



REFINITIV EXPERT TALK

LIBOR ANALYTICS

A Fresh Approach to RFR Calculations

It's confirmed – the LIBOR transition is happening. Sterling, euro, Swiss franc and Japanese yen settings, and the one-week and two-month US dollar settings will cease immediately after 31 December 2021. The other US dollar tenors will probably have until 30 June 2023 to manage the transition, but for everything else, LIBOR finishes in December 2021.

For financial firms, there is quite a lot of challenging work ahead. LIBOR is deeply embedded in their day-to-day business processes, technology and contracts. Globally, it is estimated that more than \$370 trillion in financial contracts are pegged to LIBOR, notionally more than four times global gross domestic product.

So, for firms, changing these contracts is going to be a massive project. In 2021, major banks say their budget – each – for the IBOR transition is more than \$100 million, according to a survey by EY. Even local banks are budgeting up to \$25 million each in 2021. Spending will be focussed on technology, legal contract repapering, client outreach, new product development, risk and models and programme management.

Unfortunately for financial firms, changing from LIBOR to one of the new benchmark rates is not a straightforward like-for-like exchange. LIBOR is currently produced in seven tenors (overnight/spot next, one week, one month, two months, three months, six months and 12 months) across five currencies. It is based on submissions provided by a panel of 20 banks, and these submissions are intended to reflect the interest rate at which banks could borrow money on unsecured terms in wholesale markets. The new risk-free rates (RFRs) function very differently.

Facing new complexity

To begin with, the international LIBOR is being replaced by a range of national RFRs, each of which is generated using a slightly different methodology. This immediately creates a layer of complexity for firms when it comes to calculating the commercial rate to be used in financial contracts.

Also, LIBOR is a forward-looking rate, which measures a firm's market expectations over the cost of borrowing over a particular duration. This term structure provides predictability – market participants know the cost of borrowing into the future, and there is an element of credit risk captured within the benchmark.

In contrast, the risk-free rates (RFRs) are backwards-looking, which is why they are considered to be essentially risk-free, in the sense that no bank credit risk is included. For example, SOFR – the US dollar RFR – is based on collated overnight transactions in the US Treasury repurchase agreement market. SONIA – the UK benchmark – is based on actual transactions in overnight indexed swaps for unsecured transactions in the sterling market.

This added complexity makes it vitally important that financial firms understand the new cash flows associated with transferring an old LIBOR contract to a new RFR, or in new financial products based on the RFRs. During the repapering of financial contracts, firms will want to see the impact on payment streams of various assumptions, and they will want to validate the cash flows in contracts created by counterparties. Also, when firms are creating or trading new instruments based on RFRs, they will want to check and recheck the cash flows involved.

So, firms will need to perform a whole range of new calculations for RFRs as they move through these transition processes. For example, some calculations are designed to provide more predictability around payments to RFR-based contracts for clients, including:

- **Lock-out** – The compounded average RFR applicable to an interest period is calculated over that interest period, but for the purposes of the calculation, the daily RFR is frozen or 'locked' a specified number of days from the end of the interest period at the then current rate. The calculation uses that locked rate for the remaining days in the interest period instead of the actual overnight RFR for each of those days. The effect is that the compounded average RFR for the interest period (and therefore the interest due in respect of that interest period) can be ascertained on the day that the lock takes effect.¹
- **Lookback** – The observation period for the interest rate calculation starts and ends a certain number of days prior to the interest period. As a result, the interest payment can be calculated prior to the end of the interest period. The rate is calculated over the interest period itself – but for each day in that period, the rate used is that from the relevant number of days before. For example, for a one-month interest period of 1 March to 1 April with a five London business day lookback, the rate for 1 March would be taken from 22 February (the day falling five London business days prior) and so on.²
- **Backward-shifted** – Also known as backward-looking term rates, these are rates that are known or realised after the beginning of an interest period. This is in contrast to, for example, LIBOR, which is published on a forward-looking basis and is known at the beginning of the interest period. In the context of RFRs, backward-looking term rates can be constructed mathematically from past realised daily fixings of the relevant overnight RFR over a given period of time.³

Firms that need to apply calculations such as these at scale across the front, middle and back offices want to ensure that they are being completed correctly, and the easiest way to do this is to automate the calculations through analytics directly within the workflow of individuals, rather than rely on manual methods, or approaches that require manual intervention.

1 [Loan Market Association LIBOR/IBOR Glossary of Terms](#)

2 Ibid

3 Ibid

Calculating with RFRs

Refinitiv® Instrument Pricing Analytics has created a number of new RFR-oriented analytics to help firms successfully navigate the LIBOR transition. These new analytics build on the success that Instrument Pricing Analytics has had in helping firms transfer many types of analytics to the cloud – reducing cost and complexity, while delivering insight about the rapidly evolving impact of RFRs where it is needed.

Today, Refinitiv Instrument Pricing Analytics offers a wide range of user-defined analytics for listed and OTC instruments, and pricing data available on demand. The coverage spans across FX and interest rate derivatives, equity derivatives, government and corporate bonds, zero-coupon curves and volatility surfaces.

These in-the-cloud services enable firms to simplify the processes around building and maintaining analytics. In the past, to create analytics, firms would need to build a series of pricing models, or acquire a pricing library. Then, they would need to purchase the data to power the models, clean and normalise the data, and then map all of that data into the analytics. This approach is expensive – firms also need to maintain the operational infrastructure to store the data and build the analytics.

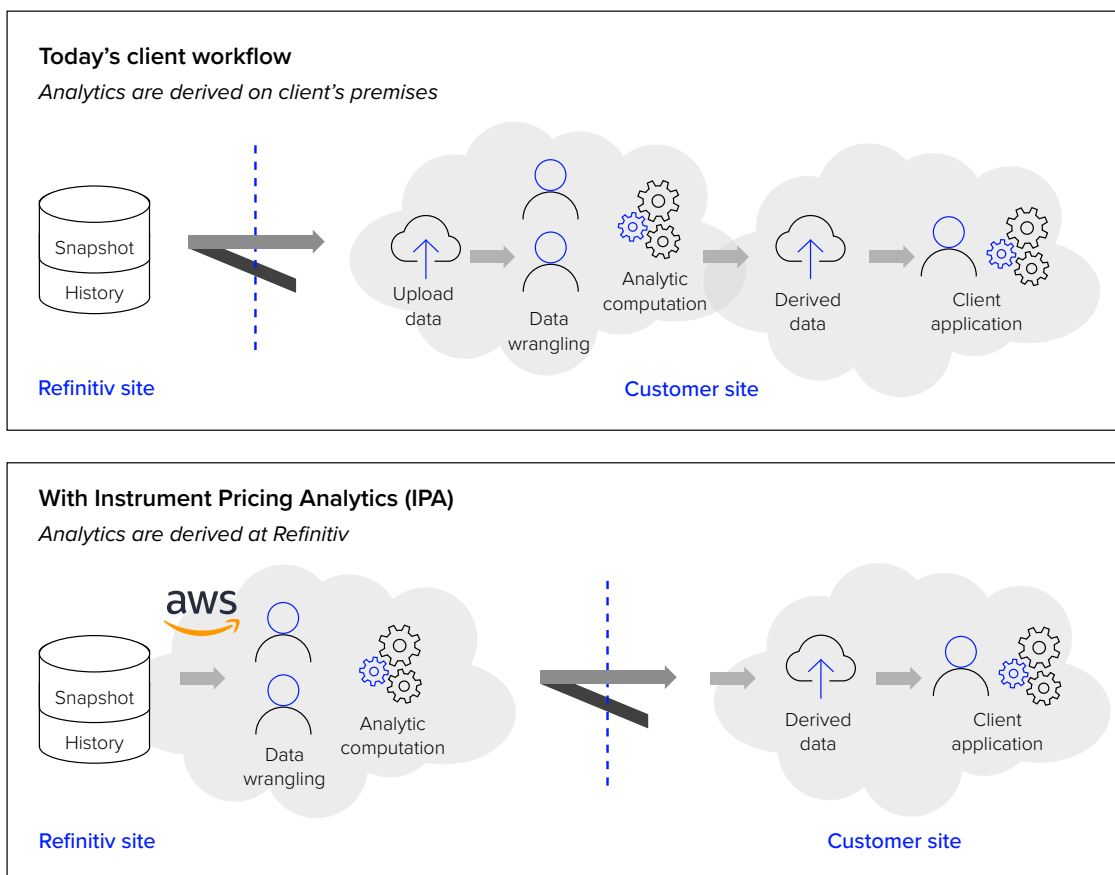
Then, over time, firms need to perform model risk governance and management around those models, which is also time-consuming and resource-intensive work, requiring specialist skills. By using Instrument Pricing Analytics, firms can incorporate the model risk governance and management work that Refinitiv performs into their own programmes, saving time and resources. While firms remain responsible for model risk management in the regulators' eyes, Refinitiv can support the ability of firms to meet their compliance obligations in this area.

Refinitiv Instrument Pricing Analytics takes on all of the complexity around building and maintaining models and provides firms with analytics that they can quickly integrate into their applications via APIs. Refinitiv Instrument Pricing Analytics has the data, the pricing libraries and the expertise on how to use the data to power the pricing models. All of this happens in the cloud, delivering ready-to-use analytics for firms' applications. Refinitiv Instrument Pricing Analytics provides:

- **Consistency** – Provided in its analytics across the different workflows. So, for example, APIs can be integrated into different workflows. There is also consistency across the wide range of asset classes and market instruments that Instrument Pricing Analytics provides analytics solutions for.
- **Simplicity** – Created with ease-of-deployment in mind. Analytics are preconfigured, so integration is easy. Firms just need to know what instruments they require analytics for – that's enough information to build request to the API.
- **Flexibility** – Built in to adapt to firm's needs. Instrument Pricing Analytics exposes a significant number of parameters as part of the API, to support more flexible workflows.

Refinitiv Instrument Pricing Analytics is able to do this because it is a part of the Refinitiv® Data Platform ecosystem, which delivers data and analytics in the cloud.

Product concept



Delivering in the cloud

The Refinitiv Data Platform gives firms access to a wide range of global market data and analytics in the cloud – more than 100 million instruments and data sets, with 40 billion market data updates delivered every day. Refinitiv Data Platform benefits of interest to analytics teams within financial services firms include:

- A singular access point to the Refinitiv data catalogue with a consistent data model
- A single API with flexibility to parameterised analytics
- Flexible options with access patterns: managed service, query-ready tables, bulk files and API calls
- Pricing and trade performance analytics pre-integrated with Refinitiv's leading content sets

In turn, Refinitiv Data Platform supports a technology ecosystem, to enable firms to get the most out of their data and analytics. This includes:

- **Refinitiv® Workspace** – This is the next-generation human interface of the Refinitiv Data Platform. Refinitiv Workspace enables individuals to access the unparalleled depth and breadth of financial data, news, analytics and productivity tools in a highly customised workflow experience on their preferred device – at home or in the office.
- **Refinitiv® CodeBook** – Workspace offers a cloud-hosted, integrated Python scripting environment – CodeBook – that allows rapid development of Jupyter notebooks with analytics and workflows powered by Refinitiv APIs and data. Refinitiv CodeBook is also available for Refinitiv® Eikon.
- **Refinitiv® Developer Community** – The Developer Community Platform enables developers across the globe to access capabilities, interactive information, learning materials, tools, events and a truly global community of developers. This access supports what developers want and need to develop, test and publish applications that consume relevant content and analytics.

This depth of data and open technology supports the overall Refinitiv Instrument Pricing Analytics approach to delivering RFR analytics, helping firms navigate the LIBOR transition, and thrive in the new world of benchmarks that is emerging.

Advancing with RFRs

Refinitiv Instrument Pricing Analytics provide much needed analytics for each stage of the LIBOR transition for firms – from transitioning existing contracts to the new RFRs, to issuing new RFR-linked securities, calculating zero curves, and eventually more sophisticated financial instruments such as interest rate swaps and cross-currency swaps. Below are the Refinitiv Instrument Pricing Analytics for the LIBOR transition that are currently available, including how they are currently accessed:

- **Realised Rate Calculations** – Enables firms to simulate realised rates based on lookback, lock-out and backward-shift interest rate calculation methodologies. This will help firms converting existing LIBOR-based contracts to the new RFRs. The analytics are available both as a CodeBook example and as an API.
- **RFR-Linked FRNs or Swaps** – This analytics package provides floating rate note (FRN) proceeds and interest rate swap (IRS) valuations and cash flow – based on new coupon methodologies, fall-back rates and curve assigned. This is available as an API. CodeBook examples and a Refinitiv Workspace App may be available soon.
- **New Zero Curves** – Refinitiv calculates predefined zero curves for RFRs such as ESTR, SARON, SOFR, SONIA and TONAR, to help firms estimate the forward cash flows for their future payments. This is available as an API, supporting both Refinitiv curves and custom curves. CodeBook examples and a Refinitiv Workspace App may be available soon.
- **Scenario Analysis** – Combining instrument pricing and curves, firms can run scenarios to anticipate the impact of the LIBOR transition. Scenarios can be conducted using fallback rates, assigning different zero curves and valuing instruments like interest rate swaps and cross currency swaps under different assumptions. This analytics tool is available via API.

Through the APIs, firms are able to plug these analytics directly into their workflow in their technology solutions. This automation reduces cost and complexity, as well as the potential for the kind of calculation errors that can happen if done manually.

With Instrument Pricing Analytics to support the LIBOR transition, financial firms do not need to worry about all of the work that normally goes in to delivering analytics – Refinitiv sources, cleans and normalises the data, and also provides the pricing models. Firms can reduce the time they spend on RFR-related model governance, including reviewing the documentation, and keeping track of specifications, as well as changes to them.

Trusted for RFRs

Firms can also have faith that the analytics reflect industry best practices because Refinitiv is a trusted calculator and administrator of benchmarks and indices. Refinitiv benchmark products include the Refinitiv® WM/R Benchmark, convertible bond indices and commodity indices. Within the interest rate asset class, Refinitiv administers products such as the Canadian Dollar Offered Rate (CDOR) and the Saudi Arabian Interbank Offered Rate (SAIBOR).

Since January 2021, Refinitiv has published the Term SONIA rate – licenced users can use the benchmark as a reference rate in financial instruments, financial contracts, and valuation and pricing activities. In March 2021, the US Alternative Reference Rates Committee (ARRC) announced that it has selected Refinitiv to publish ARRC-recommended spread adjustments to SOFR-based rates and spread-adjusted SOFR-based rates for cash products that transition away from US dollar (USD) LIBOR.

In summary, Refinitiv Instrument Pricing Analytics is trusted by financial services firms around the globe to support the LIBOR transition and get their RFR calculations right. At the same time, the analytics enable firms to reduce operational risk – including model risk – while simultaneously increasing efficiency and lowering costs. To learn more about the LIBOR data and analytics solutions that Refinitiv has available, [contact us](#).

Currency	Current Rate	Alternate Rate	Provider
Australian Dollar (AUD)	Bank Bill Swap Rate (BBSW)	BBSW's new methodology became effective on 21 May 2018. The Cash Rate, also referred to as AONIA, is a pre-existing rate that will become the RFR for AUD	Reserve Bank of Australia
Canadian Dollar (CAD)	Canadian Dollar Offered Rate (CDOR)	An updated version of the Canadian Overnight Repo Rate Average (CORRA), a pre-existing rate, has been identified by the Bank of Canada's Canadian Alternative Reference Rate Working Group as the preferred RFR for Canada	Bank of Canada
Swiss Franc (CHF)	CHF LIBOR	Swiss Average Rate Overnight (SARON)	Swiss National Bank
Euro (EUR)	Euro Overnight Index Average (EONIA)	Euro Short-Term Rate (€STR)	European Central Bank
Euro (EUR)	Euro Interbank Offered Rate (EURIBOR) and EUR LIBOR	€STR	European Central Bank
Sterling (GBP)	GBP LIBOR	Sterling Overnight Index Average (SONIA)	Bank of England
Hong Kong Dollar (HKD)	Hong Kong Interbank Offered Rate (HIBOR)	Hong Kong Overnight Index Average (HONIA), which was a pre-existing rate	?
Japanese Yen (JPY)	JPY LIBOR, Tokyo Interbank Offered Rate (TIBOR) and Euroyen TIBOR	Tokyo Overnight Average Rate (TONAR) is the alternative RFR for Japanese Yen	Bank of Japan
Singapore Dollar (SGD)	Singapore Interbank Offered Rate (SIBOR)	Anticipated transition to the Singapore Overnight Rate Average (SORA), a pre-existing overnight rate	Monetary Authority of Singapore
Singapore Dollar (SGD)	Swap Offer Rate (SOR)	SOR is a pre-existing rate largely used in the derivatives market. Since USD LIBOR is an input for the calculation of SOR, the outlook for USD LIBOR beyond end-2021 has implications for the long-term viability of SOR. SOR is also expected to be replaced by the SORA	Monetary Authority of Singapore
US Dollar (USD)	USD LIBOR	Secured Overnight Financing Rate (SOFR)	Federal Reserve

Source: HSBC, Refinitiv

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Refinitiv, an LSEG (London Stock Exchange Group) business, is one of the world's largest providers of financial markets data and infrastructure. With \$6.25 billion in revenue, over 40,000 customers and 400,000 end users across 190 countries, Refinitiv is powering participants across the global financial marketplace. We provide information, insights and technology that enable customers to execute critical investing, trading and risk decisions with confidence. By combining a unique open platform with best-in-class data and expertise, we connect people to choice and opportunity – driving performance, innovation and growth for our customers and partners.