(expleo)

WHITEPAPER

LIBOR - Alternative risk-free rates (ARFRs), Demystified

Why banks should draw on external expertise to meet a unique challenge

Management summary

Between now and the end of 2021, amid economic and political uncertainty, banks must complete a highly complex procedure: stripping the London Interbank Offered Rate (LIBOR) benchmarks out of their operations and replacing them with risk-free reference rates (RFRs). Despite the disruption caused by the pandemic, the UK regulator the Financial Conduct Authority (FCA) and the Bank of England Working Group for Reference Rates state that the transition must still be completed by the end of 2021.

But LIBOR is so deeply embedded in the financial world that the transition will impact multiple functions within banks and other financial services companies. The task of identifying the products and related contracts that reference LIBOR, and then implementing the new processes needed to enable LIBOR-referenced products to reference alternate RFRs instead, will be difficult and disruptive. Banks will need to identify and mitigate a range of dangerous risks: operational, financial, regulatory and legal.

With GBP LIBOR to SONIA as an example, this white paper explains why the LIBOR transition poses such a challenge; and why, with resources and time in scant supply, banks should engage the support of an experienced quality assurance partner. With the right partner, an orderly and successful transition will be far easier to achieve, providing a public demonstration of the bank's ability to match best practice and meet regulatory requirements; strengthening its ability to exploit business opportunities, compete and grow, even within what is almost certain to be a volatile economic environment.

Expleo can offer proven expertise in the use of technical methodologies to help banks ensure a successful transition from LIBOR to alternate RFRs, with all of the associated impacts, process changes and risks identified, tested and managed appropriately.

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A complex transition

Most financial regulators have come to believe that use of LIBOR now represents a stability risk to the financial system; and now advise banks to switch to use of alternate RFRs instead. For Eg: The UK regulators the Financial Conduct Authority and the Bank of England's Working Group on Sterling Risk-Free Reference Rates recommend that the Sterling Overnight Index Average (SONIA) should replace GBP LIBOR referenced financial contracts.

The transition will have a significant impact on multiple functions within the banks, including trading, risk, valuation, collateral management and settlement, contract management, hedge accounting and reporting. Contracts with counterparties will have to be reviewed and reworded – and in many cases renegotiated. Banks will have to amend existing GBP LIBOR-referenced contracts due to mature beyond 2021, then generate cashflows linked to SONIA.

But this is complex, because of the differences between GBP LIBOR and SONIA. While LIBOR is set for seven different maturities, SONIA is only set as an overnight rate. LIBOR also incorporates a credit spread component, but SONIA does not. LIBOR is forward-looking, with interest rates known to counterparties at the start of the term period, allowing for cashflow planning. As an RFR, SONIA is backward-looking.

Calculating adjusted SONIA & Repapering

The answer proposed by the Working Group to this problem is to use a credit spread and term adjusted Compounded rate for SONIA. The Working Group has concluded that use of this adjusted form of SONIA will be "appropriate and operationally achievable" for most derivatives, securities and wholesale loans contracts. This may be the case, but calculating the Compounded rate is a complex process, because it must be derived from the SONIA overnight rates.

Regulators have created infrastructures to help banks complete the transition, but many banks will find it difficult to make full use of these without an expert. From 3rd August 2020 onwards, the Bank of England started to publish a daily SONIA Compounded Index, to reduce the complexity of the Compounded rate calculation.

But an equivalent credit spread and term adjustment needs to be calculated and incorporated into the SONIA rate derived from the Compounded Index. That means fallbacks are needed – adjustments to SONIA that could be used with financial products that reference GBP LIBOR, both after December 2021 and in the case of a 'pre-cessation event' (in which a regulator decides, prior to the end of LIBOR publication, that the benchmark no longer represents financial reality).

Following industry consultations, the International Swaps and Derivatives Association (ISDA) chose a five-year median approach as the appropriate methodology for calculating the credit spread adjustment; and the Working Group has chosen the same approach for cash products.

Since July 2020 an Adjustment Services Vendor appointed by ISDA has been calculating and publishing fallbacks for derivatives at commercial rates. Banks subscribing to the Fallback rates are expected to align their IT systems to fetch the appropriate rate(currency and tenor) for the Rate record day at least 2 business day before the payment date. Working with a provider like Expleo enables the bank to test the impact of this transition as the Alternate rates are backward looking when compared against LIBOR which his forward looking.

Banks will also need to understand how the changed rates will impact downstream business processes, including pricing, confirmation and settlement, accounting, cashflow generation, valuation and regulatory reporting. They will also need to identify and address exposures to the 'tough legacy' products that will be most difficult to convert. These include derivatives that may be economically altered by adoption of the fallbacks; and loans or bonds for which it may be practically difficult to obtain counterparty consent to alter contracts.

The Adjusted risk free rate has to be communicated to the counterparty, negotiated and necessary amendments to the contracts needs to be carried out before incorporating the new rates in the contracts. It's a mammoth task for the banks to manually identify the huge volume of historical contracts referencing LIBOR as manual activities are prone to errors especially while dealing with contract amendments.

All of these changes – including those associated with use of cross-currency products, for example – will require adaptations, and in some cases wholesale changes, within IT infrastructures. And throughout this process, banks must maintain effective communication with clients, to explain the purpose and implications of these changes and to provide reassurance that the firm is following best practice.

The solution

Deploying Robotic Process Automation

Our expertise in RPA can be leveraged to build rule based BOTs for the repapering activities, such as

- To identify the contracts referencing to LIBOR and maturing beyond December 31st 2021

- Identifying the respective counterparties/customers

- Email the amended contracts to the counterparties/customers

- Monitor the response

- Archive the response to the amended contracts

These processes are critically important for the banks to avoid any legal risk post transition.

Adjusted Rate calculation and financial impact assessment

A few banks may have the resources needed to meet the multiple challenges posed by the LIBOR to SONIA transition without assistance – but most will not. Expleo has extensive experience helping global banks complete major change projects; and has developed industry-leading expertise in the processes and technologies similar to those used in the LIBOR transition.

We can verify use of SONIA overnight curves; and validate the credit spread and term adjustments required. We can help banks identify exposures to LIBOR-related risks and all the LIBOR-referenced instruments used by the bank. We can evaluate and advise on the technical and financial impact of the transition on multiple business processes across the trade life cycle, including use of internal and external market and credit spread data feeds, pricing, confirmation and settlement, accounting analysis of contract modifications, modelling; and regulatory reporting.

Crucially, banks will benefit from working with a partner that is very familiar with the methodology used to calculate the adjusted SONIA rate as well as the application of the new rates.

Demystifying fallback rate derivation process - here's how it's done

Illustration: Calculation of Fallback rate SONIA Adjusted RFR for GBP LIBOR with 1 week tenor.

1. Adjusted Reference Rate:

IBOR : GBP LIBOR
Alternate Rate : SONIA
Tenor : 1 Week
Rate Record Day : 24th July 2020

$$ARR_{f,t} = \frac{DayCount_I}{DayCount_{RR}} \times \frac{1}{\delta_{S_{f,t},E_{f,t}}} \times \left[\prod_{u \in AP_{f,t}} \left(1 + \delta_{u,u+1} \times RFR_u\right) - 1 \right]$$

Where:

$ARR_{f,t}$ means the Adjusted Reference Rate for Tenor f on Rate Record Day t;

$DayCount_I$ means, with respect to the IBOR, the Day Count;

$DayCount_{RR}$ means, with respect to the Reference Rate, the Day Count;

$S_{f,t}$ means, with respect to Tenor f and Rate Record Day t, the Accrual Start Date;

$E_{f,t}$ means, with respect to Tenor f and Rate Record Day t, the Accrual End Date;

$\delta_{S_{f,t},E_{f,t}}$ means, with respect to Accrual Start Date $S_{f,t}$ and Accrual End Date $E_{f,t}$, the day count

fraction calculated in accordance with the following formula:

$$\delta_{S_{f,t},E_{f,t}} = \frac{\text{Days}(S_{f,t}, E_{f,t})}{DayCount_{RR}}$$

The Annualizing factor and the Day Count adjustment between the IBOR and ARFR were not initially present in the consultations carried out by ISDA but these components has been added post industry feedback

Annualizing factor= 1/((the number of calendar days from and including Accrual Start Date to and excluding Accrual End Date)/Day Count(RR))
Spot Lag for GBP LIBOR = 0 Business days
Offset Lag = 2 Business days
Accrual Start Date = (Rate record day + Spot Lag) – Offset Lag = 22th July 2020
Accrual End Date = Accrual Start Date + Tenor(7 days) = 29th July 2020
Day Count(I) = 365 ;
Day Count(RR) = 365;

Date	Calendar Days	SONIA O\N Rate	Adjusted Reference Rate
22-Jul-20	1	0.0006	0.0591
23-Jul-20	1	0.0006	0.0589
24-Jul-20	3	0.0006	0.0588
27-Jul-20	1	0.0006	
28-Jul-20	1	0.0006	

As per the above, the SONIA Adjusted Reference rate for the Rate Record day 24-Jul-20 is 0.0588

2. Determination of Spread Adjustment:

The Spread Adjustment is the median spread between the GBP LIBOR and the SONIA RFR for the above period

- To determine the median period, subtract the tenor(7 days) from the Rate Record day which is 17th July 2020. Subtract 2 more days to arrive at the Median Period end date as 15th July 2020. To arrive at the Median Start date, subtract the 5 years from the Median End Date which is 15th July 2015

- Calculate the SONIA Adjusted Reference rate and fetch the GBP LIBOR rates for the above Median period

- Subtract the SONIA Adjusted Reference rate from GBP LIBOR for each of the median period

- Calculate the Median for the above to arrive at the Spread Adjustment

Date	Calendar Days	SONIA O\N Rate	Adjusted Reference Rate	GBP LIBOR 1W	LIBOR - SONIA DIFF	Spread Adjustment
14-Jul-15	1	0.0045	0.4540	0.4861	0.0324	
15-Jul-15	1	0.0046	0.4559	0.4861	0.0325	
16-Jul-15	1	0.0046	0.4566	0.4861	0.0321	
17-Jul-15	3	0.0046	0.4573	0.4861	0.0302	
20-Jul-15	1	0.0046	0.4568	0.4861	0.0295	
21-Jul-15	1	0.0046	0.4564	0.4861	0.0288	
22-Jul-15	1	0.0045	0.4549	0.4861	0.0293	
23-Jul-15	1	0.0045	0.4544	0.4861	0.0298	
24-Jul-15	3	0.0045	0.4540	0.4859	0.0311	
27-Jul-15	1	0.0045	0.4543	0.4859	0.0315	
28-Jul-15	1	0.0046	0.4547	0.4859	0.0320	
29-Jul-15	1	0.0046	0.4524	0.4856	0.0313	
30-Jul-15	1	0.0046	0.4529	0.4863	0.0316	
31-Jul-15	3	0.0045	0.4531	0.4878	0.0355	
3-Aug-15	1	0.0046	0.4532	0.4868	0.0339	
4-Aug-15	1	0.0046	0.4535	0.4861	0.0331	
5-Aug-15	1	0.0046	0.4584	0.4861	0.0329	
≡≡≡	≡≡≡	≡≡≡	≡≡≡	≡≡≡	≡≡≡	≡≡≡
10-Jul-20	3	0.0006	0.0599	0.0598	0.0002	
13-Jul-20	1	0.0006	0.0601	0.0628	0.0031	
14-Jul-20	1	0.0006	0.0604	0.0624	0.0025	
15-Jul-20	1	0.0006	0.0604	0.0638	0.0037	
16-Jul-20	1	0.0006	0.0605	0.0603	-0.0002	
17-Jul-20	3	0.0006	0.0604	0.0604	-0.0001	
20-Jul-20	1	0.0006	0.0601	0.0613	0.0008	
21-Jul-20	1	0.0006	0.0596	0.0565	-0.0039	
22-Jul-20	1	0.0006	0.0591	0.0625	0.0024	
23-Jul-20	1	0.0006	0.0589	0.0611	0.0015	
24-Jul-20	3	0.0006	0.0588	0.0626	0.0035	0.0216
27-Jul-20	1	0.0006				
28-Jul-20	1	0.0006				

Finally, to arrive at the Fallback Rate for the Rate Record Date 24th July 2020, add the Adjusted RFR with the Spread Adjustment as below:
0.0588% + 0.0216% = 0.0804%

It is not so much that these methodologies are an impenetrable mystery – although it is perfectly possible to use them incorrectly, with negative operational, financial and reputational consequences. By engaging with expleo who has got end to end understanding of the fallback rate generation, curve construction, product configuration etc banks can ensure the impact of transition is well assessed during the testing phase itself by simulating various "what-if" scenarios and equip themselves before the actual transition.

Expleo can help banks complete key testing scenarios, including verification of SONIA and other alternate RFRs for LIBOR-based contracts (including those maturing beyond 2021); verification of rate fixing, interest rate calculations, term adjustment and credit spread for SONIA, verification of fallback language used in contracts; and verification of interest amounts.

Conclusion

As the 2021 deadline for the effective end of LIBOR draws closer, banks should be planning and implementing the infrastructure and process changes needed to complete the transition from LIBOR to alternate RFRs. Although some aspects of regulatory guidance related to the transition have not yet been finalised, there is a compelling business case for taking a proactive approach and preparing for the transition well in advance of the deadline, to ensure an orderly and ultimately successful transition.

Rather than trying to tackle this multi-faceted business challenge alone, banks should draw on the expertise that a proven service provider like Expleo offers, including its deep understanding of the methodology used to calculate the adjusted SONIA rate. Supported by Expleo, banks can develop and test the models they need, in a timely, cost-effective and operationally effective way.

Expleo can help banks ensure compliance with emerging regulatory requirements and best practice, minimising operational, financial, reputational and legal risks, so leaving the bank to focus on value-adding business functions and strategy. By taking this course, the bank can detach itself from LIBOR, implement a proven process for calculating and using SONIA, repapering and put itself in a much stronger position to compete effectively in a new, post-LIBOR era for financial markets.

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