



Changing the world's most important number

IBOR to RFR transition



March 2021

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Foreword

For more than three decades, London Interbank Offered Rate ('LIBOR') has been integrated in financial markets, serving as the benchmark for borrowings, loans and derivative contracts. LIBOR has hence been called the 'world's most important number' as it is hardwired in all financial activities, such as treasury, risk management, accounting including hedge accounting, valuation and commercial contracts. Following the global financial crisis, regulators discovered that the banks entrusted to set the rates underpinning hundreds of trillions of dollars of financial assets had been manipulating them to their advantage, raising questions about the future sustainability of LIBOR. Regulators globally have signaled clearly that institutions should transition away from the Interbank Offered Rate (IBOR) to alternative overnight risk-free rates (RFRs).

In 2014, the Financial Stability Board (FSB) recommended identifying alternative risk-free rate and encouraged market participants to adopt the same. Transition related work is being coordinated by the Official Sector Steering Group (OSSG) at the international level since 2014. In July 2017, the Financial Conduct Authority (FCA), U.K. declared that after 2021 it would no longer compel panel banks to submit the rates which is required to calculate Libor.

In March 2021, FCA announced the timing for the cessation or loss of representativeness of

all 35 LIBOR settings at once, giving firms a clear set of deadlines across all currencies and tenors. FCA issued that all seven tenors for both euro and Swiss franc LIBOR, overnight, one-week, two-month and 12-month sterling LIBOR, spot next, one-week, two-month and 12-month yen LIBOR and one-week and two-month U.S. dollar LIBOR will permanently cease immediately after 31 December 2021. Overnight and 12-month U.S. dollar LIBOR settings publication will cease immediately after 30 June 2023.

In response, the regulators and market participants across the globe have been developing new benchmarks to replace Libor by the end of 2021. With 31 December 2021, in plain sight, and FCA announcement on LIBOR cessation, preparation for the transition from LIBOR and similar interbank offered rates ('IBORs') to alternative benchmark rates is accelerating rapidly. Given the degree of uncertainty and complexity, LIBOR transition is likely to be one of the (if not the) biggest transformation programmes undertaken and witnessed by the entire financial sector.

KPMG in India is actively working along with global teams to address the issues arising from Global benchmark reform and also come up with strategies to ensure smooth transitioning of clients by leveraging understanding on impact of transitions on key functions of an institution.



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1.

Background



In the world of finance, LIBOR is one number that likely matters more than any other, which is also coined as the 'most important number in the world'. LIBOR is used as an interest rate benchmark, across many different currencies and plays a critical role in global markets. It is widely used as a reference rate for financial contracts

and also for assessing funding costs and investment returns for a broad range of financial products. It is deeply embedded across the industry referencing more than USD 400 trillion worth transactions. These benchmark rates are based on good faith estimate and heavily reliant on expert judgement of contributing panel banks.



How is LIBOR computed?

London Interbank Offered Rate is the most widely used interest rate benchmark in the world. LIBOR is calculated and published daily at around 11:45 AM (London time) by IBA (ICE Benchmark Administration).



IBOR Panel Banks

- **A consortium of banks** individually estimates the rate at which they would borrow from other banks,
- The panel banks are asked the rate they would **charge other banks** for a given currency and for a given period.



Submission

- The consortium of Banks submits rates to Inter-Continental Exchange (ICE).
- ICE uses these rates for the overall IBOR index calculation.



Calculation

- ICE discards the highest and lowest submitted rates and calculates the mean of the remaining submitted rates,
- IBOR is calculated for **5 different currencies (USD, EUR, GBP, JPY, CHF)** and **7 different maturities (overnight, 1 week, 1 month, 2 months, 3 months, 6 months, 1 year)** - In total 35 IBORs are published each day.



Application

- IBOR rate is not only an indication of interbank lending, it is also used as a benchmark for over-the-counter derivatives, exchange traded derivatives, corporate bonds, business loans (syndicated and non-syndicated), floating rate notes, consumer loans (such as mortgages, credit cards, autos), and securitizations.

Issues with LIBOR

Owing to the LIBOR computation methodology, there have been questions around integrity and reliability of LIBOR post global financial crisis of 2007/08, leading to loss of confidence among market participants. In the aftermath of crisis, a fewer panel banks have been contributing towards calculation of LIBOR, which resulted in further decline in the number of transactions used for LIBOR computation. It was, thereafter, concluded that the underlying market that LIBOR seeks to measure i.e. the market for unsecured term lending to banks, is no longer active.

In July 2017, the FCA announced that, after 2021, it would no longer compel panel banks to make submissions to enable the calculation of LIBOR, and in July 2018,

recommended that market participants transition to alternative risk-free rates. Risk Free Rate (hereafter referred as 'RFR') is a benchmark rate based on overnight deposit rates. As they are derived from a large volume of real observable transactions, they are considered as 'risk-free'. In response, the regulators and market participants across the globe have been developing new benchmarks to replace Libor by the end of 2021. A coordinated approach involving multiple stakeholders across market bodies, regulators, governmental agencies and financial entities is being taken to enable the smooth transition from LIBOR as the clock ticks towards the transition away from the London Interbank Offered Rate in 2021.

2.

Choosing the right Alternative Reference Rate (ARR)



The very first question which LIBOR transition raises is about the choice of the right alternative rate for LIBOR. Banks need to select a preferred alternative rate as a LIBOR replacement from several alternative risk-free reference rates (RFR) or parallelly pick out a suitable proxy rate which can be used at par with LIBOR. RFR has

a different construct as compared to IBOR. Simply substituting an IBOR with a chosen RFR for a particular currency, is not as straightforward a process as it sounds because of the way in which both of these rates are formulated, administered and set up.



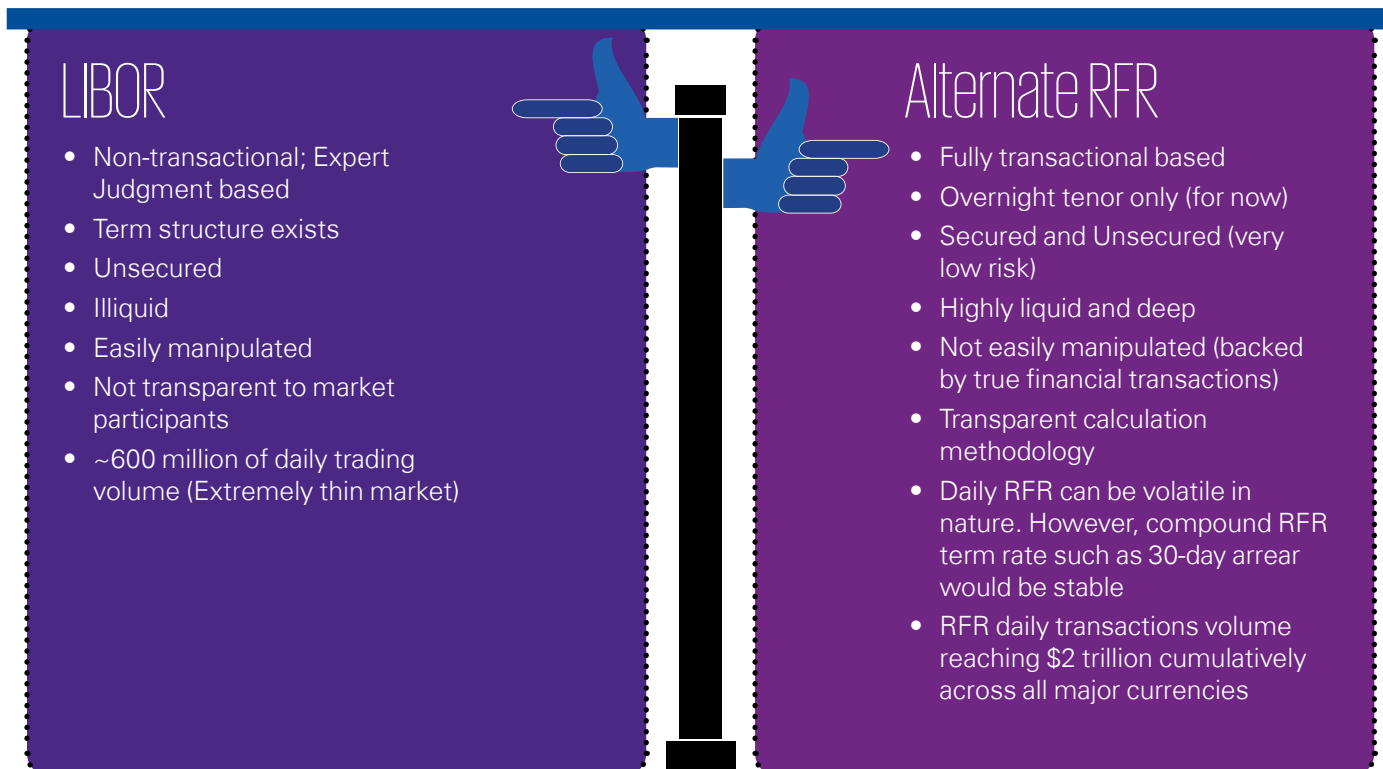
The RFRs are typically overnight and secured so to bring it at par with an unsecured reference rate like LIBOR, an adjustment factor comprising of credit and liquidity risk premium are required to be added over RFR. The RFRs are not based on professional judgment rather on legitimate transactions. This further requires development of sufficient transactional liquidity using both cash and derivative products before these rates

can be adopted as the official reference rate. Moreover, due to lack of agreement on a single global reference rate in place of IBOR, there are different benchmark regulating bodies across different jurisdictions, such as the Alternative Reference Rate Committees (ARRCs) and different working groups working on administration of alternative reference rates (ARRs).

Key points to be noted regarding the new ARR are as follows:

- IBORs are forward-looking term rates which have credit risk embedded. The alternate rates are structurally different from LIBOR and are not economic equivalents of LIBOR in the respective currencies. The ARRs identified so far are overnight rates, which means that the transition of existing term-based contracts will require adjustment spreads to be applied,
- Liquidity is yet developing in the new ARRs, and there is still a way to go,
- There are several initiatives ongoing to provide term structures for the ARRs. Considered methods include compounding the overnight rates over a period.

LIBOR vs ARR – Not a like for like comparison



For all the jurisdictions, decisions have more or less been made regarding the RFR and transactions based on these rates are being performed by market participants. The definition of the rates and their calculation methods may differ between the currencies.

Overview of Alternative Reference Rates (ARRs) in major Global market:

	USA	U.K.	EU	Switzerland	Japan
Alternative RFRs	Secured Overnight Financing Rate (SOFR)	Sterling Overnight Interbank Average Rate (SONIA)	Euro Short Term Rate (ESTR)	Swiss Average Rate Overnight (SARON)	Tokyo Overnight Average Rate (TONAR)
Secured/ Unsecured	Secured	Unsecured	Unsecured	Secured	Unsecured
Tenor	Overnight	Overnight	Overnight	Overnight	Overnight
Counterparties	Banks and non-banks	Banks and non-banks	Banks and non-banks	Banks only	Banks and non-banks

The progress in Alternative Reference Rates (ARRs) in major Global markets so far:

SOFR	SONIA	ESTR	SARON	TONAR
<ul style="list-style-type: none"> • USD 1 trillion daily volume of SOFR linked Treasury repo transactions • Chicago Mercantile Exchange (CME) offers SOFR options to establish a SOFR volatility curve • SOFR-based debt issued exceeds USD 750 billion • Publication of 30-, 90- and 180-day SOFR Averages and SOFR Index. 	<ul style="list-style-type: none"> • SONIA closely tracked the Bankrate during the COVID-19 volatility period • Popular in shorter maturities swap market and equal market share as LIBOR linked swaps • Estimated volume of outstanding SONIA-linked bonds at £62 billion in September 2020 • The first multi-currency revolving credit facility linked to both SONIA and SOFR issued • Introduction of compounded SONIA as the market standard for sterling securitizations. 	<ul style="list-style-type: none"> • Switch to a discounting curve based on a ESTR from EONIA by major Central Counterparties (CCPs) with a view to encourage its adoption in derivative contracts • Continuous efforts to develop a strong market for cash and derivative transaction based on ESTR. 	<ul style="list-style-type: none"> • Launch of SARON based mortgages and corporate loans by several small and large banks • Launch SARON based cash products • Daily publishing of SARON Compound Rates along with development of a free to use web-based calculator, which can be used by retail clients to verify the compounded SARON charged by the lender • Constant work is being undertaken to convert LIBOR based mortgages to SARON based mortgages until the end of 2021. 	<ul style="list-style-type: none"> • The Cross-Industry Committee on Japanese Yen Interest Rate Benchmarks formed to choose an alternative benchmark • As a result of consultations by the committee, Term structures based on JPY OIS emerged as the popular choice • Efforts are on for the development of Term reference rate • New key milestones were deliberated for smooth transition of cash products and to improve its contractual robustness.

With 31 December 2021, in clear sight, preparation for the transition from LIBOR and similar interbank offered rates ('IBORs') to replacement benchmark interest rates is accelerated. A coordinated approach involving multiple stakeholders across market bodies, regulators, governmental agencies and financial entities is being undertaken to enable the smooth transition from LIBOR.

'Adjusted MIFOR' in India

In the Indian context, it has become imperative to review the methodology for computing synthetic interest rate curves such as the MIFOR curve that are linked to LIBOR in light of such transition. The challenges and milestones for India in preparing for the cessation of LIBOR are quite similar to those faced by other jurisdictions. The MIFOR benchmark is a synthetic benchmark, a composite rate with the USD LIBOR and USD INR forward premia as its

components. The MIFOR curve is used as a reference rate for pricing/valuation of MIFOR-linked Interest Rate Swap contracts and is often used by market participants in hedging long term cross currency swap contracts undertaken with their clients.

The table below gives the breakup of LIBOR based exposure across financial contracts:

LIBOR-linked Exposures in India	
Financial Contract ¹	Exposure (USD Billion)
External Commercial Borrowing (ECB)*	74
FCNR (B) Deposit ^{1*}	24
Cross Currency Swap ^{**}	83
FCY Interest Rate Swap ^{**}	260
MIFOR Interest Rate Swap ^{**}	91

* As on 31 March 2020; ECB data is as of 31 March 2020. Data related to FCNR(B) deposits is from the latest available report on External Debt and includes both fixed rate and floating rate deposits (31 March 2020).

** As on 31 August 2020

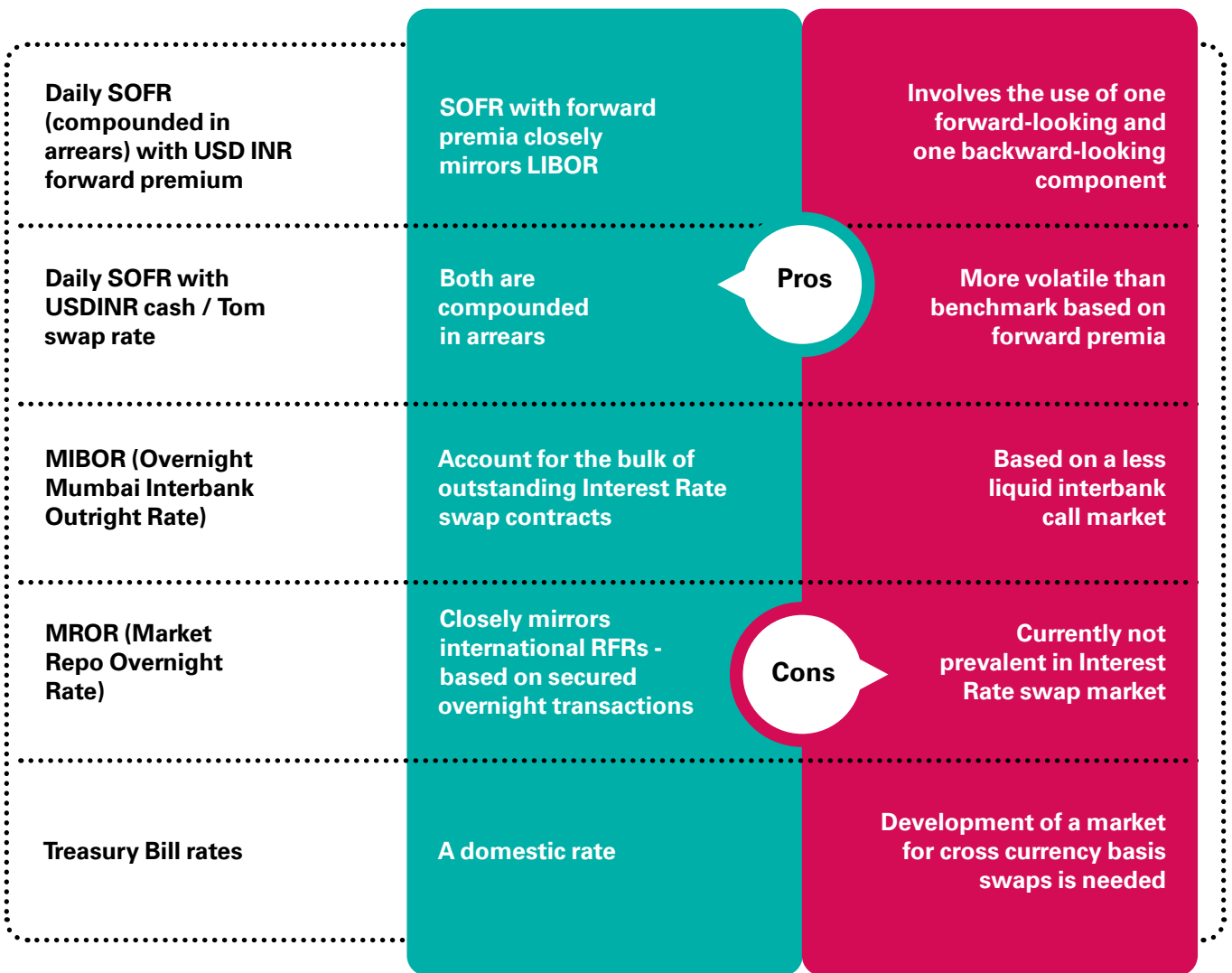


1. RBI Bulletin November 2020 "LIBOR: The Rise and the fall"

In addition to the above exposure, there are Government exposures linked to LIBOR in the form of loans availed from multilateral/bilateral institutions and lines of credit offered to other countries.

In line with the transition, market participants have been deliberating on the appropriate replacement rate to

LIBOR for legacy MIFOR linked contracts as well as new contracts that would be linked to MIFOR. The different options which were being evaluated as a replacement to MIFOR are as follows:



Each of the alternate benchmarks has their own advantages and issues as listed above. A common consensus for computation of '**Adjusted MIFOR**'² has been seen for both for new legacy as well as new

MIFOR-linked contracts. However, deliberations between market participants is still on to reach out to a formal conclusion.

2. Working paper Serial No. ER/012 by Economic Research Department-The Clearing Corporation of India Ltd

'Adjusted MIFOR' for legacy contracts

Based on initial deliberations, market participants have developed a common consensus for use of an 'Adjusted MIFOR' which is computed based on the fallback rate for USD Libor, i.e. the Adjusted SOFR (SOFR compounded in Arrears) plus a spread adjustment for legacy contracts. The spread adjustment is computed as a historical median spread with a 5-year look-back period between LIBOR and adjusted SOFR. Hence, the adjusted MIFOR for legacy contracts is proposed to be computed basis adjusted SOFR and USD INR forward premia as its components.



'Adjusted MIFOR' for new MIFOR-linked contracts

For new MIFOR-linked contracts, a modified MIFOR rate is being proposed different from the one proposed for legacy contracts. Market participants are looking at suitable interest rates such as the compounded SOFR as well as domestic interest rates. A broad consensus is towards the use of SOFR as an alternative to LIBOR in case of new MIFOR-linked contracts. The Modified MIFOR curve will be computed using the SOFR Index published by Federal Reserve without any spread adjustment value to the SOFR. The compounded SOFR average Rate implied from the SOFR index is a 'compounded in advance rate'.



The Reserve Bank of India had issued a 'Dear CEO' letter in August 2020 to all the scheduled commercial banks, on the lines of global regulators sensitizing the banks

about the need to be prepared for the LIBOR cessation. It has tasked Indian Banks' Association (IBA) to consult on related issues.

Workstreams formed by IBA



LIBOR Transition Arrangements

To help assess preparedness among member banks



Rates and methodology

To develop an acceptable alternative for MIFOR



Outreach to market participants

To help create awareness among various stakeholders via webinars and conference

3.

Bridging the gap between LIBOR and ARR



The transition to new reference rates would have been much smoother and administrative in nature if the new rates were different from LIBOR only in computation methodology. However, it is not the case as the new RFRs are not just different in methodology rather also economically. Due to the said differences, the new rates are likely to differ materially from LIBOR, especially during periods of financial stress. Term Libor and term ARR Spreads could

vary for several reasons. Substantial pay-outs by one of the counterparties to a contract is required due to renegotiation and conversion at wide spreads. As represented in the graphs below, March 2020 is a classic example of how things could be different in case of LIBOR and ARR under stress scenario. We witnessed widening of spreads due the financial crisis owing to COVID-19.



Chart 1: Spreads between 3-month USD LIBOR and 3-month SOFR³

3 month USD LIBOR vis-a-vis 3 month SOFR

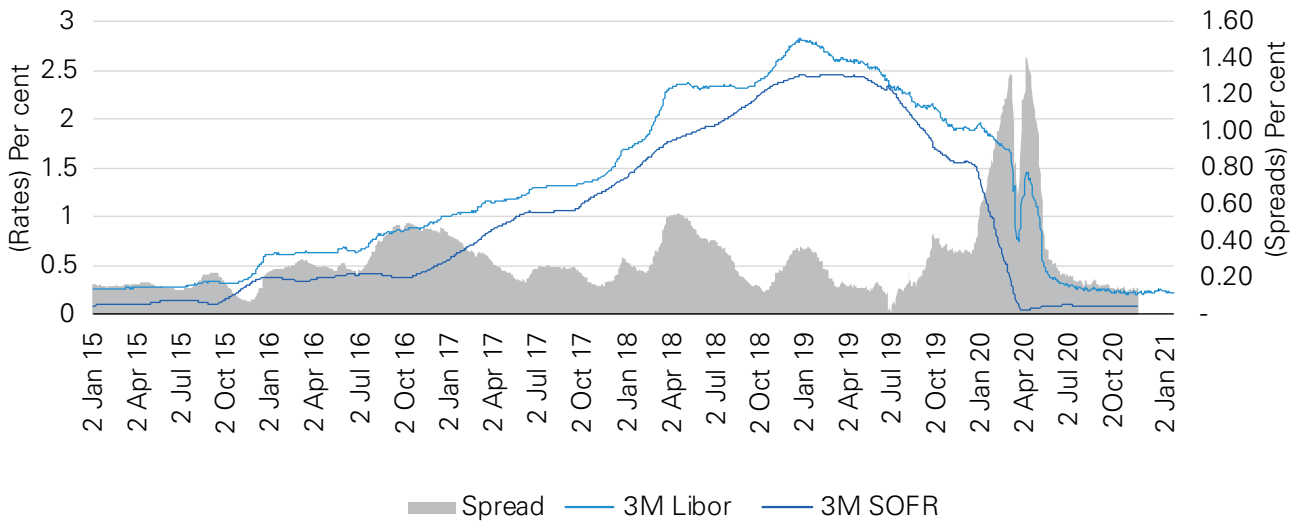
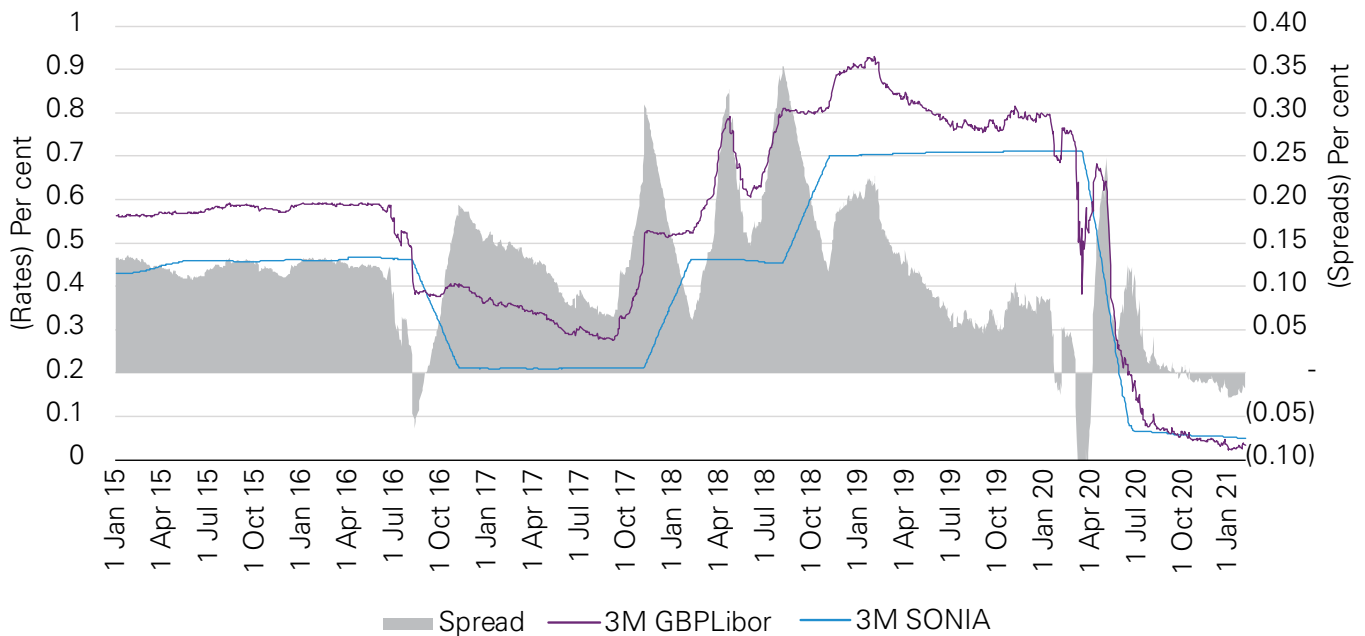


Chart 2: Spread between 3-month GBP LIBOR and 3-month SONIA³

3 Month GBP LIBOR vis-a-vis 3 Month SONIA



3. Data source Bloomberg

Different methods on **Tenor basis adjustment** and **risk premium adjustment** were being evaluated through consultation paper by ISDA for calculation of spread adjustments over and above the ARRs for bridging the gap between the existing LIBOR and ARR. Various methods like spot overnight rate approach, convexity adjusted overnight approach, compound setting in arrear rate approach and advance rate approach were being deliberated for tenor adjustments between market participants. Also, as RFRs are risk-free rate whereas IBORs are the unsecured rate inclusive of credit and liquidity risk premium, spread adjustment is required to bring RFR at par with IBOR. Various spread adjustment methods like forward approach, historical mean / median approach and spot spread approach were being deliberated for the same.

On the basis of the various responses to the consultation issued by ISDA, the below detailed decision was taken:

1. ISDA will implement a two business-day back-shift or 'lag' for payments to be calculated in arrears

- For the compounded setting in arrears rate, a clear majority favored a two-banking-day backward shift adjustment for operational and payment purposes over its major competitor, a 'freeze' period under which the RFR would be deemed to have been the same for the final few days of each Calculation Period. The two business-day lag is consistent with currently applicable conventions in the overnight index swap ('OIS') market and provides market participants breathing space between when a daily compounded amount can be calculated and when payment is due.

2. ISDA to derive the 'static' credit spread adjustment for each 'tenor' from the median LIBOR-RFR spread over a five-year look-back period

- The five-year look-back period for the credit-spread adjustments

will be observed upon the occurrence of a transition 'trigger' (i.e., the date LIBOR's administrator or regulator announces that LIBOR will no longer be published on a permanent or indefinite basis), with the resulting spread adjustments to be effective upon the date of actual cessation. The five-year look-back will by definition exclude the global financial crisis, but the median will measure all data-points including 'outliers' and 'inversions.' Majority of the respondents supported this outcome. This approach looks into the past, i.e. historical differences between LIBOR and a compounded RFR rate over a given period of time. The historical median approach derives a single value for the credit adjustment spread. The credit adjustment spread would be 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).

3. ISDA to make the relevant amendments to the 2006 ISDA Definitions to incorporate fallbacks with these adjustments for new IBOR trades.

4. ISDA has selected Bloomberg to publish the adjustments and 'all in' fallback rates.

Banks will have to make an informed decision on proposed risk-free rates based on the features and volume buildup and also by weighing the risk and corresponding return. Institutions will have to ensure such risks are well taken care of before the transition.





4.

Impact on key functions of the institution



4.1. Treasury

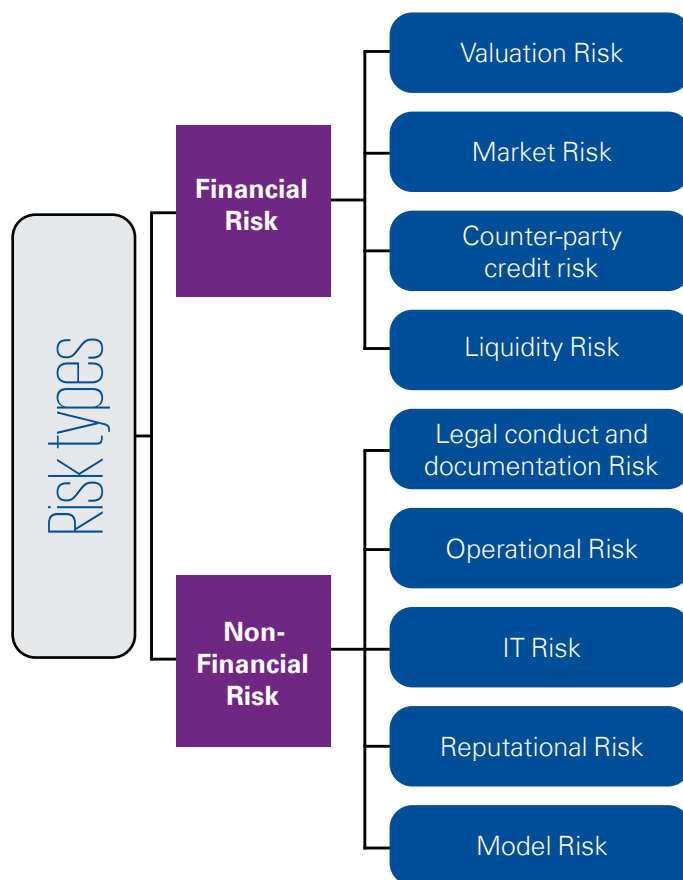
Libor transition affects all the processes and instruments that reference LIBOR, hence the market impact will be substantial. Institutions have a wide variety of financial contracts that are benchmarked to IBOR. These range from bonds, loans, cash pooling agreements, (multi-currency) credit facility agreements, derivatives, intercompany loan agreement and contracts having IBOR as reference to 'late payment clauses'. Various processes and financial aspects related to these contracts across the Treasury functions (such as Corporate Finance, Risk Management and Cash Management & Working Capital) shall be impacted with the transition, such as:

- Treasurers need to think about what's the best time to start using the new ARR indices, offering new ARR products to clients, start the transition of the banks positioned away from Libor, and how to deal with new Libor business prior to the end of 2021,
- Internal and external Treasury management systems will need to be updated to accommodate such a fundamental change,
- Changes to fallback provisions across a range of documentation,
- Material changes to ISDA Master Agreements or even new contracts that require additional collateral,
- Interest rate determination process for lending products need to be amended,
- Treasurers may need to hold additional cash balances to cover any interest rate movements during an interest period, thus impacting their current cash management processes,
- Impact on Balance Sheet positions and existing fair value and cash flow hedges and their documentation,
- Impact on issuing and trading instruments.



4.2. Risk management

The below chart depicts the major risk types that will get affected by the introduction of risk-free rates as a result of the benchmark reform. Valuation and market risks are expected to be the most affected due to the inherent complications of the derivative products. These risk types are the areas of focus for financial institutions and their assessment, and the severity of individual impacts strongly depends on the individual business and technical circumstances.



Implications for financial risks

1. Valuation Risk

The valuation of various financial instruments currently depends on LIBOR. It is used as a reference index in various financial products and as the collateral rate in both centrally cleared and bilaterally collateralised and uncollateralized derivatives. As LIBOR and the ARR differ economically, transitioning will affect the valuation of financial products and may trigger the need for compensation payments if the spread between the two is high. Each market participant should decide on the compensation approach that is most appropriate in its particular circumstances. Additionally, market participants should also consider the risk of price and valuation changes throughout this transition and related effects on financial accounting. In order to ensure a smooth transition, market participants need to ensure that the ARRs are implemented as the new reference rate in their risk management systems so that new business references the ARR instead of existing lbor rate. The following points list down the key functional areas with respect to valuation.

• Valuation process

- Building new set of curves using RFR across currencies including Interest rate curve bootstrapping,
- Revisiting the valuation construct and theory,
- Setting up capacity to value ARR referencing trades (including XVAs),
- Adapting multi-curve framework and valuation models (e.g. term structure models),
- Development of pricing engines and valuation libraries in the treasury valuation system,
- Effect of Market data systems and processes due to new curves and products that need to be set up,
- Taking cognizance of market price uncertainty and provision for close-out cost additional valuation adjustment due to transition.



- **Market data management**

- Setting up new ARR data feeds,
- Implementation of changes to LIBOR data feeds and fixings,
- Consideration of process and methodology changes due to publication dates of RFR,
- Market data set-up: New interest rate curves need to be introduced as part of the market data framework including connectivity with external data providers, trading systems, risk systems, financial reporting systems, including data quality processes and the calculation of new projection and yield curves.

- **Independent price verification (IPV)**

- Setting up capacity to check ARR referencing trades,
- Need to check compensation for value changes in the LIBOR to RFR transition,
- Need for focused revalidations of valuations outside regular cycles.

2. Market Risk

The introduction of new products referencing the RFR in parallel with products referencing LIBOR, as well as the transition of products will lead to new basis risks and potential effects on market volatility and liquidity. Not just valuation, transition will affect all the processes, models and systems related to market risk, including regulatory capital charges. The major practical implications for market risk management resulting from the transition are detailed below:

- **Introduction and integration of the RFR index and curve as risk factors for computation of below detailed market risk-based risk metrics:**

- Value at Risk
- PV01 and Greeks
- Stress Testing
- Stressed VaR
- P&L calculation and back-testing
- Limit Monitoring.

- **Review of current stress period for calculating stressed VaR,**

- **Adoption of pricing models to calculate corresponding RFR exposures,**

- **Assessment of the materiality of LIBOR-RFR basis curve and how the same will be factored in different computations,**

- **Developing a plan to cater to potential remaining LIBOR exposure after 2021,**

- **Internal capital adequacy assessment process (ICAAP)/ Supervisory Review and Evaluation Process (SREP):**

- ICAAP being a forward-looking internal framework for an institution consists of two pillars i.e. the normative perspective and the economic perspective. The normative perspective is a multi-year assessment of the institution's ability to fulfil all of its capital-related quantitative regulatory and supervisory requirements and demands under different scenarios. The economic perspective is a point-in-time comparison of measured risks, determined in the form of VaR and stress testing, measured over a time horizon, and its internal economic capital,
- In both the normative and the economic perspectives, all material risks must be considered, and market risk resulting from changes in the benchmark curve is expected to be material for almost all institutions. New RFR-based products and a new RFR yield curve will be required to be integrated into the capital planning processes, scenario usage and measurement of risk.

- **Standardised approaches for market risk Capital computation:**

- Capital computation requires the calculation of the present values and sensitivities as input. All the positions referencing RFR will be required to be integrated into the standardised approach framework. Additionally, impact of existing trades referencing the LIBOR on capital calculation needs to be identified.

- **Internal model approaches under the Fundamental Review of the Trading Book (FRTB):**

- The main issues for internal models under the FRTB regarding the transition are:
 - The FRTB regulation requires risk factors to be classified as modellable to pass the risk factor eligibility test. A bank must determine which risk factors within its trading desks are eligible to be included in the internal expected shortfall model for regulatory capital requirements. For a risk factor to be classified as modellable, a necessary condition is that it passes the risk factor eligibility test, which

requires the identification of a sufficient number of observable real prices that are representative for the risk factor,

- The FRTB also requires the expected shortfall to be calibrated to a period of stress. The calibration is based on a reduced set of modellable risk factors for which there is a sufficiently long period of observations (dating back to at least 2007), and which has to cover more than 75% of the expected shortfall,
- If the RFR is a non-modellable risk factor, it cannot be used in the reduced set of risk factors. If the RFR is a modellable risk factor and is needed to explain at least 75% of variation, it also has to provide observations dating back to 2007. This requires a reconstruction of RFR observations back to 2007 using the proxy.

• **Internal model approaches for market risk:**

- For internal model-based market risk management framework, based on a calculation of VaR or expected shortfall, action is expected to be needed in the following areas:
 - Market data and pricing need to be adapted in the market risk systems,
 - For VaR models or expected shortfall market risk models, risk factor time series for all the new curves need to be set up,
 - For stochastic simulations, like Monte Carlo based VaR calculations, the stochastic distributions of the new risk factors need to be defined,
 - Market data time series need to be made available for the new risk factors. These can then be used to calculate the statistical properties of the risk factors in a parametric or Monte Carlo type calculation, or for determining scenarios for historical simulations,
 - In cases where the spread is currently calculated relative to LIBOR, it might be natural to calculate it relative to the RFR in future. If it is done without additional measures, jumps in the spreads might occur, possibly changing how market risks are allocated to market risk types, like interest rate risk, interest rate basis risk, and credit spread risk.

• **Implications for interest rate risk in the banking book (IRRBB):**

- Scenario generation: Computation of economic value of equity (EVE), stress tests (eight IRRBB scenarios, including the two outlier test scenarios),
- The RFR curves and RFR based products must also be integrated into the earnings at risk calculation framework (net interest income, NII).

• **Historical data: The calibration of different risk measurements like VaR, stress testing, stressed VaR, Internal model approach requires time series of historical market data, including historical stress periods. Such historical data time series need to be considered as part of market data warehouses and market data management processes.**



3. Counterparty Credit Risk

- Counterparty credit risk exposures shall be affected due to change in derivative valuations, mainly for uncollateralized derivatives. Impact is mitigated automatically in case of collateralized derivatives,
- Capital computation, models, processes and systems related to counterparty credit risk shall be affected as mechanics underlying exposure computation changes.

4. Liquidity risk

- Discounting curves and exposure will undergo a change and may trigger collateral margin calls and compensation payments,
- Cessation of LIBOR from January 2022 will result in less liquidity for IBOR instruments, at the same time RFR being new rates might not have sufficient liquidity as well. So Financial institutions will have to analyse the related impact on cashflows and potential liquidity on the respective switch dates,
- Potential effects on short-term liquidity risk/ratios due to change in derivative exposures,
- Potential effects on settlement risks from changes in the publication schedule and its impact on fixing and payment processes,
- Impact on FTP mechanism.

Implications for non-financial risks

Apart from financial risks, several non-financial risks and operational risks are affected by the transition from LIBOR to ARR as outlined as follows:

1. Legal, conduct and documentation risk

- Before the new products are introduced and traded and legal changes are made, clients and end users need to understand the IBOR reforms,
- Clients should have necessarily implemented a transition programme and understand the associated risks before the execution of transactions using new indices,
- Due to required amendments to financial instrument contracts, current accounts and collateral agreements, legal and documentation risks may arise in the context of transition,
- Furthermore, uncertainty about the interpretation of legacy contracts referencing LIBOR, with respect to negotiated transition and fallbacks to ARR, institutions may be exposed to increased risk.



2. Operational risk

- Financial institutions should consider as part of their analysis and mitigation plans the increased risk due to the change and transformation activities related to the introduction of the ARR and the transition from LIBOR (e.g. booking failures, manual workarounds etc.).

3. IT risk

- During the entire transition phase, there is an increased IT risk for the institutions due to change and transformation activities in both vendor systems and in-house systems (e.g. breakdowns due to hard-coded references or missing fixings after amending the LIBOR fixing from the same day to the following day with the introduction of the ARR).

4. Model risk

- Due to the possible need to revisit, amend, revise several models and conduct corresponding model validations and model risk assessments, model risk is likely to increase during and post transition phase.

5. Reputational risk

- Financial institutions may also be exposed to increased reputational risk as a result of increased public attention in an environment of increased conduct, legal, IT and process disruption/operational risk.

4.3. Financial accounting and Hedge accounting

The transition from LIBOR would entail changes in the fair valuation, interest payments and servicing of the borrowing. Some costs (legal) and tax effects may have to be accounted for upfront. The move from IBOR to other reference rates would have a cascading effect on accounting and hedge accounting in particular. Significant effects would be seen in US GAAP & IFRS treatment for hedge accounting. Changes in hedge accounting would create uncertainty across other accounting entries and would possibly result in fluctuations across P&L. Looking from an India perspective, the Indian Accounting Standards (Ind AS) are converged with IFRS, hence Ind AS would

also be impacted by the transition. For most of the NBFCs and corporates in India, application of Ind AS is mandatory, however, Indian banks are still required to follow the Indian GAAP, which does not mandate hedge accounting. The impact of LIBOR transition on hedge accounting would not reflect the economic transaction of the event, thus leading to complications for different FIs and corporations. In this view, the International Accounting Standards Board (IASB) has been engaged in a two-phase project of amending its guidance to enable a smoother transition to the adoption of alternative risk-free rates:

Phase 1 (Pre-IBOR reform)

Phase 1 amendments provided temporary exceptions to specific hedge accounting requirements because of uncertainties arising in the run-up to the transition. These amendments were issued in September 2019 and are effective from 1 January 2020.⁴

Phase 2 (Post-IBOR reform)

Phase 2 amendments deal with financial reporting issues once uncertainty goes away, and companies update the alternate benchmark rates in their contracts. The amendments were issued on 27 August 2020, which are effective from 1 January 2021.⁵



In August 2020 IASB issued amendments to IFRS Standards, concluding its work in response to the reform. The Phase 2 amendments address issues that might affect financial reporting during the reform of an interest

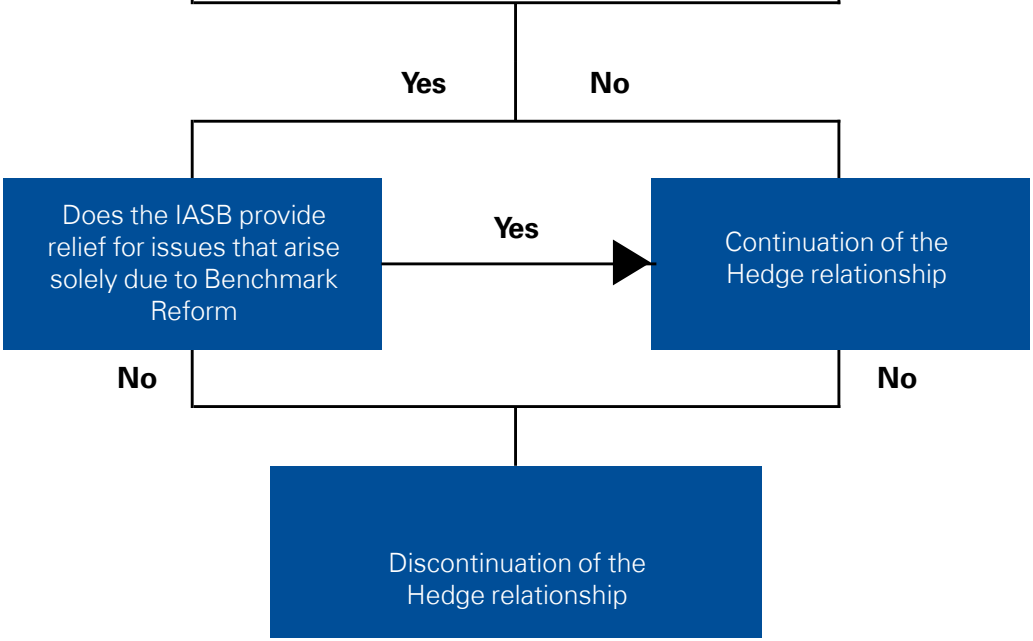
rate benchmark, including the effects of changes to contractual cash flows or hedging relationships arising from the replacement of an interest rate benchmark with an alternative benchmark rate (replacement issues).

4. The Ministry of Corporate Affairs (MCA) has issued amendments corresponding to phase 1 of IBOR reform in the Indian Accounting Standards (Ind AS). These amendments are applicable from 1 April 2020.

5. An exposure draft of amendments corresponding to Phase 2 of the IBOR reform has been issued and proposed to be made effective from 1 April 2021. Amendments issued as part of phase 2 of the IBOR reform have revised the requirements pertaining to IFRS 9, Financial Instruments, IAS 39, Financial Instruments: Recognition and Measurement, IFRS 7, Financial Instruments: Disclosures, IFRS 16, Leases and IFRS 4, Insurance Contracts.

Core considerations in the analysis of the continuation of hedge relationships

<p>Modification </p> <ul style="list-style-type: none"> Qualitative and quantitative factors need to be taken into account for the assessment whether contracts are substantially modified because of benchmark transition. Does the transition lead to a derecognition of hedging instrument and/or hedged item. 	<p>Documentation </p> <ul style="list-style-type: none"> Is there a change of the hedged risk? Are amendments of hedge documentation necessary? Will the amendment result in de-designation and re-designation of hedge relationships.
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1. Modification of contracts

The IBOR reform may change the basis for determining the contractual cash flows of a financial instrument in a manner that is economically equivalent to the previous basis. This may be by amending the contractual terms of the instrument, altering the method for computing the interest rate benchmark, without amending the contractual terms, or triggering the activation of an existing contractual term, such as a fallback clause. Amendments under phase 2 of the IBOR reform, introduced a practical expedient for 'changes in the financial instrument that is required by IBOR reform'. For such a change, entities are required to update the Effective Interest Rate of the financial instruments. Accordingly, no gain or loss would be recognised as a result of modification of the financial instruments.

2. Documentation of the hedging relationship

IFRS 9 requires companies to designate the hedges in a hedging relationship and document specific information about the hedging relationship when a hedge is created. With the IBOR reforms, there would be changes to the basis for determining contractual cash flows of a financial instrument designated in a hedging relationship, which would need to be reflected in the hedge documentation. Changes in hedge documentation would normally cause a discontinuation of the hedge. The amendments permit entities to amend the formal designation of a hedging relationship to reflect the changes that are required by IBOR reform. Such changes would not result in a discontinuation of the hedge or the designation of a new hedging relationship.

3. Accounting for hedges of groups of items

As per the phase 2 amendments, when a group of items is designated as a hedged item and an item in the group is amended to reflect the changes that are required by the IBOR reform, entities should allocate the hedged items to sub-groups based on the benchmark rate being hedged, and designate the benchmark rate for each sub-group as the hedged risk. An entity would assess each sub-group separately to determine whether the sub-group is eligible to be a hedged item. If any sub-group is not eligible to be a hedged item, the hedging relationship is discontinued prospectively in its entirety.

4. Separately identifiable requirements

As per the phase 2 amendments, if a company reasonably expects that an alternative benchmark rate will be separately identifiable within a period of 24 months, it can designate the rate as a non-contractually specified risk component even if it is not separately identifiable at the designation date. This would be applied on a rate-by-rate basis and would also be applicable to a new hedging relationship.

5. Cash flow hedging

As per the phase 2 amendments, when a hedged item in a cash flow hedge is amended to reflect the changes that are required by the reform, the amount accumulated in the cash flow hedge reserve would be deemed to be based on the alternative benchmark rate on which the hedged future cash flows are determined. Therefore, amounts from the cash flow hedge reserve would be reclassified to profit or loss only when the cash flows of the amended hedged item affect profit or loss. A similar exception is also provided for amounts in cash flow hedge reserve pertaining to discontinued hedging relationships.



5.

Key Market Updates



- **ISDA 2020 IBOR Fallbacks protocol:**⁶

On 23 October 2020, the International Swaps and Derivatives Association (ISDA) published the new ISDA 2020 IBOR Fallbacks Protocol and IBOR Fallbacks Supplement to the 2006 ISDA Definitions, together with an updated transition roadmap identifying new transition milestones. Market participants now have a clear understanding from ISDA with regards to when and how the Fallbacks Protocol will be implemented. The protocol went live on 25 January 2021, having adhered by more than 12,000 entities across nearly 80 jurisdictions.

- **Financial Conduct Authority (FCA):**⁷

The Financial Conduct Authority (FCA) formally announced the future cessation and loss of representativeness of 35 LIBOR benchmarks on 5 March 2021. The announcement followed the results of a consultation by ICE Benchmark Administration (IBA), LIBOR's administrator, confirming IBA's plans for the benchmark's cessation. The FCA statement includes declarations on the future permanent cessation or loss of representativeness of all 35 LIBOR settings:



6. Press release by ISDA on "New IBOR Fallbacks Take Effect for Derivatives" dated 25 January, 2021

7. FCA announcement on future cessation and loss of representativeness of the LIBOR benchmarks dated 5 March 2021

LIBOR	Tenor	End of Panel Bank Submissions		Potential Synthetic LIBOR Publication	
		Date	Result	Begin	End
CHF	ALL	31 December 2021	Permanent cessation	Not applicable	
EUR	ALL	31 December 2021	Permanent cessation	Not applicable	
GBP	Overnight, 1-week, 2-month, 12-month	31 December 2021	Permanent cessation	Not applicable	
	1-month, 3-month, 6-month	31 December 2021	Loss of representativeness	1 January 2022	For a period to be determined
JPY	Overnight, 1-week, 2-month, 12-month	31 December 2021	Permanent cessation	Not applicable	
	1-month, 3-month, 6-month	31 December 2021	Loss of representativeness	1 January 2022	31 December 2022
USD	1-week, 2-month	31 December 2021	Permanent cessation	Not applicable	
	Overnight, 12-month	30 June 2023	Permanent cessation	Not applicable	
	1-month, 3-month, 6-month	30 June 2023	Loss of representativeness	1 July 2023	For a period to be determined

6.

Next Steps



The efforts to transition away from LIBOR have overall continued in 2020 until now, against a very challenging market backdrop. Regulators across jurisdictions have made it clear that market participants will have to find ways to issue products linked to ARR and if need be, begin thinking through the creation of new products to support the transition. Transition efforts are accelerated however the wise market

participants should be well advanced in assessing their product portfolios and related operating systems, choosing an appropriate replacement rate and commencing a move to hardwired fallbacks and related contract amendments. The complexities involved in structured finance products, their underlying instruments and possible hedges make this effort all the more critical.



How KPMG in India is helping its clients in LIBOR transition

An overview of how KPMG in India is assisting different institutions with respect to challenges faced due to transition. Bringing depth of experience to the existing product along with competitive intelligence strategy.



Program Management & Assurance

We are assisting market participants in establishing governance, structure and ongoing management of complex programs.



Exposure Identification & Monitoring:

We have helped clients with setting up a structured approach to identify exposure across key dimensions: Products, Contracts, Models, Systems, Processes.



Operational Readiness – Front Book:

We help clients to prepare systems and infrastructure to support the future front book products and risk management process.



Model Change and Validation– Front Book:

We are supporting firms with updating the valuation models and validating new models to ensure changes go through the right level of governance.



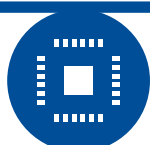
Contract Change Management – Back Book:

We have an in-house AI technology to assist with identifying key LIBOR terms via scanning, digitalising, and analysing the impact for efficient and accurate contracts change process



Financial reporting:

We bring technical expertise and market insights to facilitate effective year end/quarterly reporting of IBOR transition accounting and tax implications.



Product Strategy:

We have supported clients with developing a clear strategy and plan for their products in a world without LIBOR including new RFR products designs and governance.



Client Outreach & Transition – Back Book:

We have experience of managing client outreach programs leveraging our SMEs alongside a robust process.

Abbreviations

ARR	Alternative Reference Rate
ARRC	Alternative Reference Rate Committee
Backward shift approach	A method for adjusting the period over which an RFR is observed by backward shifting both the rate and the weighting of that rate by a few banking days.
EURIBOR	EURO Interbank Offered Rate
FCA	Financial Conduct Authority
Forward-looking term rates	A term rate which reflects the expected average SONIA (or other RFR) over a given period.
IA	Investment Association
CCP	Central counterparty
ICE	InterContinental Exchange
Interbank Offered Rates (IBORs)	IBORs are interest rates at which banks can borrow in the interbank market. IBORs have a term rate ranging from overnight to 12 months. IBOR rates are determined based on quotes submitted by a panel of banks. The major IBORs include CDOR, LIBOR, EURIBOR and TIBOR.
IOSCO	International Organization of Securities Commissions
ISDA	International Swaps and Derivatives Association
Lag approach	A mechanism whereby the interest observation period lags the RFR reference period by a fixed number of banking days.
LCH	London Clearing House
LIBOR	London Interbank Offered Rate
Lookback period	Number of banking days by which an observation period is lagged. In a lookback approach, on each day of the interest period the rate from [X] banking days prior is used.
OTC	Over the Counter
PRA	Prudential Regulation Authority
RFR	Risk free rate
EFFR	Effective Fed Funds Rate

EONIA	Euro overnight index average – existing EUR overnight reference rate
ESTER	Euro short term rate – planned new EUR overnight reference rate
ESTR	Euro Short Term Rate
SARON	Swiss Average Rate Overnight
SOFR	Secured Overnight Funding Rate, The RFR selected by the U.S. to replace USD LIBOR. SOFR is a secured, overnight, and transaction-based rate.
SONIA	Sterling Overnight Index Average, The RFR selected by the U.K. to replace GBP LIBOR. SONIA is an unsecured, overnight, and transaction-based rate.
TIBOR	Tokyo Interbank Offered Rate , TIBOR, published by the Japanese Bankers Association, is the reference rate based on the average interest rate at which banks can borrow on an unsecured basis in the Japan interbank market.
TONA	Tokyo Overnight Average Rate, The RFR selected by Japan to replace TIBOR and JPY LIBOR. TONA is an unsecured, overnight, and transaction-based rate. It reflects the uncollateralized overnight call rate market.
TONAR	Tokyo Overnight Average Rate – JPY overnight reference rate
ROE	Return on Equity
ROIC	Return on Invested Capital
S&P	Standard and Poor's
SDGs	Sustainable Development Goals
SDS	Swiss Agency for Development and Cooperation
SEBI	Securities and Exchange Board of India
SFF	Sustainable Development Goals Finance Facility
SSE	Social Stock Exchange
UN	United Nations
UNDP	United National Development Program
USD	United Stated Dollar
WEF	World Economic Forum

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IN OUR SPIRIT OF UNDYING ENTHUSIASM
OUR DRIVE TO ACHIEVE THE EXTRAORDINARY
UNMOVED BY FEAR OR CONSTRAINT
WE'RE DRIVEN BY JOSH AND IT SHOWS**

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