2021
Limitations on use	Potential use cases outlined in Euro Working Group Consultation	Use cases as outlined in Sterling Working Group paper / FMSB code of conduct	Permitted for hardwired fallbacks; use cases for new SOFR transactions TBC		Permitted for fallbacks, but use cases for new deals TBC

Source: LMA (28 January 2021)

Successful introduction of the Euro Short-Term Rate (€STR)

- The European Central Bank (ECB) has been publishing the Euro Short-Term Rate (€STR) as a successor benchmark for **EONIA (Euro Overnight Index Average)** since 2 October 2019, at 8:00 a.m. CET on each following day.

- Unlike EONIA, €STR is calculated by the ECB on the basis of actual recorded money-market transactions for each TARGET2 business day. It is a volume-weighted and trimmed average and is calculated using the ECB's money-market statistical reporting (MMSR).

- EONIA will be discontinued on 3 January 2022. The "Working Group on Euro Risk-free Rates" therefore recommends that market participants, if they have not already done so, switch to €STR for any new contracts and add robust "fallback" clauses to old contracts maturing after 2021. These should ensure the smooth performance of contracts based on EONIA.

- In order to guarantee conformity of EONIA with the EU Benchmark Regulation, EONIA has been calculated since October 2019 by tracking €STR plus a fixed spread of 8.5 basis points.

- At the beginning of 2022, EONIA will no longer be simultaneously published as a dependent €STR variable.

Approval of reformed EURIBOR provides clarity and reduces adjustment effort

- The European Money Markets Institute (EMMI) is the administrator of the **EURIBOR (Euro Interbank Offered Rate)** benchmark. EURIBOR is calculated each day using information provided by a representative group of selected banks and is based on the average interest rates at which banks in the euro area accept euro deposits on the unsecured money market.

- The Belgian Financial Services and Markets Authority (FSMA) approved EMMI's request to apply a reformed ("hybrid") methodology for calculating the benchmark on 2 July 2019.

- The reformed EURIBOR calculation includes a greater emphasis on a transaction-based approach and applies a three-level waterfall method. Level 1 is based on actual transactions with appropriate maturities and interest rates. If insufficient eligible transactions are available for a Level 1 contribution, panel members may use real data with adjacent maturities or transactions up to three days in the past (Level 2) or, finally, "expert judgements" (Level 3), similar to the old EURIBOR, within the scope of formulae provided by EMMI.

- Participating panel banks transitioned to the new methodology at the end of November 2019. The hybrid EURIBOR meets the requirements of the EU Benchmark Regulation and may be used beyond 31 December 2021 for an unlimited period. As of 2022 supervision will be by ESMA (European Financial Services and Markets Authority).

- The “Working Group on Euro Risk-free Rates" closed two public consultations on i) EURIBOR fallback trigger events and ii) EURIBOR fallback measures for cash products (incl. term structure, spread adjustment, market conventions methodology). Final recommendations on EURIBOR fallback provisions are expected around the end of Q1 2021. The requirement for a fallback solution arises from the EU Benchmark Regulation.

SONIA as replacement for GBP LIBOR (1/2)

- **SONIA (Sterling Overnight Index Average)** is set to replace GBP LIBOR as a benchmark for a large number of financial products. GBP LIBOR will be discontinued by the end of 2021.
- SONIA was introduced in 1997 and reformed in 2018 after the Bank of England (BoE) assumed responsibility for SONIA in 2016.
- Every business day, the BoE collects details of unsecured overnight transactions from the previous day. After conducting a plausibility check, the BoE determines the SONIA rate of the previous business day on the basis of a weighted average.
- It is published at 09:00 am (GMT). Since 3 August 2020, the BoE has also been publishing the "SONIA Compounded Index" to simplify the calculation of interest rates with compound interest, thereby offering all market participants a standardised basis from an official source.
- In contrast to LIBOR, which is based on feedback on actual transactions as well as on statements by experts at panel banks, SONIA is calculated purely on the basis of actual transactions.
- Since the 3-month GBP LIBOR interest rates determined in mid-March 2020 did not include any reported actual transactions for a short period of time, the BoE once again emphasised the importance of switching over to alternative risk-free interest rates by the end of 2021.

SONIA as replacement for GBP LIBOR (2/2)

- One challenge of the transaction-based and contractual use of compounded SONIA rates is that, while they have to be determined retrospectively, many LIBOR contracts have hitherto fixed the interest rate in advance. Consequently, on a SONIA basis, the amount of interest payable is not fixed until the end of the interest period, which may lead to timing problems in respect of settlement and interest payment as well as timely disposition.

- On 11 January 2021, Refinitiv and IBA both launched their Term SONIA benchmark production rates for 1, 3, 6 and 12 month tenors. These forward-looking term SONIA rates are intended to help market participants who may, in certain limited use-cases, not be able to use SONIA compounded in arrears rates, in their transition away from GBP LIBOR. The FCA still expects banks to adopt the SONIA compounded in arrears, with use of Term SONIA Reference Rates being limited.

SOFR as successor to USD LIBOR (1/3)

- In 2014, the Federal Reserve Board and the New York Fed convened the Alternative Reference Rate Committee ("ARRC"), a group of private-market participants whose task was to identify reliable alternatives to USD LIBOR and to support a transition from LIBOR. Today, there are over 300 individual participants, including banks, asset managers, insurers and industry associations, who contribute to the work of the ARRC with the support of 13 banking and financial sector regulators as ex-officio members.
- In June 2017, the ARRC announced that it had selected **SOFR (Secured Overnight Financing Rate)** as its preferred alternative to USD LIBOR.
- SOFR is a broad measure of the cost of overnight borrowing on the repo market collateralised by US Treasury securities. SOFR is published daily by the New York Fed at 8:00 am local time and is based on a highly liquid, active market with a large number of borrowers and lenders. Unlike today's LIBOR, there is no risk that SOFR will be discontinued due to the scarcity of underlying market transactions.
- Since March 2020, the New York Fed has also published SOFR rates for different interest rate periods, providing market participants with a transparent and reliable source of information for structuring new financial products.

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SOFR as successor to USD LIBOR (2/3)

- Unlike USD LIBOR, a "SOFR compounded in arrears" rate is calculated retrospectively and not fixed in advance for the following interest period. For each public holiday or weekend, the SOFR rate of the previous business day is applied. As SOFR is calculated daily, the interest rates are only known at the end of the interest period.

- Market participants are working to avoid any resulting implementation issues (timely interest payment) by means of various approaches, such as a 5-day lookback period. However, market standards have yet to be established.

- The ARRC recommends the discontinuation of USD LIBOR for traded products and substituting it with SOFR well ahead of the expected discontinuation of LIBOR on 31 December 2021. So far, for each underlying product, the ARRC envisages the following target dates. Nevertheless, it remains to be seen how the market standard will evolve.
  - Floating rate notes — 31 December 2020
  - Commercial loans, derivatives and securitisations — 30 June 2021
  - Collateralised loan obligations (CLOs) — 30 September 2021

- In its paper "SOFR In Arrears Conventions for Syndicated Business Loans", published on 22 July 2020, the ARRC recommended that a spread adjustment published by the ARRC or ISDA be applied when transitioning from USD LIBOR to SOFR in legacy contracts. This spread adjustment is the published 5-year historical median between USD LIBOR and SOFR in relation to the respective tenor.

- On 25 November 2020 the ARRC released conventions for using SOFR in arrears, both daily simple SOFR and daily compounded SOFR in arrears, in bilateral business loans. The ARRC also released FAQs for Business Loans Hardwired Fallback Language, which may be updated from time to time to reflect developments.

SOFR as successor to USD LIBOR (3/3)

- New business to adapt to SOFR by end of 2021. Publication of USD LIBOR beyond 31 December 2021 allows most legacy contracts to mature before USD LIBOR finally ceases.

SARON and TONA as alternatives for CHF LIBOR and JPY LIBOR (1/2)

- In the same way as GBP and USD LIBOR, LIBOR rates based on CHF and JPY are also going through a transition period, albeit a considerably lower volume of business uses these benchmarks.

- ICE Benchmark Administration consulted on ceasing, i.a. after end-2021 also for CHF and JPY LIBOR (all tenors). Results awaited.

- As early as October 2017, the Swiss National Working Group on Swiss Franc Reference Rates (NAG) proposed **SARON (Swiss Average Rate Overnight)** as an alternative and, a year later, recommended a compounded SARON as an alternative forward-looking term rate. The Swiss National Bank adapted its monetary policy approach to SARON as early as June 2019, sending a clear signal in favour of this new benchmark to market participants. Currently, there are no alternatives to the SARON compounded rate being pursued in Switzerland. SARON is calculated on the basis of actual transactions and binding quotes on the Swiss repo market.

- SARON is compatible with the EU Benchmark Regulation and can continue to be used in the EU.

- The benchmark is being administered by the Swiss Exchange (SIX), who also provides calculations for a compounded SARON for pre-defined time periods.

- The SARON Compound Rates support the market for benchmarking and for the determination of the observation period of a compounded SARON in financial products like Floating Rate Notes, Overnight Indexed Swaps and Futures.

SARON and TONA as alternatives for CHF LIBOR and JPY LIBOR (2/2)

- There are two types of SARON Compound Rates:
  - SARON 1/3/6 month Compound Rate: Aggregation of all daily SARON rates over the time period of one/three/six month(s), being calculated in arrears. The time period for the SARON 1/3/6 month Compound Rate ends on each business day of a given month and starts on a business day one/three/six month(s) earlier.
  - SARON 1/3 IMM Compound Rate: Aggregation of all daily SARON rates over the time period of one/three month(s), calculated in arrears. The time period for the SARON 1/3 IMM Compound Rate ends on the 3rd Wednesday of a given month and starts on the 3rd Wednesday one/three month(s) earlier.

- In the Japanese market, the "Study Group on Risk-Free Reference Rates" identified **TONA (Tokyo Overnight Average Rate)** as the successor to JPY-LIBOR as early as 2016. TONA is calculated by the Bank of Japan as a weighted average rate of all unsecured overnight transactions between financial institutions. The TIBOR (Tokyo Interbank Offered Rate) is being reformed and the JPY TIBOR is expected to continue alongside TONA. The Euroyen TIBOR might be discontinued.

- It is even possible that forward-looking term rates could be established based on TONA-OIS swaps, although there is not yet sufficient market liquidity in the OIS segment. However, other solutions are also under discussion and developments will remain under observation.

Developments at other IBOR Benchmarks (1/2)

- Please note that the overview concentrates on important other IBOR benchmarks, but is not exhaustive.

- **Nordic IBORs:** Expected to be available for the foreseeable future. Fallbacks are developed in case of a future cessation.
  - **STIBOR (Stockholm Interbank Offered Rate)**: The Swedish Financial Benchmark Facility is in the process of seeking authorisation from the Swedish Financial Supervisory Authority to operate as approved Administrator for STIBOR under European Benchmark Regulation. A fallback rate has yet to be determined.
  - **CIBOR (Copenhagen Interbank Offered Rate):** The administration was transferred to the independent Danish Financial Benchmark Facility ApS (DFBF). Fallback rate is DESTR (Danish Short-Term Rate)
  - **NIBOR (Norwegian Interbank Offered Rate)**: Fallback rate is a reformed **NOWA (Norwegian Overnight Weighted Average).**

- **WIBOR** (**Warsaw Interbank Offered Rate): **To adjust the benchmark to the EU BMR a Waterfall Method (Metody Kaskady Danych - MKD) has been introduced that takes into account the trimmed average calculated from unsecured deposits in PLN accepted or placed by fixing participants in line with certain regulations. The new rate is called WIBOR MKD.

- **CDOR (Canadian Dollar Offered Rate)**: The daily benchmark reference rate for Bankers’ Acceptance borrowings is administered by Refinitiv Benchmark Services (UK) Limited ("RBSL"). In November 2020, RBSL announced the following:
  - Calculation and publication of the 6-month and 12-month CDOR tenors will cease from Monday 17 May 2021 onwards. The last day of publication for the 6-month and 12-month CDOR tenors will be Friday 14 May 2021. The 1-month, 2-month and 3-month tenors will not be affected by this action.

Developments at other IBOR Benchmarks (2/2)

- Key interest rate benchmarks for the Australian dollar (AUD) are the **BBSW (Bank Bill Swap Rate)** and the cash rate. To enhance its robustness the BBSW has been reformed and is expected to continue alongside the nominated ARR for AUD being the RBA Cash Rate (also known as "AONIA"). BBSW is administered by the Australian Stock Exchange (ASX) and regulated by ASIC (Australian Securities and Investment Commission). The **AONIA (AUD Overnight Index Average)** is administered by the Reserve Bank of Australia (RBA) and calculated as the weighted average interest rate on unsecured overnight loans between banks.

- **SIBOR (Singapore Interbank Offered Rate)** will be replaced by SORA (Singapore Overnight Rate Average). SIBOR, widely used in retail mortgages and corporate loans, will be discontinued by end-2024.

- **HIBOR (Hong Kong Interbank Offered Rate)** is to be replaced by HONIA (Hong Kong Overnight Index Average), an effective overnight reference rate (i.e. where repayment is made on the following Hong Kong business day) of HKD unsecured lending transactions in the Hong Kong interbank market, executed through a panel of contributing brokers. Benchmark Owner and Administrator is TMA (Treasury Markets Association).

Methods of calculation (1/4)

- Previously, benchmarks (term > 1 day) were forward-looking and fixed at the beginning of the interest period. It was therefore possible to fix them in advance.

- The challenge in calculating RFRs is that they are based on historical rates, i.e. they must be calculated retrospectively (backward-looking). In theory, it would also be feasible to calculate them in advance by reference to interest rates prior to the interest period under consideration (“last reset”).

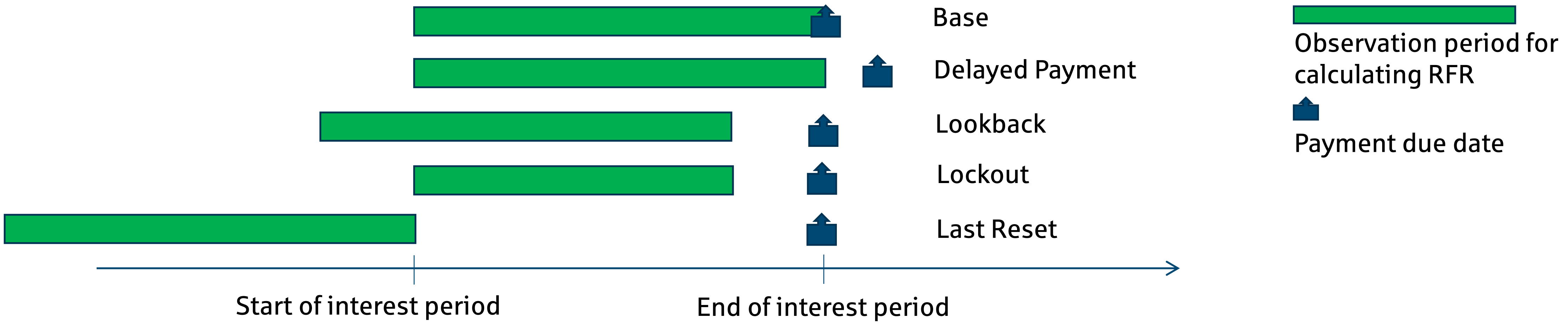
- Various methods of calculation in arrears are emerging on the market. Specifically, this means that the interest rate must be calculated on the basis of risk-free overnight money market rates (e.g. SONIA or SOFR) with reference to the interest period under consideration.

  Primary variants:

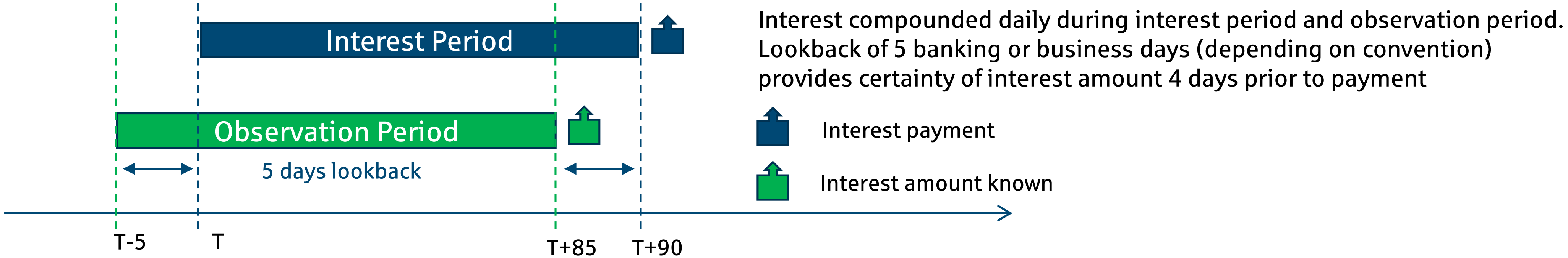
  - As a rule, the base variant involves not fixing the previous overnight rate of the period - and therefore also the RFR - until the morning of the following day. If, as has been customary up to now, the interest due date is at the end of the interest period, it would be practically impossible to make timely payments.
  - The delayed-payment variant involves deferring the interest due date into the future. This has undesirable side effects, particularly because the interest and repayment due dates no longer coincide.
  - Solutions are therefore emerging in which the overnight interest rates in question are shifted a few days into the past. This involves either taking the daily interest rate x days in advance for each interest day to be calculated (the lookback mechanism) or, alternatively, not taking a specified number of days at the end of the interest period into account when calculating the average interest rate (the lockout mechanism).

Methods of calculation (2/4)

A rough outline of methods for calculating risk-free rates (RFRs)



- Example for **compounding in arrears** with 5 day lookback without observation shift (also called “lag”, recommended as the standard approach by the Working Group on Sterling Risk Free Rates):



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Methods of calculation (3/4)

- There are also different variants for determining the average interest rate itself. While the simple average involves a straightforward aggregation of interest rates, the compounded method also takes compound interest effects into account. Additionally, there is a need to define if working days are considered based on the observation period (so-called “observation shift”), or if this is considered based on the interest period.

- Depending on the chosen method there are different formulas for calculating the interest rate. The common method (“Cumulative Compounding Rate”) is shown in the Annex.

- Deriving from this Cumulative Compounding Rate a “Non-Cumulative" Compounding Rate can be calculated as the cumulative rate as of the current day minus the cumulative rate as of the prior business day. This way a daily compounded rate is generated which allows the calculation of a daily interest amount and enables an accurate calculation of accrued interest at any point in time (i.e. for prepayments, secondary loan trading activities).

- Where a transaction includes an interest rate floor, the Working Group on Sterling Risk Free Rates recommends that the floor be calculated daily (rather than at the end of an interest period), as loans accrue interest daily. The floor can then be applied to the applicable daily RFR for the relevant interest period.

- Switching a transaction, that started out with IBORS, to RFRs, the transition entails fixing a term-based spread adjustment in order to compensate for the economic differences between the previous rate, which included a term credit risk premium, and the new RFR. This so called Credit Adjustment Spread (“CAS”) is added to the recalculated interest for each respective interest period. As outlined in the Annex there are different methods to calculate the CAS.

Methods of calculation (4/4)

- We expect that the spread adjustments fixed for the derivatives business on 5 March 2021 will also be taken into account for credit transactions (see also „ISDA IBOR Fallbacks Supplement and IBOR Fallbacks Protocol (4/4)“).

Key points to be decided for a transaction with RFRs:

- Compounding in arrears vs. simple daily
- Lookback Period
- Observation shift: Yes/No
- Daily Flooring/end of period

Compounded RFR Conventions for new loans

						Derivatives
Currency	EUR (consultation proposals)	GBP	USD	CHF	JPY	
RFR construction	Compounded in arrears	Compounded in arrears	Simple daily or Compounded in arrears	Compounded in arrears	Compounded in arrears (but simple an option)	Compounded in arrears
Observation shift	Yes (but no shift is an option)	No (but shift is an option)	No	Yes (but no shift is an option)	No (but shift is an option)	Yes
Lookback period	Not specified	5 banking days	Not specified	5 business days	5 business days	2 business days
Floor	Floor at end of period (but daily floor an option)	Daily floor	Daily floor	Floor at end of period (but daily floor an option)		

Source: LMA (28 January 2021)

Loan documentation – Current market developments (1/6)

- The “end-game” has started: By end-2021, all loan market participants need to be in a position to lend or borrow based on RFRs.

- Important progress was made in 2020 on i.a. methodology, documentation, education and systems, but acceleration required.

- In September 2020 the Loan Market Association (LMA) published a rate-switch mechanism exposure draft for a Multicurrency Term and Revolving Facilities Agreement (lookback without observation shift). The proposed rate-switch mechanism would allow new transactions to migrate the financing to new risk free rates at a later point in time without the requirement to amend the facility agreement. After obtaining market feedback the LMA published a revised version of the initial exposure draft in November 2020. At the same time it also released an exposure draft for a Multicurrency Term and Revolving Facilities Agreement incorporating Rate Switch Provisions (Lookback with Observation Shift).

- Both Rate Switch Agreements are identical save for the calculation provisions. These reflect the differences in calculation formulae for a lookback without an observation shift and a lookback with an observation shift. Whilst the recommendation of the Working Group on Sterling Risk Free Rates is to use a lookback without observation shift, it is noted that "A viable and robust alternative approach is a Lookback with Business Day Observation Shift. The Observation Shift approach is where each SONIA rate is weighted according to the observation period (rather than the interest period). Note the compounded rate needs to be annualised and adjusted for the actual calendar days in the interest period".

Loan documentation – Current market developments (2/6)

- The LMA Exposure Drafts exclusively deal with newly-executed finance documents. Interest rates will be calculated on the basis of LIBOR until the occurrence of a so-called "LIBOR Replacement Event", following which LIBOR will be replaced by the Secured Overnight Financing Rate (SOFR) for USD, the Sterling Overnight Index Average (SONIA) for Sterling and the Swiss Average Rate Overnight (SARON) for Swiss Francs.

- SOFR, SONIA and SARON (the "Overnight Rates") are all risk-free rates, calculated on a daily basis. According to the LMA Exposure Drafts, the Overnight Rates will be compounded during a specific observation period ending prior to the end of an interest period. Consequently, the LMA Exposure Drafts stipulate that the interest rate will only be calculated and notified to the client shortly before the end of each interest period ("backward-looking approach"). This backward-looking approach is the most important consequence of LIBOR discontinuation, as LIBOR rates are calculated for specific tenors in advance.

- Any reference rate calculated on the basis of such Overnight Rates will differ structurally from LIBOR. In order to accommodate for such difference, the LMA Exposure Drafts provide for the addition of an "Adjustment Spread" – without, however, proposing a specific amount or a detailed calculation method. In any event, such Adjustment Spread will take into account the historic difference between LIBOR rates and risk-free Overnight Rates for specific periods.

- Although the LMA Exposure Drafts currently still are discussion papers they are expected to have an influence on future financing arrangements, irrespective of whether they are based on LMA-style documentation or not.

- From own experience we can confirm that the LMA exposure draft is an easy to work with format. Some issues have to be negotiated, with market standards already developing (i.a. credit adjustment spread, break costs).

Loan documentation – Current market developments (3/6)

- We expect documentation of rate switches to be rendered less complex in view of the FCA‘s announcement on 5 March 2021 (page 7), as this announcement fixes important parameters (cessation event, cessation date, fixing of LIBOR/RFR Spread Adjustments).

- In view of milestones set by working groups and regulators it has been clarified at the beginning of March 2021 that the Rate Switch Method may only be used for GBP until the end of Q1 2021, and for USD, CHF and JPY until the end of Q2 2021. Beyond these points, the Rate Switch Method will be of relevance mainly for EURIBOR and other continuing IBORs.

- The ARCC released “SOFR ‘In Arrears’ Conventions for Syndicated Business Loans” and recommended the following structures: (i) Daily Simple SOFR and (ii) Daily Compounded SOFR. These structures allow for interest accruals to be calculated daily. Unlike forward-looking term LIBOR rates, the rates are not set in advance and fixed during each interest period. The recommended conventions address both new loans that are originated using SOFR and legacy loans that “fall back” from USD LIBOR to SOFR upon LIBOR cessation or LIBOR being declared to be unrepresentative. These convention recommendations are voluntary and may not be applicable to all segments of the business loan markets.

- Please note that things may develop in a completely different direction: it cannot be ruled out that even prior to LIBOR discontinuation authorised forward-looking term rates for all, or at least some of the Overnight Rates will evolve. Furthermore, governments may take legislative action in order to avoid instability of the financial markets. This would avoid many of the operational issues imposed by the financing on the basis of overnight rates. Irrespective of such possibilities, the LMA Exposure Draft and the ARCC conventions might be a reasonable “best guess” of what the future will look like.

Loan documentation – Current market developments (4/6)

- In January 2021 the LMA published the following two exposure drafts for new business directly starting with compounded RFRs: Multicurrency Compounded Rate/Term Rate Facilities Agreements incorporating backward-looking compounded rates and forward looking interbank term rates (the "Multicurrency Compounded Rate/Term Rate Facilities Agreements"). While one exposure draft works with an observation shift, the other is without observation shift.

- Both proposals also incorporate rate switch mechanics to allow for a suitable configuration of currencies and rates depending on the structure of the underlying transaction for the case that an individual currency has to be transitioned at a later date. This also highlights the issues involved in structuring multicurrency syndicated loans which use both forward-looking IBORs and backward-looking compounded risk-free reference rates.

- The Multicurrency Compounded Rate/Term Rate Facilities Agreements work on the key premise that from the start compounded RFRs will be used as the basis on which interest is calculated for USD, GBP and CHF amounts and that the conventions of the Working Group on Sterling Risk-Free Reference Rates will be the framework for those calculations. In addition, EURIBOR will be used as the basis on which interest is calculated for EUR amounts. An option facilitates the automatic replacement of EURIBOR by the compounded €STR at a later date.

- It is important that all parties using compounded RFRs from the outset make sure that they have the necessary operational capability to enter into, and manage with immediate effect, such a structure.

- Whilst determining fallbacks and conventions well before the cessation of IBOR benchmarks is very important for the loan market it should also be taken into account that the fallbacks and conventions being developed for the derivatives market should match them as much as possible in view of the correlation between both markets (i.a. loan hedging).

Loan documentation – Current market developments (5/6)

- The cessation deadlines of LIBOR rates are fast approaching. Consequently, the transition of existing “legacy” facility agreements needs to be managed in a timely manner. The market volume of bilateral and syndicated loan agreements to be repapered is large, while resources on borrowers’ and lenders’ sides for individual renegotiations might be limited. Also, it has to be taken into account that many details are still developing and that in general amendments might be more practical in the second half of 2021.

- Transitioning legacy loans also provides certain challenges – some examples:
  - Whilst recent syndicated loans include ‘replacement of screen rate’ wording, which reduces the required lender consent thresholds for amendments to transition to an alternative rate, many legacy loans still require the consent of all lenders.
  - Fallback to individual lender cost of funds frequently is not feasible for borrowers for a longer term due to lack of transparency and its usually higher costs in comparison to the application of overnight rates.

- Different legislative proposals in different jurisdictions shall facilitate the transition of legacy business. Consistent legal parameters are intended to help along “tough legacy” cases where contracts either do not include any or suitable fallback provisions or where there is no realistic ability to the agreements to be renegotiated or amended.

- There is no guarantee that a legislative solution will materialise for each benchmark that has to be transitioned. Also, it is unclear if that solution would cater to all products and circumstances. Therefore, other solutions such as LIBOR being published for a period pursuant to a synthetic methodology following panel bank departure are also being considered.

- Certainty over the economic terms of contracts can be gained by actively transition them away from LIBOR.

Loan documentation – Current market developments (6/6)

- Legislative proposals for the transitioning of “tough legacy” business:

	EU Amendments to EU BMR	UK Financial Services Bill (amends UK BMR)	US New York State Law Bill
Status	Adopted by EU Parliament on 19 January 2021 after endorsement by Council of the EU on 9 December 2020	Introduced on 21 October 2020; FCA consulting on policy on proposed powers	Formally introduced to New York Senate in 10/2020; revised ARRC proposal published in 10/2020
Proposal	Mandatory replacement in contracts between EU counterparties referencing critical benchmarks and third country benchmarks in cessation	Grants the FCA new powers to deal with an orderly wind-down of a critical benchmark and empowers the FCA to approve a so-called “synthetic LIBOR”	Provides for mandatory replacement of USD LIBOR in contracts governed by New York State law (NB: interplay with NY Uniform Commercial Code)
Tough legacy	Contracts without fallback provisions or without suitable fallback provisions	Contracts that genuinely have no or inappropriate alternatives and no realistic ability to be renegotiated or amended	Contracts without fallback language or a fallback to a LIBOR based rate
Replacement rate	EU selects rate(s) and spread taking into account working group / central bank recommendations and public consultation	FCA indication: forward-looking term RFR rates plus spread	Rate and spread recommended by the Fed or ARRC

Source: Markt information, LMA

- The LMA offers support to market participants in form of exemplary documentation for i.a. the following situations:

Amendment approach + fixed negotiation date	Amendment approach + fixed negotiation date + agreed key terms	Rate switch mechanism (fully hardwired approach)	New RFR facility agreements	Legacy transition
Revised replacement of screen rate wording plus supplement	Revised replacement of screen rate working plus supplement plus RFR terms	Exposure draft rate switch facility agreements and term sheets	Exposure draft multicurrency RFR facility agreement and term sheet Exposure draft single currency SOFR and SONIA facility agreements	Reference rate selection agreement Legacy deals can be transitioned to RFRs directly or to a rate switch mechanism

ISDA IBOR Fallbacks Supplement and IBOR Fallbacks Protocol (1/4)

- A key Interbank Offered Rate (IBOR) becoming unavailable while derivatives market participants continue to have exposure to that rate could result in negative economic repercussions, due to the fact that not all participants might use the ISDA approach in every case (i.e. derivatives will use fallback rates plus adjustment spread, whilst loan facilities might fallback to another solution inconsistent to derivatives).

- With the launch of the IBOR Fallbacks Supplement and IBOR Fallbacks Protocol in October 2020 International Swaps and Derivatives Association (ISDA) has marked a major step in reducing the systemic impact of a key IBOR becoming unavailable.

- The IBOR Fallbacks Supplement is designed to assist market participants in the closing of new derivatives contracts by amending ISDA's 2006 standard definitions for interest rate derivatives to include robust fallbacks for derivatives linked to certain IBORs. From 25 January 2021 onwards all new cleared and non-cleared derivatives that incorporate the 2006 ISDA Definitions and reference a relevant IBOR will also incorporate the new fallbacks.

- Using the IBOR Fallbacks Protocol allows market participants to accommodate the revisions into their legacy non-cleared derivatives trades with other counterparties that choose to adhere to the protocol. The protocol is open to any entity, not just ISDA members, for adherence.

- Helaba joined the IBOR Fallbacks Protocol ahead of it becoming effective on 25 January 2021.

- Whilst adherence to the IBOR Fallbacks Protocol is voluntary, the protocol is playing an important role in an orderly transition away from LIBOR.

ISDA IBOR Fallbacks Supplement and IBOR Fallbacks Protocol (2/4)

- The fallbacks for a particular currency will apply following a permanent cessation of the IBOR in that currency. For derivatives that reference LIBOR, the fallbacks in the relevant currency would also apply following a determination by the UK Financial Conduct Authority (FCA) that LIBOR in that currency is no longer representative of its underlying market. In each case, the fallbacks will be adjusted versions of the risk-free rates identified in each currency.

- The IBORs have a term structure and a credit element whilst the alternative risk free reference rates (RFRs) are overnight rates with no credit component. Therefore, adjustments are required to the RFRs to ensure that derivative contracts that were originally negotiated to reference an IBOR continue to meet the original objectives of the counterparties to the extent possible once the fallbacks take effect.

- As a result of several market wide consultations initiated by the ISDA, the RFRs will be compounded over the relevant IBOR period with a spread adjustment added to the compounded rate. The spread adjustment will be based on the median over a 5-year period of the historical differences over each corresponding period.

- As counterparties would like to align their loan and derivatives business, the influence of the IBOR Fallbacks Protocol can also be seen in syndicated credit facilities (i.e. in the calculation of the spread adjustment).

- Furthermore, parties can also make use of bilateral templates of the IBOR Fallbacks Protocol in order to adopt the Protocol bilaterally and amend terms individually, i.e. exclude certain transactions from the scope of the Protocol to ensure e.g. matching of triggers/fallbacks in contract and hedge.

- ISDA is reviewing certain conventions to align where possible with trends developing in loan and bond markets.

ISDA IBOR Fallbacks Supplement and IBOR Fallbacks Protocol (3/4)

- Following the announcement of the UK Financial Conduct Authority (FCA) on 5 March 2021 on the future cessation and loss of representativeness of the LIBOR benchmarks, ISDA confirmed on 5 March 2021 that the FCA's announcement constitutes an index cessation event under the IBOR Fallback Supplement and the ISDA 2020 IBOR Fallbacks Protocol for all 35 LIBOR settings.
  https://www.isda.org/2021/03/05/isda-statement-on-uk-fca-libor-announcement
  https://www.isda.org/2021/03/05/isda-guidance-uk-fca-announcement-on-the-libor-benchmarks/

- "The fallbacks (i.e., to the adjusted risk-free rate plus spread) will 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 December 31, 2021: For outstanding derivatives referenced to all euro, sterling, Swiss franc and yen LIBOR settings.
  - After June 30, 2023: For outstanding derivatives referenced to all US dollar LIBOR settings. Under the fallbacks methodology, the rate for the one-week and two-month US dollar LIBOR settings will be computed by each calculation agent using linear interpolation between end-2021 and June 30, 2023, before falling back to the adjusted risk-free rate plus spread after June 30, 2023."

- The fallback spread adjustment published by Bloomberg 5 March 2021 is fixed as of the date of the announcement ("Spread Adjustment Fixing Date") for all euro, sterling, Swiss franc, US dollar and yen LIBOR settings.

- All Fallback Rates calculated for each Rate Record Day from and including 5 March 2021 will use the fixed Spread Adjustments associated to each LIBOR tenor as published by Bloomberg.

ISDA IBOR Fallbacks Supplement and IBOR Fallbacks Protocol (4/4)

IBOR Fallbacks – Fixed Spread Adjustments as of 5 March 2021

List of impacted IBOR Fallbacks

LIBOR	Tenor	Ticker	Spread Adjustment (%)
CHF	Spot/Next	SSF00SN Index	-0.0551
CHF	1 Week	SSF0001W Index	-0.0705
CHF	1 Month	SSF0001M Index	-0.0571
CHF	2 Months	SSF0002M Index	-0.0231
CHF	3 Months	SSF0003M Index	0.0031
CHF	6 Months	SSF0006M Index	0.0741
CHF	12 Months	SSF0012M Index	0.2048
EUR	Overnight	SEE00ON Index	0.0017
EUR	1 Week	SEE0001W Index	0.0243
EUR	1 Month	SEE0001M Index	0.0456
EUR	2 Months	SEE0002M Index	0.0753
EUR	3 Months	SEE0003M Index	0.0962
EUR	6 Months	SEE0006M Index	0.1537
EUR	12 Months	SEE0012M Index	0.2993
GBP	Overnight	SBP00ON Index	-0.0024
GBP	1 Week	SBP0001W Index	0.0168
GBP	1 Month	SBP0001M Index	0.0326
GBP	2 Months	SBP0002M Index	0.0633
GBP	3 Months	SBP0003M Index	0.1193
GBP	6 Months	SBP0006M Index	0.2766
GBP	12 Months	SBP0012M Index	0.4644
JPY	Spot/Next	SJY00SN Index	-0.01839
JPY	1 Week	SJY0001W Index	-0.01981
JPY	1 Month	SJY0001M Index	-0.02923
JPY	2 Months	SJY0002M Index	-0.00449
JPY	3 Months	SJY0003M Index	0.00835
JPY	6 Months	SJY0006M Index	0.05809
JPY	12 Months	SJY0012M Index	0.16600
USD	Overnight	SUS00ON Index	0.00644
USD	1 Week	SUS0001W Index	0.03839
USD	1 Month	SUS0001M Index	0.11448
USD	2 Months	SUS0002M Index	0.18456
USD	3 Months	SUS0003M Index	0.26161
USD	6 Months	SUS0006M Index	0.42826
USD	12 Months	SUS0012M Index	0.71513

Bloomberg

https://assets.bbhub.io/professional/sites/10/IBOR-Fallbacks-LIBOR-Cessation_Announcement_20210305.pdf

ISDA IBOR Fallbacks Protocol – Fact sheet

Acceptance / Scope of Protocol	• Published on 23.10.2020 • No final acceptance date defined, but ISDA could determine one with 30 days' prior notice. • The German Master Agreement for Financial Derivatives Transactions (DRV) is out of scope -> still no definition of fallback rates available. • Overview of adhering parties: https://www.isda.org/protocol/isda-2020-ibor-fallbacks-protocol/adhering-parties
Covered IBORs	• USD LIBOR (SOFR), GBP LIBOR (SONIA), EUR LIBOR (€STR), CHF LIBOR (SARON), JPY LIBOR (TONA), EURIBOR (€STR), JPY TIBOR (TONA), Euroyen TIBOR (TONA), Bank Bill Swap Rate (BBSW) (AONIA), CDOR (CORRA) and HIBOR (HONIA). • **excluded:** EONIA and Federal Funds Rate
Implementation of Fallbacks	• Legacy business: all transactions between counterparties done before (i) 25.01.2021 or (ii) the later acceptance date of ISDA to an adherence letter of the counterparties if traded after (i). • New business: included by default in all new OTC-IBOR-transactions done after 25.01.2021 and which include the changed ISDA 2006 Definitions, irrespective of an explicit adherence.
IBOR Fallbacks	• After the occurence of an „Index Cessation Event" the relevant IBOR will be changed to the fallback rate at the next roll date. • Waterfall of fallbacks consisting of interpolation, replacement by RFR fallback rate (see below) and Central Bank Rate
Cessation	• Permanent: The relevant IBOR will permanently no longer be published by the provider. • Pre-cessation: Only for FCA governed LIBOR rates: If the FCA determines that a relevant LIBOR rate is no longer representative, the fallbacks will apply from the pre-cessation date. The FCA is expected to make a statement by year-end 2020. • In both events a formal statement (including an advance notice) will lock in the spread adjustment.
RFR Fallback Rates	• Fallback rate = backward-looking term adjusted RFR + spread adjustment • Term adjusted RFR: Calculated as compounding in arreas over the time period that matches the tenor of the relevant IBOR that ceased to exist. • Spread adjustment: Compensation for the difference of credit risk between RFR and IBOR rate, calculated as the 5y median between relevant IBOR and term adjusted RFR.

Market events and timetable for IBOR reform (1/2)

1997 – Introduction of SONIA

2007/2008 – LIBOR manipulation

2009 – Introduction of SARON

2011/2012 – EURIBOR/LIBOR scandal

2013 – IOSCO Principles for Financial Benchmarks

2016 – Adoption of EU Benchmark Regulation; BoE becomes SONIA administrator

2017 – SOFR selected as alternative to USD LIBOR; SARON classified as benchmark compliant, first SARON swaps traded

2018 – January: EU Benchmark Regulation comes into force
April: publication of SOFR (USD) and reformed SONIA (GBP)

First SARON and SONIA futures, first SOFR futures, swaps and FRNs traded

2019 – Trading begins in SOFR-based OIS

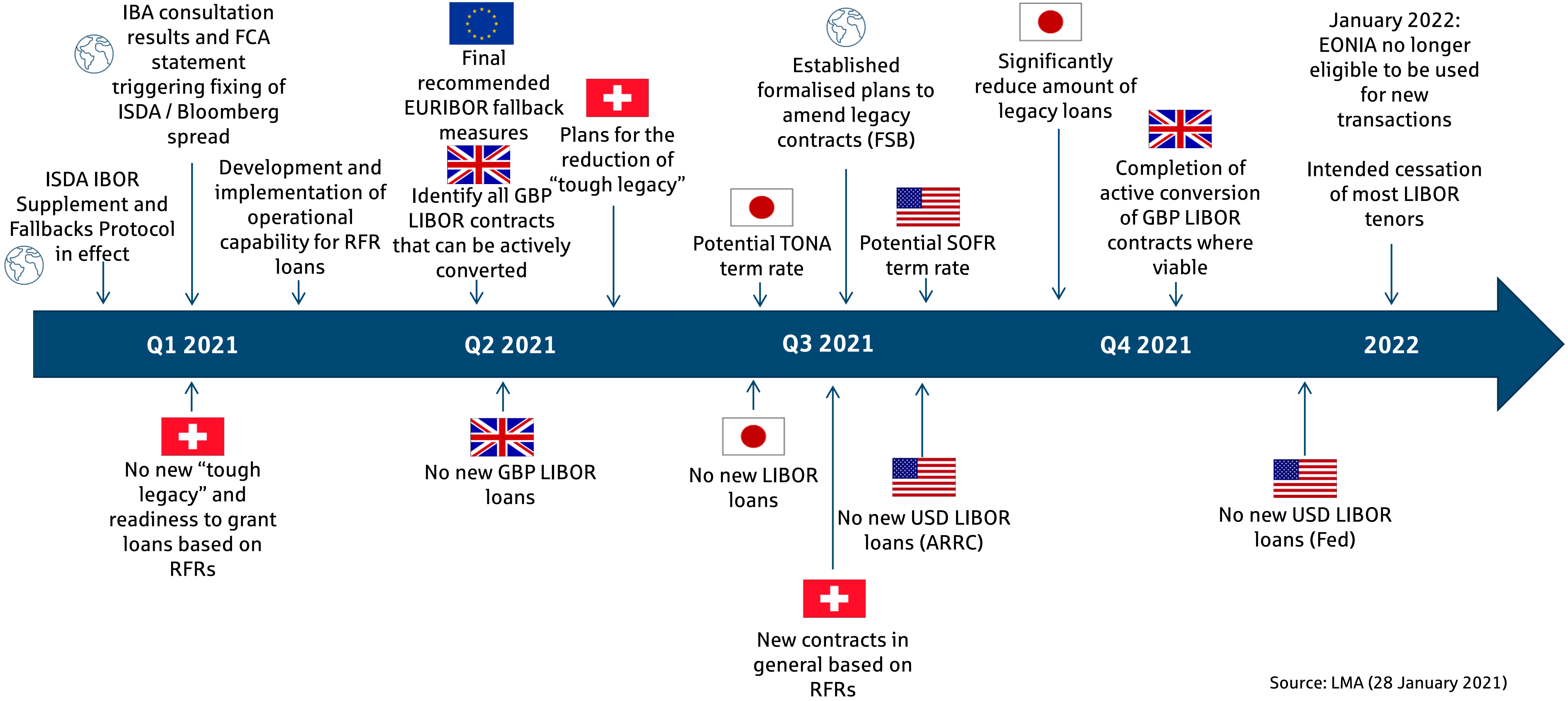
October: publication of €STR

Extension of EU Benchmark Regulation transition period until end of 2021

2020 – No more new transactions using reference rates not compliant with EU Benchmark Regulation

July: CCP changeover (LCH/Eurex EONIA/€STR)
August: publication of preliminary live term rates based on SONIA and SOFR planned
October: CCP changeover (LCH FED/SOFR)
From Q4 2020: new contracts based on GBP LIBOR must include specific transition mechanism

Market events and timetable for IBOR reform (2/2)



Source: LMA (28 January 2021)

Helaba and the IBOR transition

- IBOR reform has implications for financial instruments such as credit products, securities and derivatives. In consultation with our clients, we will transition existing and new transactions to the new benchmarks by the end of 2021 and make any necessary contractual adjustments.

- Our aim is to implement the new benchmarks in a timely and smooth manner for our clients. Helaba is deploying extensive resources for this purpose. A bank-wide project team is dealing with the necessary internal and client-related changes and the associated challenges.

- In addition, Helaba is actively involved in discussions on the transition to the new benchmarks at national and international level through industry associations (VÖB - Verband Öffentlicher Banken - and DSGV - Deutscher Sparkassen- und Giroverband) and the Sparkassen-Finanzgruppe as well as through close coordination with other market participants and its involvement in interbank IBOR working groups.

- By keeping a permanent watchful eye on the market, we are continuously informed about current developments and are in a position to react to and incorporate them into the development of new products.

Frequently asked questions on IBOR reform (1/8)

1. **What is the background to the EU benchmark reform?**

   In the past, the system of Interbank Offered Rates (IBORs) revealed two major weaknesses:

   I. Manipulation of benchmarks by means of collusion between panel banks

   II. A sharp fall in liquidity on the unsecured interbank market since the financial crisis

   In 2013, the G20 instructed the Financial Stability Board (FSB) to review the current benchmarks. The FSB then set up the Official Sector Steering Group (OSSG) and published the basic parameters for a reform of benchmarks in 2014. In addition, the International Organization of Securities Commissions (IOSCO) published the "Principles for Financial Benchmarks" in 2013, which define the criteria that the relevant benchmarks must fulfil.

2. **What dates will the transition take place on?**

   The intention of the EU Benchmark Regulation is to ensure that critical benchmarks which do not meet the requirements of the Benchmark Regulation by 3 January 2022 are no longer used in new or existing contracts (exceptions are only possible with official approval). This also applies to benchmarks operated by third-country administrators. In the meantime, EONIA has been replaced by €STR and EURIBOR has been reformed. Work on the LIBOR transition is still ongoing.

3. **What products are affected by the transition / replacement of the existing benchmarks?**

   All products referencing a floating rate interest rate and having terms beyond the transition date (3 January 2022) are affected.

Frequently asked questions on IBOR reform (2/8)

4. **How will the transition be implemented?**

The replacement benchmark for EONIA is the euro short-term rate (abbreviated to €STR). In order to ensure that EONIA complies with the EU Benchmark Regulation, EONIA has been calculated since October 2019 by tracking €STR plus a fixed spread of 8.5 basis points. At the end of 2021, EONIA will no longer be simultaneously published as a dependent €STR variable.

EURIBOR will continue to be used by applying a reformed ("hybrid") calculation methodology. The "Working Group on Euro Risk-free Rates" is currently developing a concrete fallback for EURIBOR. This fallback is expected to be a €STR-based term rate, but its design (procedure, forward- or backward-looking approach) is still under discussion. The requirement for a fallback solution arises from the EU Benchmark Regulation.

Fallback solutions for contracts referencing LIBOR are still under development.

5. **What RFRs will replace the existing benchmarks / what fallbacks will be available?**

In the euro area, EONIA will be replaced by €STR (euro short-term rate, published since October 2019). A reformed version of EURIBOR will continue to be used. In the United States, the UK and Switzerland, SOFR, SONIA and SARON, respectively, are already being used as overnight rates. The question as to how the current term rates based on LIBOR will be replaced or what fallbacks will be available is currently the subject of consultations in the working groups in the individual currency areas.

Frequently asked questions on IBOR reform (3/8)

6. **What are the differences between the new benchmarks?**
The new benchmarks will differ in terms of their levels from the existing rates. The economic significance of the new rates is intended to be similar to the previous benchmarks. The focus in this respect is on ensuring the smoothest possible transition without any loss in value. In order to compensate for the difference between the previous rate and the new RFR, the transition will result in a term-based spread adjustment, which will be added to the recalculated interest rate until the end of the respective interest period.

7. **What is the difference between secured and unsecured?**
Unsecured transactions are not collateralised by specific assets. For this reason, they are inherently associated with higher risks. Secured risk-free interest rates are based on financial transactions that are themselves collateralised by securities.

8. **Why are some RFRs secured and others unsecured?**
The decision on whether to use secured or unsecured overnight RFRs has been taken by the relevant RFR administrator and depends on the liquidity and structural features of the respective underlying money market.

Frequently asked questions on IBOR reform (4/8)

9. **Are forward-looking term rates being developed?**

   Previously, benchmarks were forward-looking with an integrated credit spread and were fixed at the beginning of the interest period. It was therefore possible to determine the payments in advance. The new alternative risk-free rates, on the other hand, are based on the retrospective aggregation of overnight rates over the duration of the interest period. This means that the amount of the interest payment can only be determined at the end of the interest period.

   According to statements by the Financial Stability Board, the use of forward-looking benchmarks should be limited exclusively to products for which this is necessary. In the scope of the Sterling Working Group's consultation on forward-looking benchmarks, it was pointed out that markets for corporate lending, securitisations, floating rate notes and retail loans/mortgages are likely to have a need for such rates. A final decision on the development of forward-looking term rates is still pending.

10. **How will Brexit affect the transition / replacement of benchmarks?**

    The EU Benchmark Regulation's third-country rules will apply to LIBOR benchmarks in the case of a "no-deal" Brexit scenario. These rules require that IBA (ICE Benchmark Administration), as the UK administrator of LIBOR benchmarks, be recognised by a supervisory authority of an EU member state. As long as this is not the case, products referencing LIBOR would no longer be permitted to be used in the EU from 3 January 2022.

    Background:

    As an administrator, IBA is regulated by the national supervisory authority (in this case the FCA), and corresponding approvals and authorisations are thereby valid throughout the EU. A no-deal Brexit would mean that an FCA licence would no longer be valid throughout the EU, unless agreed differently between the EU and the UK.

Frequently asked questions on IBOR reform (5/8)

11. **To what extent are existing contracts or securities at Helaba affected by the transition to RFRs?**

As things stand, the use of EONIA, EURIBOR and LIBOR in contracts will no longer be compatible with requirements of the EU Benchmark Regulation from 3 January 2022. Existing contracts based on EONIA must be referenced to an alternative reference rate - most likely the recommended euro short term rate (€STR) of the European Central Bank - from 3 January 2022 at the latest.

In the case of EURIBOR, a hybrid approach is in place so that the benchmark can continue to be used in the future. This methodology was approved by the competent authority on 2 July 2019. It is therefore expected to have comparatively little impact on EURIBOR-referenced products on the market.

Currently, developments in respect of LIBOR remain to be seen. Work is underway on fallback solutions.

12. **How is Helaba preparing for the transition / replacement of the benchmarks?**

Helaba is deploying extensive resources to transitioning to the new benchmarks. A bank-wide project team is dealing with the necessary internal and client-related changes and the associated challenges. In consultation with our clients, we will transition existing and new transactions to the new benchmarks by the end of 2021 and make any necessary contractual adjustments. In addition, Helaba is actively involved in discussions on the transition to the new benchmarks at national and international level through industry associations (VÖB - Verband Öffentlicher Banken - and DSGV - Deutscher Sparkassen- und Giroverband) and the Sparkassen-Finanzgruppe as well as through close coordination with other market participants and its involvement in interbank IBOR working groups. We will be incorporating any further changes on the market into the development of new products so that we can continue to meet your needs in the future, too.

Frequently asked questions on IBOR reform (6/8)

13. What does that the LIBOR transition mean for your existing finance agreements?

Although Helaba is currently preparing internally for the amendment of its existing LIBOR portfolio (which implicates among other things, complex operational, systems, market and legal considerations), we have decided not to propose our customers to amend existing documentations yet. Rather, we are currently planning to do so at the end of Q1/ beginning of Q2/2021. This will allow us to gain experience with the use of Overnight Rates in new transactions and to ensure that our amendment proposal will reflect the then-prevailing market standards.

In this context, we will take into account any hedging arrangements you may have entered into with Helaba to ensure that such hedging arrangements continue to match the interest rate risks under your financings arrangements with Helaba. We will do our best to ensure that the amendment process will be handled in an efficient and cost-saving manner. Currently, we do not envisage that financings with a maturity before end of 2021 need to be amended.

14. What action do our clients needs to take?

Even though the implications of IBOR reform are still unclear in some respects, we are working on the assumption that the majority of our clients are already actively considering whether and to what extent they will be affected by the transition to new benchmarks. This includes, among other things, assessing existing contracts and financial products and determining what changes and risks may arise from the discontinuation or modification of specific benchmarks. Clients should also consider whether they have recourse to professional advice from a financial, legal, tax and accounting perspective.

Ideally, suitable provisions that enable a transition to new risk-free rates (like for example a rate-switch mechanism) should already be included in new contracts with terms beyond 2021 as soon as market conventions are established for the various methodologies. Legacy contracts with terms beyond 2021 should also be amended to include appropriate fall-back clauses.

Frequently asked questions on IBOR reform (7/8)

15. **Who can I contact if I have any questions?**
 If you are affected by the transition to RFRs as a Helaba client, we will contact you in due course with specific information and inform you of any action you need to take. If you have any other questions, please do not hesitate to contact your relationship manager.

16. **What is a rate-switch mechanism?**
 A rate-switch mechanism allows to migrate the financing to new risk free rates at a later point in time without the requirement to amend the facility agreement.

17. **Why are there no statutory provisions (e.g. a transition law) regarding the legal succession of existing benchmarks?**
 Until now, lawmakers have decided that regulation by the market is preferable to legislation. In view of the fact that substantial details of the transition remain unresolved, while banks and companies have to adjust legacy contracts before the end of 2021 - as most of them do not contain any alternative provisions for the permanent discontinuation of a benchmark - the EU Commission put forward a proposal at the end of July 2020 aimed at finding a solution that would be broadly suitable for the majority of contracts. Amending the EU Benchmark Regulation would allow the EU Commission to establish alternative interest rates to compensate for the absence of LIBOR in various currency areas. These statutory fall-back rates would create significantly more legal certainty and considerably reduce the workload for all market participants. Many legacy contracts would not have to be revised at all, as it would automatically be clear which new benchmark has to be used. A best case scenario would involve a final text being published in the Official Journal as early as the end of 2020. The extent to which this regulation could also apply to contracts outside the EU is not yet clear.

Frequently asked questions on IBOR reform (8/8)

18. What is the IBOR Fallbacks Supplement and IBOR Fallbacks Protocol?

The IBOR Fallbacks Supplement is designed to assist market participants in the closing of new derivatives contracts by amending ISDA's 2006 standard definitions for interest rate derivatives to include robust fallbacks for derivatives linked to certain IBORs. From 25 January 2021 onwards all new cleared and non-cleared derivatives that reference the definitions will incorporate the fallbacks. Using the IBOR Fallbacks Protocol allows market participants to accommodate the revisions into their legacy non-cleared derivatives trades with other counterparties that choose to adhere to the protocol.

19. Who can join the IBOR Fallbacks Protocol?

The protocol is open to any entity. Membership to ISDA is not required.

20. Why should one join the IBOR Fallbacks Protocol?

Using the IBOR Fallbacks Protocol allows market participants to accommodate revisions into their legacy non-cleared derivatives trades with other counterparties that choose to adhere to the protocol. Whilst adherence to the IBOR Fallbacks Protocol is voluntary, the protocol is playing an important role in an orderly transition away from LIBOR.

Helaba joined the IBOR Fallbacks Protocol ahead of it becoming effective on 25 January 2021.

21. Can I also agree to a bilateral IBOR Fallbacks Protocol solution?

Bilateral templates of the IBOR Fallbacks Protocol are available allowing parties to adopt the Protocol bilaterally and amend terms individually, i.e. exclude certain transactions from the scope of the Protocol to ensure e.g. matching of triggers/fallbacks in contract and hedge.

Useful sources of information for current developments

For general details on the transition from IBORs, please refer to information published by supervisory authorities, working groups and other industry organisations. A selection of the most important websites can be found here:

	€STR: European Central Bank EURIBOR: Emmi Working Group on Euro Risk-Free Rates
	Bank of England Financial Conduct Authority
	Federal Reserve Bank of New York The Alternative Reference Rates Committee (ARRC)
	SIX Swiss Exchange National Working Group on Swiss Franc Reference Rates (SNB)
	Bank of Japan Cross-Industry Committee on Japanese Yen Interest Rates Benchmarks
	ISDA Loan Market Association (LMA) LSTA

Glossary (1/4)

ACCDR	Annualised Cumulative Compounded Daily Rate
AONIA	AUD Overnight Index Average
ARR	Alternative Reference Rate
ARRC	Alternative Reference Rate Committee
ASIC	Australian Securities and Investment Commission
ASX	Australian Stock Exchange
AUD	Australian Dollar
BBSW	Bank Bill Swap Rate
BMR	Benchmark Regulation (EU 2016/1011) on indices used as benchmarks for financial instruments or contracts or to measure the performance of an investment fund
BoE	Bank of England
CAS	Credit Adjustment Spread
CCP	Central Counterparty
CCR	Cumulative Compounding Rate
CDOR	Canadian Dollar Offered Rate
CIBOR	Copenhagen Interbank Offered Rate
DESTR	Danish Short-Term Rate

Glossary (2/4)

DFBF	Danish Financial Benchmark Facility ApS
DRV	Deutscher Rahmenvertrag für Finanztermingeschäfte (German Master Agreement for Financial Derivatives Transactions)
EMMI	European Money Market Institute (EURIBOR and EONIA administrator)
EONIA	Euro Overnight Index Average, benchmark on the interbank market for unsecured lending
EUREX	European Exchange (futures exchange for financial derivatives)
ESMA	European Financial Services and Markets Authority
€STR	Euro short-term rate, benchmark for the euro, calculated by the ECB using their **m**oney-**m**arket **s**tatistical **r**eporting (MMSR)
EURIBOR	Euro Interbank Offered Rate, benchmark for term deposits
ECB	European Central Bank
FCA	Financial Conduct Authority, financial regulatory body in the United Kingdom
FED	Federal Reserve Bank of New York
FSB	Financial Stability Board
FSMA	Financial Services and Markets Authority (Belgian financial regulatory agency)
HIBOR	Hong Kong Interbank Offered Rate
HKG	Hong Kong Dollar

Glossary (3/4)

- HONIA — Hong Kong Overnight Index Average
- IBA — ICE (Intercontinental Exchange) Benchmark Administration, authorised and regulated administrator of LIBOR
- IBOR — Interbank Offered Rate
- IHS — IHS Markit – Data and information services provider based in London, UK
- IOSCO — International Organisation of Securities Commissions
- ISDA — International Swaps and Derivatives Association
- LCH — London Clearing House (UK Central Counterparty)
- LIBOR — London Interbank Offered Rate, benchmark for various currencies
- MKD — Metody Kaskady Danych - Waterfall Method (WIBOR)
- MMSR — Money market statistical reporting, transaction-level data on the euro money market
- NCCR — Non-Cumulative Compounded Rate
- NCCDR — Non-Cumulative Compounded Daily Rate
- NIBOR — Norwegian Interbank Offered Rate
- NOWA — Norwegian Overnight Weighted Average
- OIS — Overnight Index Swap, interest rate swap for the exchange of variable and fixed interest rates
- OSSG — Official Sector Steering Group
- Quick Corp. — Financial market information vendor headquartered in Tokyo, Japan

Glossary (4/4)

- RBA — Reserve Bank of Australia
- RBSL — Refinitiv Benchmark Services (UK) Limited
- REPO — Repurchase agreement (financial transaction involving an agreement to buy back at the time of purchase)
- RFR — Risk-free rates
- SARON — Swiss Average Rate Overnight, benchmark for CHF
- SIBOR — Singapore Interbank Offered Rate
- SNB/SIX — Swiss National Bank / SIX Swiss Exchange Ltd.
- SOFR — Secured Overnight Financing Rate, benchmark for USD
- SONIA — Sterling Overnight Index Average, benchmark for GBP
- SORA — Singapore Overnight Rate Average
- SPREAD — Margin/difference between two comparable economic variables
- STIBOR — Stockholm Interbank Offered Rate
- TMA — Treasury Markets Association
- TONA — Tokyo Overnight Average Rate
- UCCDR — Unannualised Cumulative Compounded Daily Rate
- WIBOR — Warsaw Interbank Offered Rate

Annex – Calculation of Cumulative Compounding Rate

- The **Cumulative Compounding Rate (CCR) or Annualised Cumulative Compounded Daily Rate (ACCDR)** is calculated by reference to the following formula:

$$\left[\prod_{i=1}^{d_0}\left(1+\frac{DailyRate_{i-LP}\times n_i}{dcc}\right)-1\right]\times\frac{dcc}{d}$$

"**d_0**" means the number of RFR Banking Days during the Interest Period;

"**i**" means a series of whole numbers from one to d_0, each representing the relevant RFR Banking Day in chronological order during the Interest Period;

"**$DailyRate_{i-LP}$**" means for any RFR Banking Day "**i**" during the Interest Period, the Daily Rate for the RFR Banking Day which is the applicable Lookback Period prior to that RFR Banking Day "**i**";

"**n_i**" means, for any RFR Banking Day "**i**", the number of calendar days from, and including, that RFR Banking Day "**i**" up to, but excluding, the following RFR Banking Day;

"**dcc**" means 360 or, in any case where market practice in the Relevant Market is to use a different number for quoting the number of days in a year, that number; and

"**d**" means the number of calendar days during that Interest Period.

- Daily Rate: Lookback period (*i-LP*) and a weighting (*ni*) to apply to the rate
- Formula is cumulative to express a % rate p.a. for a given period.
- The Cumulative Compounded RFR Rate is rounded to the same number of decimal places as specified in the facility agreement.
- The borrower will not pay daily interest, but at the end of the interest period or at the prepayment date. The agent is not required to provide rates on a daily basis.

Annex – Calculation of Credit Adjustment Spread

- The Credit Adjustment Spread takes into account the historic difference between LIBOR rates and risk-free Overnight Rates for specific periods. As the loan market is a private market, it is not possible to be definitive about market practice.

- Methodology for calculation varies between the loan market and the derivatives market:

	Loan market	Derivatives market
Methodology	Two key methodologies: • Five-year historical median approach • Forward approach (based on the forward-looking swap market) Working Group and ISDA consultations did not cover active transition. In respect of GBP, the Working Group recommendation is to follow the ISDA methodology where SONIA replaces GBP LIBOR following a permanent cessation or precessation trigger Aspects to be considered: • Timing of calculation of the spread adjustment (e.g. fixing at closing of the contract or at time of switching to RFR) • Consistency with hedging (where relevant) to avoid mismatches • Economic/market factors: Prior to LIBOR rate permanently ceasing or becoming unrepresentative, a historical median does not necessarily represent the market expectations of the future difference between the LIBOR rate and the RFR. As a result, the median will sometimes be below or above the actual market prices on any given day prior to the LIBOR rate's ceasing. • Use of the Bloomberg screen rate in cash products • Operational considerations	ISDA spread adjustment methodology for derivatives calculated as the historical five-year median between relevant IBOR and term adjusted RFR. Spread adjustment will be calculated and published by Bloomberg. There will be different spread adjustments for different tenor pairs e.g. 3 month LIBOR to 3monthSONIA. Spread adjustment is "static", i.e. it will be calculated once following the occurrence of the fallback trigger. It is not a dynamic spread adjustment capturing differences between LIBOR and SONIA going forward.

Sources: LMA, Working Group on Sterling Risk Free Rates

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