



ICE BENCHMARK ADMINISTRATION

SUMMARY OF ICE LIBOR EVOLUTION

Executive summary

Since taking over the management of ICE LIBOR (“LIBOR”) in 2014, ICE Benchmark Administration (“IBA”) has been driving improvements in the benchmark setting process with new technology and techniques to improve the LIBOR rate-setting process.

Improvements that IBA has already made include:

- Developing purpose-built surveillance tools and systems for a dedicated team of analysts to examine banks’ trading activity and related evidence every day, running millions of pre- and post-publication statistical calculations and analyses on LIBOR submissions
- Redesigning and automating the submission process to run on modern technology with real time validation checks on the submissions to prevent errors before the rate is calculated
- Establishing representation on the LIBOR Oversight Committee from users, benchmark submitters and infrastructure providers. The committee also has Observers from the Board of Governors of the Federal Reserve System, the Swiss National Bank and the Bank of England. In addition, two independent directors of IBA serve on the committee.

Introduction

As the benchmark administrator for LIBOR, IBA has conducted an extensive consultation since October 2014 on the evolution of LIBOR.

IBA has published two Position Papers and associated Feedback Statements¹ on evolutionary proposals. In excess of 200 stakeholders participated in the consultation process and in two series of roundtable meetings hosted by central banks.

¹ These are available at:

www.theice.com/publicdocs/ICE_LIBOR_Position_Paper.pdf

www.theice.com/publicdocs/futures/IBA_LIBOR_Feedback_Evolution_Statement.pdf

www.theice.com/publicdocs/ICE_LIBOR_Second_Position_Paper.pdf

www.theice.com/publicdocs/futures/IBA_LIBOR_Feedback_Evolution_Statement_20151214.pdf

Based on the feedback, in March 2016 IBA published the Roadmap designed to deliver a seamless transition to an even more robust rate. IBA has worked closely with the submitting banks and they will be implementing the standardising and updating measures in the Roadmap progressively. IBA expects these changes to be complete by mid 2017.

Since IBA has published a number of documents, we now summarise below the evolution of LIBOR.

Background

LIBOR is referenced by an estimated US \$350 trillion of outstanding contracts in maturities ranging from overnight to more than 30 years.

It provides the average rate at which a LIBOR panel bank could obtain unsecured funding for a given period in a given currency. LIBOR is the primary benchmark for short term interest rates globally.

IBA became the administrator of LIBOR in early 2014 after structural failings had led to significant and highly publicised fines levied globally on a number of panel banks for inappropriate conduct with regard to the benchmark. Since then, significant regulatory and governance measures have been put in place to restore the integrity of the benchmark.

LIBOR is produced by IBA on London business days for 5 currencies with 7 maturities, producing 35 rates each business day.

In line with the strategic direction set by the Financial Stability Board (“FSB”) and other official sector bodies, IBA has focused on evolving LIBOR to meet the following objectives, to:

- Base LIBOR in transactions to the greatest extent possible – as described in the following sections
- Publish a single, clear, comprehensive and robust LIBOR definition – the ICE LIBOR Output Statement in the Roadmap is attached for ease of reference
- Implement a construct for ensuring the rate can adapt to changing market conditions with appropriate consideration for the interests of all stakeholders – as described in the following sections, and
- Evolve LIBOR through a seamless transition – phasing the implementation of the standardised methodology.

Basing LIBOR in transactions

In order to anchor LIBOR to the greatest extent possible in transactions, as well as reflect changes in banks’ funding models, IBA designed a waterfall of submission methodologies to ensure that LIBOR panel banks use funding transactions where available.

The waterfall is as follows:

Waterfall Level	Waterfall type	Waterfall features
1	Transactions	<ul style="list-style-type: none"> Time-weighted and Volume Weighted Average Price (“VWAP”) of the bank’s eligible transactions
2	Transaction-derived data	<ul style="list-style-type: none"> VWAP of adjusted historical transactions Interpolation
3	Market-data based (Expert Judgment)	<ul style="list-style-type: none"> Using a documented methodology for basing submissions on transactions in related markets, committed quotes, indicative quotes and other market observations

The waterfall ensures that panel banks always make a submission regardless of activity levels on a particular day.

The Wheatley Review in 2012 proposed a waterfall for LIBOR submissions. IBA’s waterfall builds on that waterfall, adding greater prescription and standardisation.

Standardising parameters

In addition, IBA has standardised parameters to be used in setting LIBOR submissions:

Product specifications:

Level 1 transactions are in the following:

- Unsecured Deposits
- Commercial Paper (“CP”) – fixed-rate primary issuances only, and
- Certificates of Deposit (“CD”) - fixed-rate primary issuances only.

IBA has set overall minimum thresholds of 10 million per trade in USD / EUR / GBP / CHF (or JPY 1,000 million) and two trades with different counterparties.

Transactions with maturities falling between required submission tenors are important data points to incorporate in the formulation of LIBOR. For example, a 2.5 month transaction might naturally populate the 2 or 3 month category, or indeed both. To ensure a consistent methodology and remove the requirement for banks to exercise judgement, IBA has developed a tenor bucketing matrix to be used consistently by the panel banks.

In some currencies and tenors, higher volatility is observed over month / quarter / year ends. IBA has allowed for this in the tenor bucketing by narrowing the submission window for overnight and spot-next tenors to same day transactions when the tenor run crosses a month end. This approach also applies for short tenors on the effective date of a policy rate change.

Transaction window and publication time

To include as many transactions as possible within submissions and recognising that transactions booked over a period of time were already accommodated in many banks' current methodologies, IBA has set the collection window as the period since the previous submission.

Recognising that the period since the previous submission crosses two London trading days, transactions from the previous day must have a lower weighting relative to same-day transactions. This positively weights transactions nearer the submission time in the VWAP calculation.

Eligible counterparties:

LIBOR was initially created to be a gauge of unsecured funding for banks which was, to a very great extent, driven by interbank activity prior to the financial crisis. The activity in that market decreased markedly and wholesale deposits negotiated with other counterparties are playing an increasingly important role in bank funding. This change of behaviour led IBA to conclude that unsecured loans by non-financial corporate customers of banks ("corporations" or "corporates") should be included among transactions that inform LIBOR submissions - where the bank is the borrower and the corporation is the lender. Other central bank and non-bank financial institutions are also eligible counterparties.

Including trades with corporations has the potential to increase the transaction volume by up to 15%, depending on the relevant currency and tenor. Transactions with corporations with a maturity of 35 days or fewer are not eligible, as some short-term corporate deposits can be motivated by a need for a 'home' for the money and therefore the rate can be a relatively minor consideration. The time period recognises the Basel Liquidity Coverage Ratio (LCR). The LCR aims to ensure that a bank has an adequate stock of unencumbered high quality liquid assets, consisting of cash or assets that can be converted into cash at little or no loss of value in private markets. This will allow the bank to meet its liquidity needs for a 30 calendar day liquidity stress scenario.

No premium or discount is permitted to adjust the transacted prices.

Funding locations:

Since LIBOR is a global rate, IBA has an Approved List of Funding Locations based on the major centres in Canada, USA, EU, EFTA, Hong Kong, Singapore, Japan and Australia.

Each LIBOR panel bank has its own organisational and geographical profile and, because of this, IBA has agreed the appropriate locations with each bank bilaterally from the Approved List of Funding Locations, being mindful of the need to safeguard the representativeness of the transactions and their pricing.

Level 2 inputs

Level 2 has a further waterfall:

- *Historical transactions*

The use of historical transactions involves a bank taking its transactions from previous day(s) and adjusting them by the change of a correlated rate (e.g. OIS, futures, short-dated government bonds, Repos, Central Bank rates).

Taking into account the activity in the underlying market, the LIBOR Oversight Committee has set a matrix of the maximum number of LIBOR submission days for which historical transactions can be used.

Level 2 historical trades are subject to weighting according to the currency, tenor and proximity to the time of submission.

- *Interpolation*

Where transactions are not available for a currency and tenor, or are below the minimum transaction size, linear interpolation can fill gaps in the curve.

Interpolation is limited to determining the 2 Month, 3 Month and 6 Month tenors, using the transacted rates from adjacent tenors which may include rates calculated from historical trades and also trades in non-standard tenors.

Level 3 inputs – Expert Judgement

When a panel bank has insufficient transactional data to support a Level 1 or Level 2 submission, the bank's submission must be:

- Based on the panel bank's internally approved procedure and agreed by IBA
- Formulated using the inputs allowed by IBA, and
- Accompanied by full documentation of the rationale and with the supporting evidence provided to IBA.

The allowable Level 3 inputs are:

Parameters	Allowable inputs	Disallowed inputs
Funding Transactions	Transactions not eligible for use in Level 1 or Level 2	
	Adjusted Historical Transactions exceeding rolling date	

Related market instruments	Interest Rate Futures	
	FRAs	
	Interest Rate Swaps	
	FRNs and FRCDs	
	FX (forwards, swaps)	
	OIS curves	
	Repo	
Market observations	Observed third party transactions	
	Broker quotes Observed third party levels	
Macro-economic factors	e.g. Policy rate changes	
Credit standing	A published and verifiable change in the credit standing of the bank	
Other	Other factors that can be evidenced and verified, if agreed with IBA	Any factors that cannot be evidenced and verified Any factors that might present the bank with a conflict of interest

Volatility

During the roundtable meetings, several respondents acknowledged that only allowing Expert Judgment when there are insufficient transactions may increase volatility. Submissions may also be more volatile, depending on when most of the transactions take place for each submitting bank and also on the bank's funding mix.

As stated by the broad consensus during IBA's consultations, greater volatility is not of itself problematic provided that it is indeed a reflection of the underlying market conditions and is not just indicative of 'noise'.

Higher volatility at key calendar points such as month and quarter ends is a market reality, which the rate setting process will reflect.

Concerning publication of LIBOR submissions after the 3 months of embargo, consultation comments from Benchmark Submitters reflected concern not only that commercially sensitive data would become public but also that day-on-day volatility in LIBOR rates could lead to false inferences about a bank's financial stability and credit quality. IBA now publishes submission data on a non-attributed basis to alleviate these concerns in general terms.

Allowing for exceptional market events

IBA defines an exceptional market event (“EME”) as a rare and unexpected occurrence that renders data collected during the transaction window unrepresentative, or results in insufficient market data to support a bank’s LIBOR submission at publication time. An EME must have both material and widespread impact supported by market evidence.

An event impacting a single bank would not constitute an EME, provided there were no identifiable spill-over effects to the broader market.

If an EME is proposed but there is insufficient market evidence to justify IBA declaring an EME, LIBOR submitters must follow their normal practice for generating a submission. If there is sufficient market evidence, IBA will declare an EME and advise the submitters as to what action they may or must take, for example that only transactions entered into after the event that caused the EME may be included in submitters’ level 1 calculations on that day. IBA may decide to delay publication on that day.

IBA will publish quarterly statistics on the frequency of EMEs (if any).

Feasibility study on further evolution

IBA is looking into the feasibility of further evolving LIBOR to a centralised calculation using a robust algorithm to calculate LIBOR in diverse market circumstances. This could reduce the regulatory and legal risk for panel banks and therefore increase the possibility of realising a virtuous circle of receiving more transactions, enhancing the market representation, making LIBOR ever more difficult to manipulate, and thereby attracting more panel banks.

Further information on this will be published in due course.
