*ICE BENCHMARK ADMINISTRATION LIMITED*

**FEEDBACK STATEMENT ON THE EVOLUTION OF ICE LIBOR**

**14 December 2015**

## 1. EXECUTIVE SUMMARY

In line with the strategic direction set by the Financial Stability Board ("FSB") and other official sector bodies, the fundamental objectives of the evolution of ICE LIBOR ("LIBOR") are to:

- Base LIBOR in transactions to the greatest extent possible
- Create a single, clear, comprehensive and robust LIBOR definition
- Implement a construct for ensuring that the rate can adapt to changing market conditions with appropriate consideration for the interests of all stakeholders, and
- Evolve LIBOR through a seamless transition.

On 20 October 2014 ICE Benchmark Administration Limited ("IBA") issued a first Position Paper on LIBOR and a Feedback Statement was published on 31 May 2015[1].

IBA published the Second Position Paper[2] on 31 July 2015 to describe proposals for the evolution of LIBOR and set out for consultation a number of parameters for a unified and prescriptive transaction-based methodology for determining LIBOR.

The Second Position Paper was distributed to around 1,000 recipients and about 200 stakeholders were represented at bilateral meetings, roundtables and other forums.

In that Position Paper, IBA proposed a waterfall of methodologies to be followed by Benchmark Submitters in calculating their submissions:

- Level 1: Transactions, using a range of eligible counterparties
- Level 2: Data derived from transactions (including adjusted and historical transactions, interpolation and extrapolation/parallel shift), and

[1] The first Position Paper and associated Feedback Statement are available at:
https://www.theice.com/publicdocs/ICE_LIBOR_Position_Paper.pdf
and https://www.theice.com/publicdocs/futures/IBA_LIBOR_Feedback_Evolution_Statement.pdf

[2] https://www.theice.com/publicdocs/ICE_LIBOR_Second_Position_Paper.pdf

- Level 3: Expert Judgement, appropriately framed. (Expert Judgement is part of the hierarchy of transactions in Box 4.B of the Wheatley Review[3]).

The waterfall was designed to allow LIBOR rates to be published in all market circumstances.

IBA proposed a standardisation of many aspects of the formulation of LIBOR, including: eligible funding locations; minimum number and size of transactions for a Level 1 submission; the treatment of transactions with non-standard maturities; techniques for interpolation and extrapolation; and acceptable inputs for using Expert Judgement.

Having a waterfall of transactions, transaction-derived data and Expert Judgement was seen by respondents as the right way forward. For Level 2 transaction-derived data, some enhancements to the tenor bucketing were suggested together with other helpful recommendations.

It was generally recognised that Expert Judgement would continue to be needed in many circumstances and that it should be framed appropriately for market conditions when it remains necessary; its use must be suitably recorded and justified.

A recurring theme in the feedback was the view that Benchmark Submitters should transmit eligible transaction data to IBA, rather than submissions, and that IBA should calculate LIBOR rates from the transactional data. This was seen as likely to result in a reduced need for subjectivity as IBA would have visibility of the entire universe of transactions.

IBA is very grateful for the excellent, thoughtful feedback received on the Position Papers and in response to the consultation. IBA and its LIBOR Oversight Committee are considering carefully the feedback received.

This Feedback Statement sets out the outcome of the consultation. IBA intends to publish a further paper in early 2016 setting the roadmap for the evolution of LIBOR.

In the meantime, respondents are very welcome to provide any further feedback to IBA at IBA@theice.com or by post to:

ICE Benchmark Administration Limited
Milton Gate
60 Chiswell Street
London
EC1Y 4SA.

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[3] "The Wheatley Review of LIBOR: final report", available at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/191762/wheatley_review_libor_finalreport_280912.pdf.

## 2. BACKGROUND

### 2.1 Brief history of LIBOR

LIBOR was initially developed in May 1970 for the purpose of determining the average variable cost of unsecured funding for banks active in the syndicated loan market. The rate developed further over subsequent years and its use expanded into derivatives and other asset classes. Its development was further driven by the growth in new financial instruments which also required standardised interest rate benchmarks.

The submission process was largely unsupervised at that time and clear conflicts of interest were not addressed. Submission to LIBOR fell outside the regulatory perimeter. The failings led to the very significant and well-publicised fines levied globally on a number of submitting banks.

In September 2012, the Wheatley Review of LIBOR set out a ten-point plan for reform which included transferring responsibility for LIBOR administration from the British Bankers' Association ("BBA") to a new administrator.

In July 2014, the FSB published proposed reforms for major interest rate benchmarks[4].

The main areas of discussion in the FSB report revolve around a multiple-rate approach:

(1) Strengthening the existing 'IBORs and other potential reference rates based on unsecured bank funding costs by underpinning them to the greatest extent possible with transaction data ("IBOR+")

(2) Developing alternative, nearly risk-free reference rates ("RFR").

The FSB Report stated that one of the overarching objectives of the reforms should be that:

*"Reference rates should be based exclusively in actual transactions. However, in many cases insufficient transactions will be available to do this and so the degree of dependence on transactions should vary by currency and will depend on market liquidity, depth and data sufficiency. When conditions in the local market do not allow pure transaction rates (ones derived mechanically from transacted data without use of expert judgement), authorities should work with and guide the private sector to promote rates which are derived on a waterfall of different data types: underlying market transactions first, then transactions in related markets, then committed quotes, and then indicative quotes."*

The misconduct affecting LIBOR in the past is well documented. Since then, LIBOR has changed significantly:

- There is statutory regulation of LIBOR, including an Approved Persons regime, with both civil and criminal penalties

[4] See http://www.financialstabilityboard.org/publications/r_140722.pdf

- IBA is an independent organisation with no affiliation to submitters or users
- IBA is regulated by the FCA and is subject to the FCA's rules specifically related to the administration of the eight most important benchmarks in the UK. There are specific obligations for administrators on governance and oversight
- LIBOR Benchmark Submitters are also regulated by the FCA and each bank must have a designated senior manager (CF40) to have personal responsibility for the oversight of the bank's compliance with the FCA's requirements
- LIBOR Benchmark Submitters have implemented robust governance processes for their LIBOR submissions; their controls have been reviewed by the FCA
- LIBOR Benchmark Submitters are required to have annual external audits of processes and controls
- IBA's LIBOR Code of Conduct contains guidelines for: the explicit use by Benchmark Submitters of transaction data to determine submissions; Benchmark Submitters' systems and controls; and transaction record keeping responsibilities
- The Benchmark Submitters send all of their funding trades to IBA every day together with other evidence to support their LIBOR submissions for that day
- IBA has purpose-built surveillance tools and employs a dedicated team of surveillance analysts to examine banks' trading activity and evidence every day
- IBA's governance structure includes a Board of Directors with a majority of Independent Non-Executive Directors ("INEDs")
- IBA's sole focus is on producing benchmarks to the highest standard
- Attempted manipulation would now have to involve a significant number of people within one or more banks bypassing a range of control mechanisms, and
- Manipulation or attempted manipulation of LIBOR is now a criminal offence in the UK.

## 2.2 About LIBOR

LIBOR usage has grown steadily since its creation and is of global significance. It is referenced by an estimated US$ 350 trillion of outstanding contracts in maturities ranging from Overnight to more than 30 years.

LIBOR is produced by IBA on London business days in 5 currencies, each with 7 maturities ranging from Overnight to 12 months, producing 35 rates each business day. IBA maintains a currency panel of between 11 and 18 Benchmark Submitters for each currency calculated.

IBA calculates LIBOR rates using a trimmed arithmetic mean, by excluding the highest and lowest 25% of submissions.

Further information is available at https://www.theice.com/iba/libor.

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## 3. FEEDBACK ON THE SECOND POSITION PAPER

Through the consultation on the Second Position Paper, IBA sought feedback both in general terms and also in response to 47 specific questions.

IBA is very grateful for the excellent, thoughtful feedback received on the Position Papers and in response to the consultation. Appendix 1 sets out a list of organisations that responded to the consultations, attended a roundtable meeting and/or provided bilateral feedback to IBA.

IBA would like to express thanks to the regulatory authorities and Central Banks for their continued engagement and support in the evolution of LIBOR, and in particular the following: the Bank of England; the Board of Governors of the Federal Reserve System and the Federal Reserve Bank of New York; the Swiss National Bank; the Bank of Japan; the Japan Financial Services Agency; the European Central Bank; the Banque de France; the Financial Conduct Authority ("FCA"); and the International Organization of Securities Commissions (IOSCO).

The fundamental objectives of IBA's proposed enhancements in the Position Paper are to:

- Base LIBOR in transactions to the greatest extent possible
- Create a single, clear, comprehensive and robust LIBOR definition
- Implement a construct for ensuring that the rate can adapt to changing market conditions with appropriate consideration for the interests of all stakeholders, and.
- Evolve LIBOR through a seamless transition.

Appendix 2 sets out the detailed consultation points and a summary of the feedback

As discussed in more detail below, IBA sought feedback in particular in relation to the following:

- What should be the eligible counterparty types, including particularly whether corporates (i.e. non-financial corporations, termed in this Feedback Statement as "corporations") should be eligible as counterparties to transactions that inform LIBOR submissions - where the bank is the borrower and the corporation is the lender
- Whether expanding the funding locations for eligible transactions would be appropriate
- Whether LIBOR should be based on a point in time or over a period of time
- The use of historical transactions
- The impact of month/quarter and year ends
- Interpolation and extrapolation techniques
- The role of Expert Judgement
- Expanding the size of the currency panels
- How LIBOR should be described since there is currently no full definition

- Whether it would be appropriate to modify the calculation methodology for LIBOR, and
- Whether there should be any change to the current embargo of LIBOR submissions for 3 months.

Respondents were also invited to raise any other considerations that they thought should be included to further enhance the LIBOR reforms.

IBA and its LIBOR Oversight Committee are considering all of the points raised during the consultation. The roadmap continues to be refined and the comments in this Feedback Statement do not necessarily reflect the final solution.

In making decisions on the evolution of LIBOR, IBA is being mindful of the strong desire from the relevant Central Banks and regulatory authorities to address a number of specific areas:

- Anchoring LIBOR in transactions wherever possible
- Minimising the possibility of frustration of contracts referencing LIBOR
- Minimising any alterations to transacted prices that could be used inappropriately to influence LIBOR, and
- Ensuring that LIBOR is robust and able to adapt to changing market conditions

The wholesale unsecured market has diminished in recent years and banks' funding means have changed, in part through regulatory measures. LIBOR and other 'IBOR' indices are based on, and still aimed at representing, funding markets.

IBA is also being mindful of the changes that Benchmark Submitters have already implemented, in response to the Wheatley Review and the subsequent legislative and regulatory developments. Some aspects of LIBOR need to be updated to reflect these changes.

### 3.1 Corporations as counterparty types

LIBOR was 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. Since activity in the interbank market has decreased markedly, wholesale deposits negotiated with other counterparts are playing an increasingly important role in bank funding.

The feedback from the consultation was generally positive towards including corporations as counterparties to a bank's funding transactions, subject to minimum thresholds for the number and size of eligible transactions.

Where reservations were expressed, it was because some corporate deposits, particularly short-term ones, can be motivated by corporations needing a 'home' for short term money where the rate may be a relatively minor consideration.

### 3.2 Funding locations

LIBOR is a global benchmark. Transactions in other centres may therefore be as pertinent as those in London.

In the Second Position Paper, IBA proposed to maintain an Approved List of Funding Locations, which would be approved and kept under review through the LIBOR Oversight Committee.

Within that overall list, which would be published, IBA would agree with each Benchmark Submitter the most appropriate funding centres to be used for that bank's submissions, with a view to including representative transactions to the greatest extent possible without introducing potential distortions to submissions.

Widening the funding locations was generally seen as desirable for expanding the number of available transactions. Since the appropriate locations for each bank will depend on its organisational and geographical profile, there was wide agreement that IBA should set the appropriate locations with each bank bilaterally, being mindful of the need to safeguard the representativeness of the transactions and their pricing, within an overall list of funding locations.

### 3.3 LIBOR at a point in time or over a period of time

LIBOR is currently set as of 11.00 and is published at approximately 11.45 (London time). The Second Position Paper described four scenarios to illustrate the impact of determining LIBOR at a point in time (e.g. as of 11.00 London time) or by taking transactional data over a period of time (e.g. a 24 hour transaction window).

Using transactions over a period of time, which is already accommodated in some banks' current methodologies, should lead to the capture of a greater volume of trades from different time zones.

IBA asked respondents for comments, balancing factors such as the following:

- Time zones and locations in which banks fund themselves will be increasingly important
- Markets can move quickly, making transactions from the previous day less relevant
- Moving the LIBOR setting time by a short period (e.g. to 13.30 London time) would allow more USD trades to be included
- Market events during a transaction window may require adjustments, and
- Any impact on contracts referencing the rate and associated processes.

Option 4 attracted the most support and was favoured in nearly 40% of the written responses. Under this scenario, LIBOR would continue to be a rate as of 11.00, which was seen as an important criterion for assuring the continuity of contracts referencing LIBOR. To include as many transactions as possible within submissions, the collection window would be from the previous submission (i.e. 11.00 to 11.00). The Volume Weighted Average Price ("VWAP") of transactions would be used, adjusted if necessary by using Expert Adjustment for a rate as of 11.00. Publication of LIBOR would continue to be at approximately 11.45.

Options 1 and 2 each received support in a little more than a quarter of the responses. Option 1 would use the VWAP of transactions since the previous submission with publication at 11.45. Option 2 would use the VWAP of transactions from the whole of the previous London day (24 hours) with LIBOR being published on the following business day.

Option 3 was having an expanded 'same day' transaction window from, for example, 06.00 to 13.30 and publishing LIBOR at approximately 14.15. This received little support.

### 3.4 Level 1 considerations

*Transactions*

As stated in the Position Papers, Benchmark Submitters already use a wide range of transactions to anchor their LIBOR submissions within the existing waterfall of methodologies in Box 4.B of the Wheatley Review. Each Benchmark Submitter has developed its own methodology for establishing LIBOR submissions and a variety of approaches now exists.

IBA proposed to standardise the acceptable Level 1 (Transactions) as the VWAP of transactions in the following:

- Unsecured Deposits
- Commercial Paper ("CP") - primary issuances only, and
- Certificates of Deposit ("CD") - primary issuances only.

Where the above Level 1 transactions are not sufficient, Floating Rate Notes ("FRN") or Floating Rate Certificates of Deposit ("FRCD") could additionally be included, provided that they: are 'plain vanilla; are a primary issuance; and have a maturity of less than two years.

The essence of the Waterfall was strongly supported and no other transaction types were advocated.

There was some support for using FRNs and FRCDs but also some objections.

### *3.4.1 Minimum transaction sizes*

One of the areas for consultation was on transaction sizes and where the balance should be struck between, on the one hand, a threshold size that minimises the risk of attempted manipulation and, on the other hand, a threshold that does not unduly exclude transactions and is representative of the wholesale market.

IBA proposed two options and invited other suggestions. The two options that IBA proposed were:

- A minimum size of USD 10 million from a minimum of two transactions, or
- A minimum size of USD 25 million from a minimum of three transactions.

Overall there was most support for using a minimum size of USD 10 million from two transactions. A significant number of respondents advocated using lower thresholds.

### *3.4.2 Tenor bucketing*

Transactions with maturities falling between required submission tenors are important data points to incorporate in the formulation of LIBOR. To ensure a consistent methodology and remove the requirement for judgement, IBA set out a matrix to provide a standard methodology for the treatment of transactions of eligible sizes.

There was general support for having a standard matrix to be used by all of the banks, with some comments on the detail of the matrix.

### *3.4.3 Month / quarter / year ends*

IBA asked for comments about the different considerations that apply over month / quarter / year ends, when there is typically higher volatility in some currencies.

The feedback was that there should be some fine tuning of the 'tenor bucketing' to reduce the impact of month ends, especially for the shorter tenors.

## 3.5 Level 2 inputs

### *3.5.1 Historical transactions, Interpolation and Extrapolation*

1. Historical transactions:

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

   IBA proposed a matrix of the proposed number of days for each currency and tenor. Some helpful suggestions were made for fine tuning the matrix.

2. Interpolation:

Feedback suggested that linear interpolation should be limited to determining the 2 Month, 3 Month and 6 Month tenors, using the transacted rates from the adjacent tenors (which may include rates calculated from historical trades and also trades in non-standard tenors).

3. Extrapolation / Parallel Shift:

The consensus here was that Parallel Shift should be applicable for the 1 Month to 12 Month tenors, calculated for a tenor by using the day-on-day percentage delta for a transaction based VWAP (which can include adjusted historical trades) from a single adjacent LIBOR tenor.

### 3.6 Expert Judgement

IBA proposed that Level 3 (Expert Judgement) should have two elements:

1. A Formula devised by each bank, agreed with IBA and incorporated by the bank within a submission-generating system for use when the bank has insufficient inputs at Level 1 (Transactions) or Level 2 (Transaction-derived data), and

2. A Framework that a bank may use if a system-generated submission would be clearly unrepresentative of the market and/or if the Benchmark Submitter considers that the transaction-based submission rate is clearly unrepresentative of the bank's funding cost).

The consultation comments recognised the value of Expert Judgement. There was, however, lower support for having both a Formula and a Framework.

### 3.7 Expanding currency panel sizes

Widening the currency panels would create a virtuous circle of more transactions, enhancing the market representation, making LIBOR ever harder to manipulate, reducing the regulatory and legal risk for Benchmark Submitters and attracting more submitting banks.

Whilst there was wide support for increased panel sizes, provided that a suitable credit quality is maintained, respondents were clear in their view that some regulatory and/or legal impetus would be needed and desirable.

### 3.8 Description of LIBOR

Embedding LIBOR to the greatest extent possible in transactions provides the opportunity to review other aspects of the benchmark such as the 'definition', insofar as one exists, and whether it should be updated in line with the changes in banks' funding activity.

There were mixed views on whether the 'Administrator's Question' should fall away but support in principle for what IBA had termed an Output Statement.

### 3.9 Calculation methodology

LIBOR is currently calculated using a trimmed arithmetic mean. Once all submissions are received, they are ranked in descending order and then the highest and lowest 25% of submissions are excluded to remove outliers from the final calculation. A mean is calculated from the remaining 50%.

Some respondents favoured maintaining the existing calculation methodology. There was also support for lowering the trimming to 12.5% to allow more submission values to be reflected in the calculated LIBOR value.

### 3.10 General feedback

A recurring theme in the feedback was the view that Benchmark Submitters should transmit eligible transaction data to IBA, rather than submissions, and that IBA should calculate LIBOR rates from the transactional data. This was seen as likely to result in a reduced need for subjectivity.

IBA can appreciate the merits of getting raw trade data from Benchmark Submitters and then determining the LIBOR rates. It would achieve the objective of anchoring LIBOR to the greatest extent possible in transactions. It would help to minimise any conflicts of interest in production of LIBOR. It would reduce the risk for panel banks and therefore increase the possibility of attracting more submitting banks.

It must, however, be recognised that in the absence of sufficient transactions some form of Expert Judgement will still need to be exercised. The capacity of IBA to provide expert judgement would have to be carefully considered.

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## CONSULTATION RESPONDENTS

IBA is very grateful to the following organisations that responded to the consultation, attended a roundtable meeting and/or provided bilateral feedback to IBA:

| Organisation | Sector |
|---|---|
| 3 Hare Court | Legal |
| ABM Industries | Corporate |
| AIG | Insurance |
| Aimco | Asset Management |
| Aioi Nissay Dowa Insurance | Insurance |
| Aldermore Bank | Bank |
| Alstom | Corporate |
| Amec Foster Wheeler | Corporate |
| American Council of Life Insurers | Association |
| Amundi | Asset Management |
| ASSIOM FOREX | Association |
| Association du Forex et des Trésoriers de Banque (AFTB) | Association |
| Association for Financial Professionals (AFP) | Association |
| Association Française des Trésoriers d'Entreprise (AFTE) | Association |
| Association of Corporate Treasurers - Suisse Romande | Association |
| Association of Corporate Treasurers (ACT) | Association |
| Aviva | Asset Management |
| Baloise Asset Management | Asset Management |
| Bank of America | Submitting Bank |
| Bank of China | Bank |
| Bank of England | Central Bank |
| Bank of Japan | Central Bank |
| Bank of Tokyo-Mitsubishi UFJ | Submitting Bank |
| Bank of Yokohama | Bank |
| Banque de France | Central Bank |
| Barclays | Submitting Bank |
| Blackrock | Asset Management |
| Blackstone | Asset Management |
| BNP Paribas | Submitting Bank |
| BNY Mellon Investment Management | Asset Management |
| Board of Governors of the Federal Reserve System | Central Bank |
| BOBST | Corporate |
| Bp | Corporate |
| Brevan Howard US Investment Management LP | Hedge Fund |
| BT Pension Scheme Management Ltd | Corporate |
| Canada Life | Asset Management |

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|---|---|
| Central Tanshi | Bank |
| Centrica | Corporate |
| Citi | Submitting Bank |
| City of New York Office of the Comptroller | Pension Fund |
| Clariant | Corporate |
| CME Group | Market infrastructure |
| Commerzbank | Bank |
| Convexity Capital Management LP | Asset Management |
| Corporate Treasurers Council | Association |
| Credit Agricole | Submitting Bank |
| Credit Suisse | Submitting Bank |
| Dai-ichi Life Insurance | Insurance |
| Daiwa Securities | Bank |
| Darrell Duffie ( Stanford University) | Academic |
| Deutsche bank | Submitting Bank |
| Dexia | Bank |
| DTCC | Corporate |
| Elsevier | Corporate |
| Experian | Corporate |
| Fannie Mae | GSE |
| FCA | Regulator |
| Federal Home Loan Bank of Boston | Bank |
| Federal Reserve Bank of New York | Central Bank |
| Fidelity | Asset Management |
| Freddie Mac | GSE |
| French Association of Institutional Investors (Af2i) | Association |
| GAM Investment Management | Asset Management |
| GE | Corporate |
| Givaudan | Corporate |
| GM Asset Management | Asset Management |
| Goldman Sachs | Bank |
| Grosvenor Estates | Corporate |
| Hitachi | Corporate |
| Honeywell | Corporate |
| HSBC | Submitting Bank |
| HSBC Global Asset Management | Asset Management |
| ING | Bank |
| International Capital Markets Association (ICMA) | Association |
| International Swaps and Derivatives Association (ISDA) | Association |
| Intesa Sanpaolo | Bank |
| Investec | Bank |
| J Safra Sarasin | Bank |
| Japan Bankers Association | Association |
| Japan FSA | Regulator |
| Japan Securities Clearing Corporation | Corporate |
| Jefferies LLC | Bank |

| | |
|---|---|
| Jeremy C. Stein (Harvard University) | Academic |
| Joyo Bank | Bank |
| JP Morgan | Submitting Bank |
| JP Morgan Asset Management | Asset Management |
| Julius Bauer | Bank |
| Jyske Bank A/S | Bank |
| KfW | Bank |
| LafargeHolcim | Corporate |
| Legal and General | Asset Management |
| Lloyds Bank | Submitting Bank |
| Loan Market Association (LMA) | Association |
| MetLife | Insurance |
| Mitsui & Co Ltd | Corporate |
| Mitsui & Co. | Bank |
| Mizuho | Submitting Bank |
| Morgan Stanley | Bank |
| National Bank of Abu Dhabi | Bank |
| National Futures Association (NFA) | Association |
| Nationwide | Building Society |
| Natixis | Asset Management |
| Nestle | Corporate |
| New York Life Insurance Company | Insurance |
| Nomura | Bank |
| Nomura Securities | Bank |
| Nord LB | Bank |
| Norinchukin Bank | Submitting Bank |
| Northern Trust | Bank |
| Norwegian Bank Investment Management | Sovereign Wealth Fund |
| Pernod Ricard | Corporate |
| PIMCO | Asset Management |
| Prudential | Asset Management |
| Rabobank | Submitting Bank |
| Raiffeisen Switzerland | Bank |
| RBS | Submitting Bank |
| Rentokil-Initial | Corporate |
| Roche | Corporate |
| Rothschild Bank | Bank |
| SABMiller | Corporate |
| Santander | Submitting Bank |
| Saudi Arabian Monetary Agency | Central Bank |
| Schindler | Corporate |
| Securities Industry and Financial Markets Association (SIFMA) | Association |
| Shell | Corporate |
| Shinkin Central Bank | Central Bank |
| Siemens | Corporate |
| Simplex Asset Management | Asset Management |

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|---|---|
| SITA | Corporate |
| Société Générale | Submitting Bank |
| Société Générale Gestion | Asset Management |
| Solvay Brussels School of Economics and Management | Academic |
| Sompo Japan Nipponkoa Insurance | Insurance |
| Sonova | Corporate |
| Standard Chartered | Bank |
| Standard Life | Insurance |
| State Street Global Advisors | Asset Management |
| Statoil | Corporate |
| Sumitomo Mitsui Banking Corporation | Submitting Bank |
| Sumitomo Mitsui Trust Bank | Bank |
| Swiss Association of Corporate Treasurers (SwissACT) | Association |
| Swiss Funds & Asset Management Association (SFAMA) | Association |
| Swiss Life Asset Management AG | Asset Management |
| Swiss National bank | Central Bank |
| Swiss Reinsurance Company (Swiss Re) | Insurance |
| Syngenta AG | Corporate |
| T. Rowe Price | Asset Management |
| The Investment Association | Association |
| The Swiss Federal Social Security Funds (CompenSwiss) | Pension Fund |
| Tokyo Financial Exchange | Market infrastructure |
| Total Oil Group | Corporate |
| Toyota Financial Services (UK) PLC | Corporate |
| Tradition | Broker |
| TUI Group | Corporate |
| Tyco International | Corporate |
| UBS | Submitting Bank |
| UBS Asset Management | Asset Management |
| Ueda Yagi Tanshi | Broker |
| Union Bancaire Privée | Bank |
| Vanguard Asset Management | Asset Management |
| Veolia | Corporate |
| Volkswagen | Corporate |
| Wholesale Market Brokers Association | Association |
| World Bank | International Financial Institution |
| Zürcher Kantonalbank (ZKB) | Bank |

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**APPENDIX 2**

## DETAILED FEEDBACK ON THE SECOND POSITION PAPER

This Appendix 2 sets out the detailed consultation points and a summary of the feedback:

A2.1 Corporations as counterparty types

A2.2 Funding Locations

A2.3 Point in time or Period of time

A2.4 Level 1 (Transactions) – Specific Questions

A2.5 Interpolation and Extrapolation

A2.6 Expert Adjustments and Expert Judgement

A2.7 Expanding currency panel sizes

A2.8 Description of LIBOR

A2.9 Calculation methodology

A2.10 Data embargo

A2.11 Other considerations

It should be noted that not all respondents replied to all of the questions.

The feedback is summarised and/or paraphrased in some cases. Feedback quoted verbatim is shown in inverted commas.

## A2.1 CORPORATIONS AS COUNTERPARTY TYPES

*Summary of Position Paper proposals*

LIBOR was 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. Since activity in that market has decreased markedly, banks have had to expand their sources of unsecured funding to other wholesale counterparties.

Fulfilling the strategic direction set by the FSB and other official sector bodies for anchoring LIBOR in transactions requires an increase in the trade data on which to base LIBOR submissions.

Consistent with the original purpose of LIBOR and to reflect the changes in bank funding in recent years, IBA proposed that all wholesale funding transactions should be regarded as eligible counterparty types including such transactions with corporations.

Benchmark Submitters would use transactions where they receive funding from the following:

- Banks including Central Banks
- Sovereign Wealth Funds
- Governmental entities
- Non-Bank Financial Institutions, including Money Market Managers and Insurers
- Supranational corporations, including local /quasi-governmental organisations, and
- Non-financial corporations as counterparties to a bank's funding transactions.

Having a minimum transaction size for eligible transactions would of itself ensure that only major financial institutions and corporations would be included. Indeed, it could be distorting to LIBOR if they were not taken into account as they are now intrinsic to banks' funding rates.

IBA estimates that the inclusion of corporations as counterparties to banks' funding transactions could increase the transaction volume by up to 15%, depending on the relevant currency and tenor.

IBA proposed that transactions should be used with no premium or discount to adjust the transacted prices with any counterparty types.

*Position Paper questions*

Q1 Do you agree in principle with using corporates as counterparty types? Yes ☐ No ☐

If No, please explain your rationale.

Q2 Do you think that transactions with Corporates as counterparty should be included with no premium or discount to adjust the transacted prices? Yes ☐ No ☐

Please explain your rationale.

Q3 Do you think that the minimum size threshold should be increased for transactions with Corporates? Yes ☐ No ☐

If Yes, please explain your rationale and state what you think the increase in the threshold should be.

*Feedback*

These Questions elicited a relatively large number of written responses from all respondent types and were also a topic of considerable discussion at the roundtable meetings hosted by the Central Banks.

It was generally recognised that including corporations would help to anchor LIBOR in a greater volume of transactions, which is consistent with the goals of IBA's consultation and the overarching strategic direction mandated by the FSB.

However, a number of reservations were expressed:

- The inclusion of banks' funding transactions with corporations would encompass a different credit spectrum from purely interbank funding
- Rates offered to corporations may not reflect a bank's funding cost. Such transactions may be influenced heavily by customer relationships, marketing strategies and specific regulatory value
- The inclusion of corporations may require an adaptation of the LIBOR 'definition', and
- LIBOR could become a more volatile index.

Respondents were aware that the source of bank funding has changed over recent years and a majority supported the inclusion of corporations as funding transaction counterparties in order to increase the number of actual transaction data points on which to base LIBOR submissions, with the important proviso that they should be unsecured funding transactions.

As to whether to include transactions with corporations with no premium or discount to adjust the transacted prices, one respondent noted that corporate deposits merely form a part of the overall wholesale funding universe and therefore should be taken unadjusted. If adjustments were made to corporate deposits, adjustments may also have to be considered for other sources of funding that have favourable regulatory treatment.

Another comment was that including the final client rate with no premium or discount would avoid any suspicion of manipulation through adjustment of the rate.

One respondent disagreed with using the counterparty types with no premium or discount and suggested putting thresholds on the highest/lowest contributions.

A suggestion was made to include transactions with corporations unadjusted but not for the short tenors (e.g. transactions with corporations where the transaction has a maturity of longer than 30 days)

### A 2.2 FUNDING LOCATIONS

*Summary of Position Paper proposals*

Since LIBOR is a global benchmark, transactions in other centres may be as pertinent as those in London.

Each of the Benchmark Submitters has its own organisational and geographical profile – with some being subsidiaries and some branches. Because of their different corporate organisations, the banks have differing access to transactions in other geographical locations. In some cases, banks have no visibility or influence over the controls applied in other locations and it would be imprudent to use such business in determining LIBOR submissions.

Recognising also that rates can differ according to location and that the nature of LIBOR might be adversely affected if the funding locations were widened significantly, IBA proposed to maintain an Approved List of Funding Locations. The list would be approved and kept under review by the LIBOR Oversight Committee. The list would be published by IBA.

Within that overall list, IBA would agree with each Benchmark Submitter the most appropriate funding centres to be used for that bank's submissions, with a view to including representative transactions to the greatest extent possible without introducing potential distortions to submissions.

No weighting was proposed to adjust the transacted prices from different funding locations.

*Position Paper questions*

Q4 Do you agree with IBA's proposal to maintain an Approved List of Funding Locations?
Yes ☐ No ☐

If No, please explain your rationale.

Q5 Do you agree that no weighting should be applied to adjust the transacted prices from different funding locations? Yes ☐ No ☐

Please explain your rationale.

*Feedback*

The range of feedback was wide:

- The maxim should be "the more data the better" but it seems reasonable for IBA to set a list of relevant locations

- LIBOR has historically been linked to the London financial hub but the addition of other main financial centres may be needed to record an adequate sample of trades. The number and location of additional funding hubs should be carefully assessed to avoid the inclusion of trades that are not representative of international market conditions

- The pursuit of additional data points should not expand scope beyond London such that rates become skewed by offshore data points or banks with lower credit ratings. USD LIBOR should not become a US domestic rate

- The inclusion of transactions executed in New York or Tokyo funding centres may misalign a LIBOR submission from its underlying interest because of timing differences

- The Approved List could be adjusted as necessary if a location is no longer considered representative, rather than weighting each location.

**A2.3 POINT IN TIME OR PERIOD OF TIME**

*Summary of Position Paper proposals*

LIBOR is currently set as of 11.00 and is published at approximately 11.45 (London time).

The Second Position Paper described four scenarios to illustrate the impact of determining LIBOR at a point in time (e.g. as of 11.00 London time) or by taking transactional data over a period of time (e.g. a 24 hour transaction window).

The four scenarios can be summarised as follows:

1. <u>VWAP from previous submission:</u>

   Using transactions from the time of the bank's previous LIBOR submission (i.e. 11.00 – 11.00) and continuing to publish LIBOR at approximately 11.45 (London time)

2. <u>Rate based on previous day's data:</u>

   Using transactions from the whole of the previous London day (24 hours) and publishing LIBOR on the following business day

3. Expanded same-day transaction window:

Having an expanded 'same day' transaction window from, for example, 06.00 to 13.30 and publishing LIBOR at approximately 14.15

4. Rate as of 11.00 with collection window from previous submission:

Expanding the collection window to 24 hours from the previous LIBOR submission and calculating a VWAP with a view to submitting a rate as of 11.00, if necessary by using Expert Adjustment, and continuing to publish LIBOR at approximately 11.45.

Using transactions over a period of time, which is already accommodated in some banks' current methodologies, should lead to the capture of a greater volume of trades from different time zones.

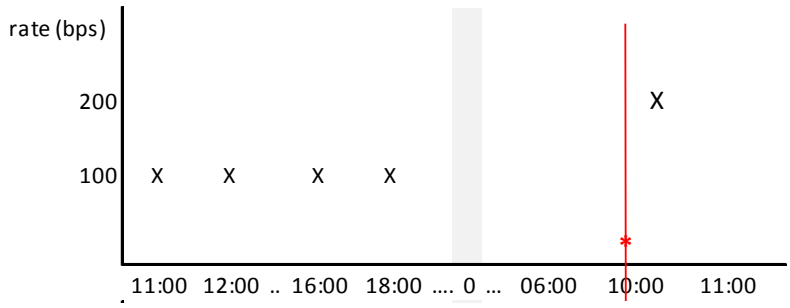
IBA asked respondents to explain which of the above implementation options they preferred, balancing factors such as the following:

- Time zones and locations in which banks fund themselves will be increasingly important
- Markets can move quickly, making transactions from the previous day less relevant
- Volatility of submissions could be increased
- Moving the LIBOR setting time by a short period (e.g. to 13.30) would allow more USD trades to be included, and
- Market events during a transaction window may require the exercise of Expert Judgement/ Adjustment.

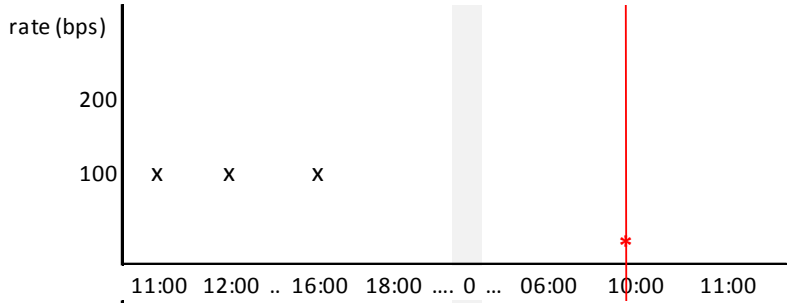
The following scenarios in the Second Position Paper illustrated, with a deliberately extreme example, the impact of determining LIBOR at a point in time (e.g. as of 11.00 London time) or by taking transactional data over a period of time (e.g. a 24 hour transaction window).

Common to each scenario below is an unexpected increase of 100 bps in the policy base rate at 10.00 London time. Four banks have a different transaction profile, as follows (with the assumption that all of the transactions are of equal size and for the same currency and tenor):

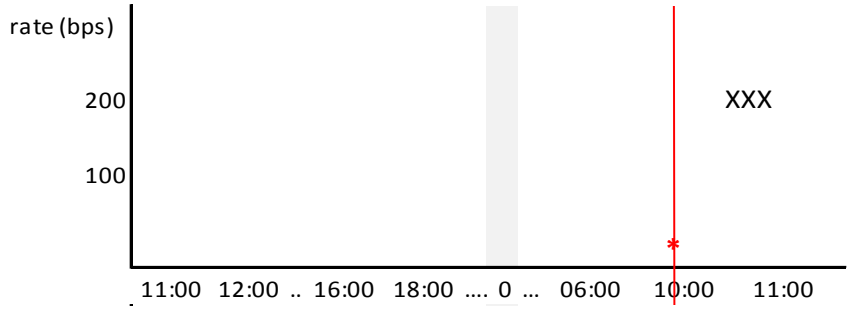
Bank A – since the start of the transaction window, Bank A booked 4 trades at 100 bps and one trade at 200 bps just before the close of the window.



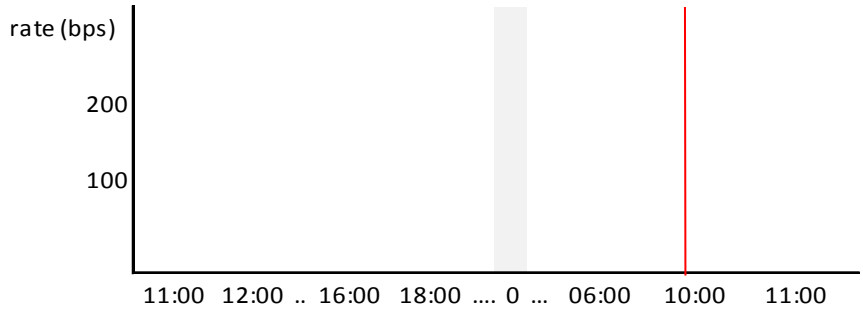
Bank B – during the 24 hours since its last LIBOR submission, Bank B booked 3 trades (for a specific currency and tenor), all for 100 bps.




Bank C – during the 24 hours since its last LIBOR submission, Bank C booked 3 trades at 10.30 and all at 200 bps.




Bank D – during the 24 hours since its last LIBOR submission, Bank D did not book any trade. Its submission is 200 bps if the submission is by reference to a point of time (i.e. 11.00) and based on Expert Judgement.




*Position Paper questions*

Q6 Which of the four implementation options do you think is best?

1 ☐ 2 ☐ 3 ☐ 4 ☐ other (please specify) ☐

Please explain your rationale.

Q7 Would you find any of the implementation options problematic? Yes ☐ No ☐

Please explain your rationale.

Q8 Do you think that LIBOR should be determined by reference to a point in time (e.g. as of 11.00 London time) or by reference to a period of time (e.g. a 24 hour window)?

Please explain your rationale.

Q9 If you think that LIBOR should be determined by reference to a point in time, what time would be optimal in your view?

Please state your preferred timing and explain your rationale.

Q10 If you think LIBOR should be determined by reference to a point in time, would you be in favour of weighting transactions during the preceding data collection period so that transactions closer to publication time are given relatively greater weight? Yes ☐ No ☐

Please explain your rationale.

Q11 If you think that LIBOR should be determined over a period of time, what period would be optimal in your view?

Please state your preferred timing and explain your rationale if you have not done so in response to the questions above.

Q12 What do you think would be the impact of moving to a period of time for different product types (e.g. derivatives, options, loans)?

*Feedback*

Option 4 was the most supported and was favoured in nearly 40% of the written responses.

Options 1 and 2 each received support in a little more than a quarter of the responses.

Option 3 received little support.

The following comments were made about Option 1:

- A wide window to collect transactions maximises the likelihood of a submission being based on transactions and so should minimise the use of Expert Judgement
- Integrity of the submitted rate would be reduced in times of high volatility and market events
- Stale transactions and ones with different values and maturities that encompass month ends or year ends etc could be significantly different in yield and therefore submissions may not be representative

- Using all relevant data since the previous submission would increase the number of available data points and provide a smoothing effect

- Option 1 would have the advantage of allowing more USD data to be used without moving the cut-off time itself

- It is the most transparent approach, removing the role of Expert Judgement to the greatest extent.

Comments on Option 1 frequently referred to Options 2 and/or 4 as well:

- Options 1, 2 and 4 all use data from the previous LIBOR submission or previous business day. There is a significant risk of the rate not being representative of the market at the time of publication, not just over weekends and bank holidays but also when events have occurred overnight

- Options 1 and 4 stand out as being most practicable for avoiding potential derivative contract frustration issues and minimising disruption in the derivatives markets. The weakness in Option 1 is that, without a reference point in time and in the absence of transactions or historical transactions, it would be difficult to address what a VWAP/funding rate would theoretically have been over a 24 hour period, especially if that period contained a market event. Option 4 despite introducing more Expert Judgement addresses this issue

- Changes in interest rates over the submission period may mean that the published rate no longer reflects the interest rate expectations (e.g. there may be unexpected changes announces by Central Banks or large market moves) and thus would leave an interest rate position which is uneconomic at the point at which LIBOR is set. In order to mitigate this risk, banks may be forced to charge additional spreads on their loan products (for example) which would increase costs to their customers

- Submissions would be more volatile depending on when most of the transactions had taken place for each submitting bank and LIBOR could therefore be more volatile. This increase in volatility would have a consequential effect on the swaptions market.

Option 2 attracted feedback as follows:

- It would take no account of transactions on the day of the rate publication

- It would anchor contributions to the previous day's data and it is straight forward and easy to understand, implement and control. In addition Option 2 is aligned with the approach to be used for EURIBOR which would avoid confusion for derivatives traders

- This approach would enable banks with a global footprint to establish a mechanism through which the entire day's activity can be compiled from all funding centres and delivered in a timely fashion. The other options have time zone constraints

- Aggregating deals with intraday timeframes (i.e. 11:00 to 11:00) may be complicated when different locations are included in the calculation. For instance, trading in Tokyo and London at a certain point in time may cause two Benchmark Submitters to contribute the same transaction in two different days

- Option 2 would produce a 'T+1' fixing that can be easily absorbed by market participants

- Transactions from the previous calendar day could be aggregated to publish LIBOR at the open of the next London business day (08.00)

- Any product that would fix against the benchmark on that day would do so at a rate not reflective of the market

- This Option has the London moniker as it is based on the London business day but would have a disconnect with derivative markets which react to live events

- Since Option 2 collects data for an entire business day, the value dates remain the same and it provides cleaner data. The rate may not be fully representative of the market at publication time but this option requires minimum Expert Judgement

- Under this Option, there may be a time lag between contracts referencing the LIBOR fixing and funding taken on a given day. If a derivative were being used to hedge short-term funding costs then, on a given day, the derivative would need to reference the T+1 fixing. This might mean less effective hedging

- There are significant advantages in having homogenous value dates and giving submitting banks ample time in which to check the quality of their data

- There could be market and contractual continuity issues because the rate would not be current or as of 11.00.

Whilst Option 3 has a same-day transaction window, LIBOR would not be published until later in the day (14.15). This Option was the least supported, with a number of drawbacks being commented on:

- The 11.00 timing is important and should not be moved

- Option 3 may have a significant impact on users since it entails a change in the publishing time of LIBOR

- A move away from publishing at 11:45 would cause operational disruption in the loan market

- There would be problems with GBP payments and it would put pressure on operations that are already under tight deadlines. The risk of late payments would increase significantly

- It severely limits the quantum of transactions included for consideration

- It is the least viable as it risks the exclusion of transactions, especially those transacted in other time zones

- It would fail to include important transactions executed on that day in New York

- Any move away from LIBOR being determined at 11:00 means that all references in LMA facilities documents referring to LIBOR as at 11:00 would refer to a rate that no longer exists.

Option 4, which was the most supported Option, yielded comments as follows:

- It maintains the rate as of 11.00

- Even if an unexpected event has occurred in the past 24 hours, submitting banks can provide their submissions with a certain consistency

- "The regulatory risk inherent in exercising Expert judgment for Option 4 is acceptable, considering the risks that will arise by formulating a benchmark rate that effectively becomes unusable as it bears no resemblance to the market level. History teaches us that being completely tied to transactions will bring its own challenges"

- Expert Judgement to include an OIS or other equivalent adjustment to capture changes in market interest rate expectations would reduce the risk of inappropriately impacting the index by executing trades before or after a market event

- However, it would require more reliance on Expert Judgement.

Other, more general comments, included:

- The rate should reflect data from all of the major markets in the relevant currency. Accordingly, the period would begin capturing data in the Asia – Pacific region, and then follow the sun to collect data in other major financial centres, ending with the close of business in the New York

- Allowing the inclusion of trades on an age-weighted basis from the previous 24 hour period is the only way of securing enough transactions to validate the process

- A period of time would lead to higher costs for end users because of the higher uncertainty for banks and the lower possibility of hedging precisely

- For a 'point in time' methodology, it would be sensible to give greater weight to transactions nearer that point than those further away or on the previous day

- Weighting transactions may still not produce a rate that is accurate for a reference point in time, especially (i) if a majority of the transactions take place early in the transaction reference period or (ii) where a market event takes place and there are few transactions following that event. This therefore introduces an unnecessary complication to the process

- The basis between the cash and futures markets will widen if unadjusted historical transactions are used to form the rate - using stale trades is not compatible with real time risk management

- There is a risk of over-complicating the whole process and possibly creating new conflicts of interest around the time of setting the benchmark

- Determining LIBOR by reference to a 'period of time' would enable actual transaction data to be used to the greatest extent possible

- 24 hours is the optimal time period for consideration of transactions as the smallest interest rate unit is 'percentage per day'.

## A2.4 LEVEL 1 (TRANSACTIONS) – SPECIFIC QUESTIONS

*Summary of Position Paper proposals*

**Waterfall of Level 1 transactions**

As stated in the Position Papers, Benchmark Submitters already use a wide range of transactions to anchor their LIBOR submissions within the existing waterfall of methodologies in Box 4.B of the Wheatley Review. Each Benchmark Submitter has developed its own methodology for establishing LIBOR submissions and a variety of approaches now exists.

IBA proposed to standardise the acceptable Level 1 (Transactions) as the Volume Weighted Average Price of transactions in the following:

- Unsecured Deposits
- Commercial Paper (CP) - primary issuances only, and
- Certificates of Deposit (CD) - primary issuances only.

If the above Level 1 transactions are not sufficient, FRNs or FRCDs may additionally be included, provided that they: are 'plain vanilla'; are a primary issuance; and have a maturity of less than two years.

IBA proposed that the VWAP of transactions be included with no premiums or discounts to adjust the transacted price.

This means, for example, that transactions at unrepresentative prices that might be carried out by a bank for various reasons would be included without adjustment – they were after all transactions.

To mitigate a risk of manipulation of rates through non-representative prices, IBA would require explicit details and reasons for any such transaction, together with an attestation by the Benchmark Submitter at senior level that the transaction was bona fide.

**Minimum transaction sizes**

The FSB's desire for LIBOR to be transaction-based as far as possible means a more formulaic approach for banks and an appropriate trade size threshold needs to be set. This involves balancing, on the one hand, a threshold size that mitigates potential manipulation and/ or distortion of rates with, on the other hand, a threshold that does not unduly exclude transactions and is representative of the wholesale market that LIBOR is intended to represent.

Benchmark Submitters currently use a range of market sizes as yardsticks for deciding whether transactions are of eligible size to be included in determining their LIBOR submissions.

IBA proposed that each Benchmark Submitter should agree the applicable Level 1 trade thresholds bilaterally with IBA to ensure that the thresholds are appropriate for the size and business profile of the bank, subject to overall thresholds agreed from time to time by the LIBOR Oversight Committee.

The thresholds for each bank would be kept under regular review by IBA.

Based on IBA's data of trading by Benchmark Submitters, the charts below gave an indication of possible thresholds and the effect they may have on the respective input ratios related to Level 1 (Transactions), Level 2 (Transaction-derived) and Level 3 (Expert Judgement) submissions. The charts, which related to USD LIBOR, were provided as an example.

**Chart 1:**

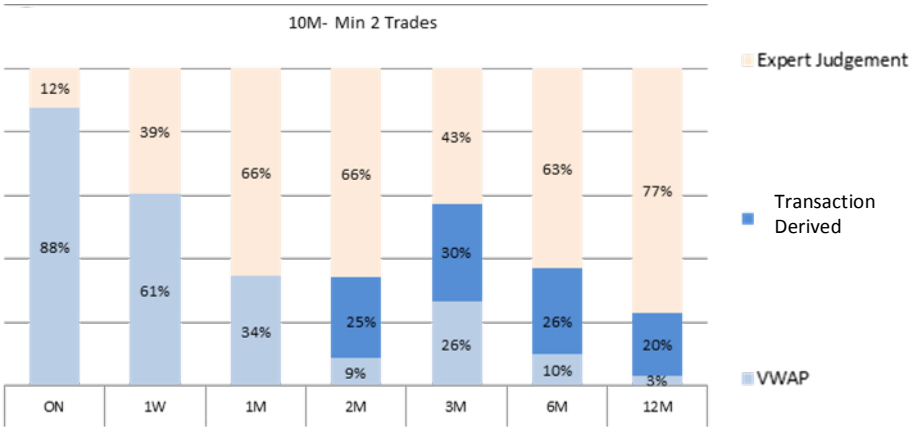



**Chart 2:**

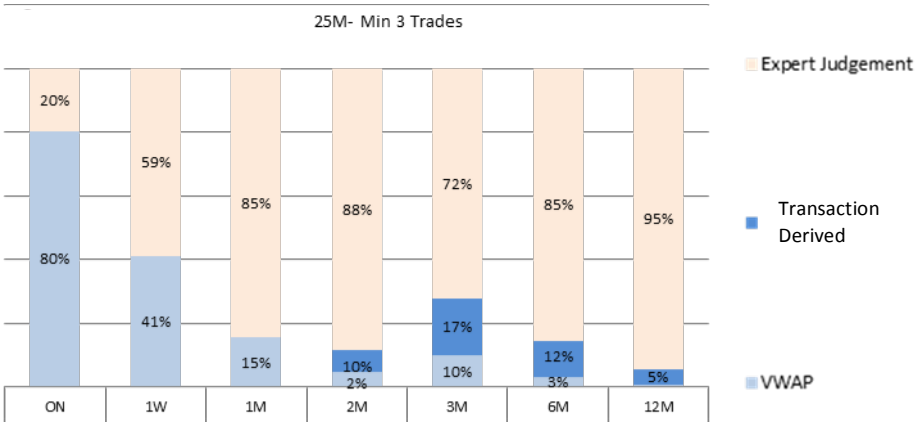



Chart 1 set a minimum threshold of USD 10 million per transaction and two trades for each tenor. This indicated that 88% of the Overnight (O/N) tenor would be based on inputs from Level 1 (Transactions) and 12% from Level 3 (Expert Judgement).

By contrast, Chart 2 raised the threshold to USD 25 million and three trades. The O/N benchmark would then be based 80% and 20% on Level 1 and Level 3 inputs, respectively. The 3M tenor showed the widest difference, with 43% Expert Judgement in Chart 1 and 72% in Chart 2, and with the Level 2 input of transaction-derived data moving from 30% to 17%.

**Overnight tenors**

IBA asked respondents to consider whether there would be merit in treating the Overnight tenors differently because of the different value date.

*Position Paper questions*

Q13 Do you think that there would be merit in treating the Overnight tenors differently because of the different value date? Yes ☐ No ☐

Please explain the rationale for your response.

Q14 Do you agree with using FRNs / FCDs to supplement the Level 1 transaction types if necessary? Yes ☐ No ☐

If No, please explain your rationale.

Q15 Are there any other transaction types that you think could be used to supplement the Level I transaction types? Yes ☐ No ☐

If Yes, please specify the transaction type(s) and explain your rationale.

Q16 Do you agree with using the counterparty types with no premium or discount to adjust the transacted prices? Yes ☐ No ☐

If No, please explain your rationale.

Q17 Where do you see the balance between, on the one hand, a threshold size that mitigates potential manipulation and, on the other hand, a threshold that does not unduly exclude transactions and is representative of the wholesale market?

Please explain your rationale.

Q18 Which of the thresholds do you think is more appropriate?

USD 10m + 2 trades ☐ 25m + 3 trades ☐

Please explain your rationale.

Q19 Would you prefer a different minimum size and / or minimum number of transactions?

Yes ☐ No ☐

Please describe the scenario and explain your rationale.

Q20 Do you think that a uniform threshold size should be applied across all currencies or that different thresholds should apply to different currencies/tenors? Yes ☐ No ☐

Please explain your rationale.

*Feedback*

**Waterfall of Level 1 transactions**

The essence of the Waterfall was strongly supported and no other transaction types were advocated.

There was some support for using FRNs and FRCDs but also some objections on the grounds that there is a circular argument in fixing a floating rate on a FRN to supplement fixed rate transactional data by using the swap market at the trade date given that the swap market itself references LIBOR.

Other comments included that:

- Since LIBOR is a fixed rate, it should only refer to fixed rate transactions
- Incorporating FRNs and FRCDs would lead to an unwarranted increase in the volatility of IBOR
- Although adding FRNs/FRCDs to the transaction pool may increase observable transactions, converting FRNs/FRCDs to a simple unsecured fixed deposit rate is problematic
- FRNs/FRCDs should be considered further down the waterfall, in Level 3 (Expert Judgement).

**Minimum transaction sizes**

Overall there was most support for using a minimum size of 10 million from two transactions but a variety of comments was received:

- A minimum size of 25 million is representative of the wholesale market. A USD 10 million ticket size would mean the inclusion of many 'off-market' or 'captive' trades
- Threshold sizes for currencies will differ depending on the individual characteristics of each bank's balance sheet and hence should be agreed bilaterally. Thresholds are probably broadly similar for each bank in EUR, GBP and USD (although the level of these thresholds will differ from bank to bank) but much lower for CHF and JPY. Relevant thresholds should differ by tenor
- With a VWAP methodology, there is likely to be no meaningful impact on LIBOR unless a trade is of a substantial size: a threshold size is likely to have a minimal impact on a small unrepresentative trade
- There may be potential for manipulation if all banks' submissions are equally weighted yet one is informed by a substantially smaller volume of trades than the others
- Consideration should be given to weighting the respective submissions by reference to their transaction volume
- Notional thresholds should vary by currency and tenor, with smaller notional thresholds for longer tenors (e.g. pv01 weighted) and smaller thresholds for lower volume currencies
- A single transaction in a tenor should be sufficient, particularly for longer and less traded tenors. One transaction in a tenor is generally preferable to a rate derived from a transaction (for example, through the use of historical transactions or parallel shift)
- Small trades should be subject to some weighting and consideration should be given to excluding very large trades to avoid inappropriate influence on the index
- There should be no minimum number of transactions and the minimum size should be different depending on the tenor as the normal market size is different across different tenors.

**Overnight tenors**

The feedback was, as expected, that Overnight (O/N) tenors should not be treated in the same manner as other maturities:

- O/N is quoted on the day for that day
- O/N transaction rates are very volatile and date dependent. As such, only transactions on the day should be included.

*Summary of Position Paper proposals*

**Tenor bucketing**

Transactions with maturities falling between required submission tenors are important data points to incorporate in the formulation of LIBOR. Benchmark Submitters currently use Expert Judgement or their own formula to determine in which tenor such transactions should be reported. For example, a 2.5 month transaction might naturally populate the 2 or 3 month category, or both.

To ensure a consistent methodology and remove the requirement for judgement, IBA set out a matrix to provide a standard methodology for the treatment of transactions of eligible sizes:

| Tenor | Range of days (inc) | |
|---|---|---|
| | From | To |
| ON/SN | 01 | 05 |
| 1W | 06 | 15 |
| 1M | 16 | 45 |
| 2M | 46 | 75 |
| 3M | 76 | 110 |
| 6M | 160 | 200 |
| 12M | 300 | 370 |

Trades of between 111 - 159 days and 201 - 299 days would not be used as Level 1 inputs but could be used for Level 2 (Transaction-derived) and in framing Expert Judgement for Level 3 inputs.

*Position Paper questions*

Q21 Do you agree with tenor bucketing in principle? Yes ☐ No ☐

Please explain your rationale.

Q22 Do you agree with the proposed tenor bucketing? Yes ☐ No ☐

Please explain your rationale.

*Feedback*

Tenor bucketing was supported in principle but elicited a large number of detailed comments, including:

- The proposed tenor buckets for the O/N and 1 week tenors are too wide and are problematic with regards to month end effects. O/N should just cover O/N transactions and exclude S/N and T/N transactions, a 1 week bucket should be narrower at 5 - 9 days rather than extend to 2 weeks
- Investors may set credit limits in terms of maximums. As an example, for a 1 week trade, the maximum exposure or tenor could be 7 days. For a 1 month trade, the maximum should be 30 days
- Some banks still calculate a whole curve, i.e. 18 tenor points, so flexibility is required to agree bucketing on a bilateral basis
- If 1W extends to 15 days and 1M starts at 16 days, a distortion of the short-end of the curve will be created
- The proposed method is simple and clear; though the 1M bucket seems too wide as it comingles very different market rates. As an example, at the end of November, 1M fixing would include a deal in 2W maturing in mid-December, but also deals maturing in January, with a very different rate; the same applies at every quarter end. It would be better to narrow the 1M window to deals maturing within 21-35 days from the start date
- O/N and S/N should only be O/N and S/N, not a range of days
- For operational efficiencies, consideration should be given to aligning bucketing dates with other reporting requirements that use buckets
- The ranges of days should be as follows: 1 Month from 25 to 54 days; 2 Months from 55 to 89 days; 3 Month from 90 to 115; 12 Months from 350 days to 385. Adjusting the bottom of the range of each bucket is essential
- The 12M buckets should be extended to 390 days
- The bucketing is too wide. The rate paid for a 15 day trade would in most circumstances be inherently different to the rate for a 45 day trade
- Trades that do not fall on a specific tenor date should only be used as interpolation points

- Transactions up to 5 days are not representative of the Overnight rate. Dates are missing between tenor points e.g. 50 days between 3M and 6M and 100 days between 6M and 12M. With the inclusion of funding transactions with corporations, some transactions with non-standard tenors can be expected and therefore some dates should not be ignored.

*Summary of Position Paper proposals*

**Month / quarter / year ends**

Currently, in some currencies and tenors, higher volatility is observed over month / quarter / year ends. Such volatility may be caused by regulatory obligations, reporting cut-offs and many other reasons.

IBA asked about any different considerations that should apply over month / quarter / year ends, when there is typically higher volatility in some currencies.

*Position Paper question*

Q23 Do you think that different considerations should apply over month / quarter / year ends (when there is typically higher volatility in some currencies)? Yes ☐ No ☐

Please explain your rationale.

*Feedback*

The following comments summarise the feedback:

- "No amount of modelling will allow for Month/Quarter ends adjustments etc; so expert judgement will always be preferable, and hence it should be allowed at every level and not at the lowest part of any ICE Waterfall"
- These are real month / quarter / year end impacts for each currency submission
- "Regulation has caused distortions to different currencies and needs to be quantified but you also must represent when a CB [Central Bank] is in play. This volatility needs to be shown"
- It is likely that there will be some volatility around year quarter/ year end turns, as institutions manage different variables. It is complex to create a rule or formula that could manage this effect. Expert Judgement could still be used to adjust the rate if it is deemed to be out of market (formulaic or framework). If no Expert Judgement is preferred, then the volatility should be accepted as a consequence of the model

- "Different considerations should be applied and there should be an ability to provide Expert Judgement at any point in the calendar. The number of potential events (for example Central Bank meetings, rating review periods, changes in regulation) could lead to vastly different rates being paid for funds that differ by only a few days in tenor"

- Month, quarter and year-end anomalies and deviations should be taken into account in the submission of benchmark rates. It is difficult to envisage how this can be automated in the absence of any trading activity. At present the only means to cater for such effects is by reference to representative broker quote movements around the relevant periods, together with the experience and perception of submitters around these dates

- Higher volatility at key calendar points is a reflection of the market reality, which any new rate setting process should be designed to capture

- "Under Basel III, observable LIBOR rates over month, quarter and year ends are likely to become very different from bank borrowing rates at the beginning of a month. As it is common for contracts and borrowing facilities to reset on those dates, this effect may lead to significant distortions in the market. It may be necessary in due course to introduce some smoothing into the data to correct for this"

- Given that LIBOR should provide an estimation of banks' funding costs, this should be true of period-ends as for any other day. Applying a different methodology at period-ends risks creating a less transparent and simple model of calculation.

*Summary of Position Paper proposals*

**Historical transactions**

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

A maximum number of days for which historical transactions can be used would be set from time to time by the LIBOR Oversight Committee taking into account the activity in the underlying market.

The proposed number of days for each currency and tenor was as follows:

| | USD | EUR | GBP | CHF | JPY |
|---|---|---|---|---|---|
| **1M** | 3 | 3 | 3 | 5 | 5 |
| **2M** | 3 | 3 | 3 | 5 | 5 |
| **3M** | 3 | 3 | 3 | 10 | 10 |
| **6M** | 5 | 5 | 5 | 10 | 10 |
| **12M** | 10 | 10 | 10 | 15 | 15 |

*Position Paper questions*

Q24 Do you agree with using transactions from previous day(s)? Yes ☐ No ☐

Please explain your rationale.

Q25 Do you agree with adjusting transactions from previous day(s)? Yes ☐ No ☐

Please explain your rationale.

Q26 Do you agree with the box of days for which historical transactions can have an effect on submissions (assuming that the bank was not able to revert to Level 1 inputs in that time)? Yes ☐ No ☐

Please explain your rationale.

*Feedback*

There was general agreement that, in the absence of new trades, it makes sense to use historical transactions as anchor points and indeed there is no real alternative.

This approach was seen as particularly useful for longer tenors; there are fewer transactions and the price is more stable.

More specific comments included:

- Short dated government bonds would react differently at times of market stress i.e. they would tighten and therefore would not be appropriate to reduce the submission in these circumstances; Expert Judgement would still be required

- Overnight Index Swaps can be thinly traded and not reflective of cash markets, similarly for Futures where movements on any given day may not be mirrored in the cash markets.

There was some disagreement of the number of days for which it may be appropriate to use historical transactions. One respondent suggested that the reference period should be longer than IBA's proposal, such as up to 30 days for every currency/tenor, and if necessary Expert Adjustment/Judgement should be used. Another respondent thought that the maximum should be 2 or 3 days for short dated tenors and 5 days for periods longer than 3 months. A third respondent stated that it is difficult to see how transactions from 10 – 15 days prior to the benchmark determination date could provide useful data for a current rate; they considered that transactions older than 5 calendar days from the applicable benchmark setting day should not be used.

Some responses commented on the details of the matrix and suggested some fine tuning.

## A2.5 INTERPOLATION AND EXTRAPOLATION

*Summary of Position Paper proposals*

**Interpolation and extrapolation**

Where transactions are not available for a currency and tenor (or are below the minimum transaction size), IBA proposed that interpolation and extrapolation techniques should be utilised to fill gaps in the curve.

***Interpolation***

Methods of interpolation include the following:

- Applying a straight line interpolation between tenors based on the day-on-day changes of the two available rates

- Calculating the change by decomposing the available rates into a 'risk-free rate' and a credit/liquidity component. To calculate a submission where there are no available trades, an average of the day-on-day change in the credit/liquidity risk premiums of the adjacent tenors would be used.

The correlated rate and credit/liquidity calculation is likely to be the most accurate method, but this has limitations in terms of calculation time and complexity, the time for a bank's internal review before submission, the implementation timing and the implementation costs.

The very short term of the curve (O/N, S/N and 1W) has different dynamics to the rest of the LIBOR curve. Factors such as regulatory obligations (such as the Liquidity Coverage Ratio under which banks are required to hold sufficient high-quality liquid assets to cover their total net cash outflows over 30 days) and credit and liquidity premiums have a different impact on those shorter tenors. In addition, the market conventions (same day, T+2 etc.) are usually specific to the Overnight tenor.

***Extrapolation (Parallel Shift)***

Where a tenor has no transactions and only one neighbouring tenor has a transaction, banks can parallel shift rates based on the day-on-day change in value of the neighbouring tenor's transaction.

IBA proposed that historical trades can be used in extrapolation and parallel shifts if they have been adjusted.

The methodologies for this could either be a straight line extrapolation using available transactions on the curve or calculating the corresponding change from decomposed risk-free rate and credit/liquidity components.

As with interpolation, the very short term of the curve (O/N, S/N and 1W) has different dynamics to the rest of the LIBOR curve.

In the same way as for interpolation, IBA proposed the decomposition of trades into their risk-free rate and credit/liquidity components.

*Position Paper questions*

Q27 Do you agree with IBA's proposed decomposition formula for interpolation?
Yes ☐ No ☐

Please explain your rationale.

Q28 Would you prefer linear interpolation? Yes ☐ No ☐

Please explain your rationale.

Q29 Do you agree that interpolation should not be applied to ON or 1W tenors? Yes ☐ No ☐

If No, please explain your rationale.

Q30 Do you think that interpolation with more than one tenor gap is acceptable? (e.g. if a bank has transactions for the 1M and 6M tenors, can the 2M and 3M tenors be interpolated?)
Yes ☐ No ☐

Please explain your rationale.

Q31 (Please see the "Using FX swaps" section below)

Q32 Do you agree with the application of linear extrapolation or the decomposition formula?

Please explain your rationale.

Q33 Do you agree that extrapolation should not be applied to the ON or 1W tenors (because they are shorter, more liquid and more volatile)? Yes ☐ No ☐

If No, please explain your rationale.

Q34 Do you agree that a bank having more than two points on the curve should use interpolation and then parallel shifts? Yes ☐ No ☐

If No, please explain your rationale.

Q35 What are your views on whether extrapolation should only be used to inform shorter tenors as they may not reflect the credit element and liquidity of longer ones (e.g. a 3M trade can be used to extrapolate a 2M tenor but not 6M)?

Please explain your rationale.

*Feedback*

**Interpolation**

A range of comments was received, with many of them urging IBA to avoid an unduly complex approach – particularly in respect of 'decomposition'.

Linear interpolation was favoured as having the least manual intervention and being better for transparency. Some conditions were suggested because otherwise submissions would not represent the actual market and the volatility would be higher. Such conditions could include applying interpolation to adjacent tenors only and not using it for some tenors.

Linear interpolation can bridge between two points but, where there are infrequent or no trades in the 6 Month and 1 year tenors, straight line interpolation of the "credit/liquidity" component is not realistic to add to an RFR.

Another comment was that straight line interpolation does not reflect the curve shape well historically. Linearly interpolating changes in an RFR between two tenors would give a poor estimation. Linear or cubic spline interpolation would be preferable.

In the context of trying to maximise Level 2 transactions over Level 3 inputs, a parallel shift in either direction was seen as appropriate.

It was also suggested that it could be helpful for the methodology to allow Expert Judgement to be applied as well.

Decomposing the transacted rate into its risk free and liquidity premium components was regarded as a theoretically more sound way of interpolating between two known tenors. However, the practical implementation would be more complex for submitting banks, it could act as a deterrent to new banks joining the submission process and it would be less transparent for users.

**Parallel shift / Extrapolation**

Several comments were made about the use of extrapolation and some reservations were expressed:

- Extrapolation using non-linear methods may produce erratic contributions which would not reflect the theoretical rate at which a bank would trade in a specific tenor
- Extrapolation should be used in both directions (i.e. for shorter and longer tenors); the argument for credit and liquidity risk premium is valid both for shorter and of longer tenors.
- Extrapolation does not take into account a positively sloped credit curve. This needs to be accounted for and is most pronounced in tenors of 3 Months or longer maturity
- There is a risk in using both an interpolation and extrapolation approach due to different demand and supply dynamics at different points on the curve
- Extrapolation should only inform shorter tenors because of the credit element. Extrapolation from 2 to 3 months is manageable but the 6 Month rate should not be used to calculate the 12 Month rate.

**Using FX swaps**

*Position Paper question*

Q31 What are your views, in the absence of anchor points in the relevant currency, on interpolation from transactions in other currencies (e.g. EUR and USD for CHF and JPY) using FX swaps? Yes ☐ No ☐

*Feedback*

Only three respondents were in favour of using FX swaps.

One respondent thought it appropriate to use them to establish prices on different currencies within the Level 2 framework, commenting that such submissions would be based on market data and would be consistent with the price that it is intended to capture.

Another respondent proposed that the CHF and JPY LIBOR definition be changed so as to use the weighted average of implied rate from FX swaps of money market transactions (in EUR, USD and GBP).

The following comments are typical feedback:

- "This is a clear 'no go' since the inclusion of FX swaps renders the submissions into arbitrage free derivate rates, which may not be reflective of the respective cash market"
- "Adding more products with different specifics pollutes the submission rate." The FX swap market incorporates 'basis', among other things, and there is currently a big discrepancy between the prices in the Money Markets/CD /CP market and the FX swap market
- FX implied rates have a basis which could distort the outcome
- Rates constructed from FX conversion are subject to heavy distortion from market speculation, balance sheet management and regulatory changes
- "The synthetic rates produced via swap can deviate from the rates in original currency, therefore introducing distortions"
- "We would not be supportive as each currency has unique dynamics and supply/demand characteristics that cannot be derived from different currencies".

## A2.6 EXPERT ADJUSTMENTS AND EXPERT JUDGEMENT

*Summary of Position Paper proposals*

The Wheatley Review guidelines in Box 4.B include the following statement:

"Submissions may also include adjustments in consideration of other variables, to ensure the submission is representative of and consistent with the market for inter-bank deposits. In particular, the information obtained above may be adjusted by application of the following considerations:

- Proximity of transactions to time of submission and the impact of market events between transactions and submission time
- Techniques for interpolation or extrapolation from available data
- Changes relative [to the] credit standing of the contributor banks and other market participants and
- Non-representative transactions".

In the Second Position Paper, IBA considered whether any adjustments should be permitted in determining LIBOR submissions based on inputs at Level 1 (Transactions) and/or Level 2 (Transaction-derived inputs). For example, the following circumstances may necessitate some non-transactional input:

- If a market event means that the transaction-based submission rate (based on Level 1 and perhaps Level 2) is clearly unrepresentative of the market (e.g. a change in the policy rate or other significant external event)
- If the Benchmark Submitter considers that the transaction-based submission rate is clearly unrepresentative of the bank's funding cost (e.g. following a change in the credit standing of the Benchmark Submitter).

In the above scenarios, banks' use of Expert Adjustments could be effected by:

- Changing the inputs by removing unrepresentative trades only, and/or
- Adjusting the rates through the application of expert judgement (being the knowledge, experience and expertise of the Benchmark Submitter) subject to appropriate governance and controls against biased or manipulative behaviour.

In addition to internal controls within the Benchmark Submitter organisation, the banks would be required to notify IBA when a calculated transaction-based rate is altered and to provide the full reasoning.

**Expert Judgement**

Qualitative criteria are currently used to a greater or lesser extent when banks have insufficient transactions to support a reliable submission based on pure quantitative data. In these instances, a submitter can use Expert Judgement to derive a submission from related transactions.

IBA proposed two elements for Level 3:

- A Formula devised by each bank, agreed with IBA and incorporated by the bank within a submission-generating system for use when the bank has insufficient inputs at Level 1 (Transactions) or Level 2 (Transaction-derived data), and

- A Framework that a bank may use if a system-generated submission would be clearly unrepresentative of the market and/or if the Benchmark Submitter considers that the transaction-based submission rate is clearly unrepresentative of the bank's funding cost).

***Expert Judgement Formula***

IBA proposed that an Expert Judgement Formula should be devised by each bank (rather than each bank following a formula prescribed by IBA). The reason for this approach was that, if IBA were to set the formula and respective weightings, LIBOR rates might be predicted by market users with some certainty, raising the risk of manipulation.

***Expert Judgement Framework***

The proposed second element of Expert Judgement was a Framework that a bank could use if a market event meant that the transaction-based submission rate would be clearly unrepresentative of the market or if the Benchmark Submitter considered that the transaction-based submission rate was clearly unrepresentative of the bank's funding cost.

The Expert Judgement Framework element would by its nature not be capable of being driven by an automated system but would be based on the submitting individual exercising expert judgement within the bank's governance and control environment.

***Acceptable inputs***

IBA listed the proposed acceptable inputs:

| | **Allowable inputs** | **Disallowed inputs** |
|---|---|---|
| Related market instruments | Interest Rate Futures | FRNs with a maturity of more than 2 years |
| | FRAs | |
| | Interest Rate Swaps | |
| | FX (Forwards, swaps) | |
| | OIS curves | |
| | Repo | |
| Market observations | Observed third party transactions | |
| | Broker quotes | |
| Macro-economic factors | Policy rate changes | |
| | Significant economic data | |

| | | |
|---|---|---|
| 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 or that might present the bank with a conflict of interest |

*Position Paper questions*

Q36 Do you agree with using Expert Adjustments in the Scenarios? Yes ☐ No ☐

Please explain your rationale.

Q37 Do you agree with the ways in which Expert Adjustments could be applied, i.e. by changing the inputs or utilising expert judgement? Yes ☐ No ☐

Please explain your rationale.

Q38 Do you agree with the ways in which Expert Judgement should be framed? Yes ☐ No ☐

Please explain your rationale.

*Feedback*

Applying Expert Judgement and removing unrepresentative trades was regarded by the majority of respondents as sensible provided that it is exercised within a clear governance framework and that the necessary explanation for using Expert Judgement is fully documented, with the rationale notified to IBA.

IBA's proposed approach, with both a Formula and Framework, was seen by some as a positive development that would provide "an appropriate balance between a prescriptive approach that can be easily governed and the need to retain flexibility to allow for the evolution of the underlying market. Additional inputs which could be considered are secondary pricing of bank debt and offers received from counterparties but not accepted due to appetite etc".

However, other responses voiced reservations and the following is a sample of typical comments:

- "Having the ability to remove unrepresentative trades and make adjustments, under the umbrella of the compliance and risk framework, makes sense. I believe that the more complex the submission process is made, the more likely such adjustments would be and therefore slightly disagree with the statement on page 24, that they would be infrequent"

- "Expert Judgement cannot be formulated and should not be restricted to a defined list, it is unlikely that all elements of Expert Judgement could be captured within an algorithm"

- "It is difficult to see how a coded algorithm for the Expert Judgement Formula will always produce a meaningful rate at which the bank in question is funding itself. Expert Adjustment by adjusting the rate through the application of expert judgement (as proposed for Level 1 and Level 2) should also be allowed"

- "Expert judgement due to market conditions/bank's credit standing events should only be allowed in response to a "significant market event", as decided and publically declared by IBA".

One respondent expressed the view that Expert Judgement should be carried out by IBA after all transactions have been received from banks. The respondent proposed that, if banks use Expert Judgement, the LIBOR 'question' should be on the market rate and not a specific bank funding rate.

This was echoed by a number of others. For example, "Centralize expert judgement with the administrator if there are not enough transactions in the key tenors – simplifies the process to remove individual bank expert judgement and enhances consistency to centralize with the IBA who has access to all the transactions".

Comments in other responses included that:

- Banks should not have to submit rates for tenors where there are no actual transactions or historical transactions

- In case of Expert Judgement by at least one Benchmark Submitter, IBA should issue a statement at the same time as the publication of LIBOR informing the public of the use of Expert Judgement.

**A2.7 EXPANDING CURRENCY PANEL SIZES**

*Summary of Position Paper proposals*

Expanded currency panels would have the following clear benefits:

- An increased number of available transactions would make the transition to a trade-driven benchmark more attainable and ensure that the rate is as representative of the underlying market as possible

- The lessened impact of any single bank would further reduce both the opportunity and motive for manipulation

- There is a current unfairness in that 20 banks bear the cost, effort and risk of being Benchmark Submitters to LIBOR whilst a very large community of banks benefits from availability every day of the rate, and

- Increasing the panel sizes would reinforce the sustainability of the rate.

IBA proposed to widen a number of parameters: the funding centres from which transactions should be eligible for inclusion; the transaction types; the minimum transaction sizes; the submission window for collecting transactions; and the counterparty types. Perhaps the most obvious element to expand is the number of Benchmark Submitters.

IBA initially proposed an approach under which perhaps 50 banks would contribute their transactions on a daily basis and the actual panels would be determined periodically based on the banks' activity in the preceding period. However, IBA does not have access to transactional data from non-LIBOR banks.

As an alternative structure that IBA thought should be capable of more simple implementation, IBA proposed to introduce tiers of LIBOR submitters. The existing banks would remain Type A submitters, required as at present to make LIBOR submissions every day even where a paucity of transactions means that they have to determine their rates by the use of Expert Judgement with its attendant risk. In addition, IBA would introduce a Type B submitter which would only provide a rate if it had sufficient transactional data points to make a Level 1 (Transactions) or Level 2 (Transaction-derived) submission. Type B banks would not submit a rate based on Level 3 (Expert Judgement). However, the approach was not without its drawbacks.

*Position Paper question*

Q39 What conditions do you think would need to exist to attract banks to become Benchmark Submitters?

Please outline your thoughts on such conditions.

*Feedback*

The consensus was clear in believing that regulatory requirements or strong moral suasion by regulators would be the most effective tool. One respondent put it that, "Without it being mandatory for banks to submit it is difficult for a bank to be willing to take on a high legal risk for very limited upside. Regulation continues to discourage submitting to a benchmark rate".

Other respondents made similar remarks.

One response noted that "a greatly expanded panel of banks may introduce less credit worthy banks which might result in a permanent upward shift in the LIBOR rate".

### A2.8 DESCRIPTION OF LIBOR

*Summary of Position Paper proposals*

Embedding LIBOR to the greatest extent possible in transactions provides the opportunity to review other aspects of the benchmark:

- The 'definition', insofar as one exists, and whether it should be updated in line with the changes in banks' funding activity
- Whether a change in the calculation of LIBOR would be desirable, and
- Whether the current embargo on publishing submissions remains appropriate.

**Definition of LIBOR**

Currently there is no single definition of LIBOR, rather different participants refer to LIBOR based on varying combinations of:

- Its acronym LIBOR (from London InterBank Offered Rate)
- The question asked of Benchmark Submitters, referred to as the "Administrator's Question", which is currently **"***At what rate could you borrow funds, were you to do so by asking for and then accepting inter-bank offers in a reasonable market size just prior to 11 am?"*, and
- Market practice for bank unsecured funding activity.

Some contracts refer to LIBOR based simply on its location on a specific data distributor's screen, while others continue to refer to it as BBA LIBOR.

The British Bankers' Association (which, through BBA LIBOR Limited, was the previous administrator of LIBOR) changed the LIBOR question in 1998 from a rate at which the submitter believed a prime bank would be offered deposits in the market to a rate at which the panel bank itself could borrow funds. This was the last occasion when the definition was changed.

*Position Paper questions*

Q40 Do you think that the need for the Administrator's Question falls away?

Yes ☐ No ☐

Please explain your rationale.

Q41 Do you agree in principle with having a concise description of LIBOR for users of the benchmark? Yes ☐ No ☐

If No, please explain your rationale.

Q42 Do you have any comments on IBA's proposed description of LIBOR for users of the benchmark? Yes ☐ No ☐

If Yes, please propose comments.

*Feedback*

There was mixed support for increasing the description around LIBOR and a general desire to retain the Administrator's Question, typified in the following comments:

- The definition should be explicit as possible and directly reference the input and time periods used to determine the rate

- The Administrator's question is relevant, transparent and provides information for those seeking to employ LIBOR settings within documentation – it is important for the wider market to understand the setting in a clear and concise way.

One respondent thought that it was unclear whether the proposed description was intended to be used as a definition for LIBOR in contracts. If a concise description of LIBOR such as the one suggested by IBA ("ICE LIBOR as the benchmark calculated by IBA on London business days, based on the rate at which submitting banks could fund themselves using eligible unsecured wholesale transactions…") were to be expressly included in contracts as the definition of LIBOR, any changes could arguably result in parties contending that the contractually defined benchmark was unavailable and that the fallback provisions should apply. In the absence of amendments to existing contingency provisions in existing contracts, parties may not be confident that an existing fallback arrangement would be operable for the remaining period of their contract.

### A2.9 CALCULATION METHODOLOGY

*Summary of Position Paper proposals*

LIBOR is currently calculated using a trimmed arithmetic mean. Once all submissions are received, they are ranked in descending order and then the highest and lowest 25% of submissions are excluded. A mean is calculated from the remaining 50%.

This trimming of the top and bottom quartiles allows for the exclusion of outliers from the final calculation.

There is a balance to be struck between, on the one hand, lower trimming (e.g.12.5%) which allows more submission values to be reflected in the calculated LIBOR value and, on the other hand, protection from outliers.

*Position Paper questions*

Q43 Do you think that the methodology to calculate LIBOR should be changed?

Yes ☐ No ☐

Please explain your rationale.

Q44 What would you see as the implications of changing the calculation methodology?

Q45 Which of the possible other calculation methodologies do you prefer?

Please explain your rationale.

Q46 Is there an alternative calculation methodology that you would prefer?

Please describe the methodology and explain your rationale.

*Feedback*

Reducing the trimming to 12.5% received considerable support.

Other comments included:

- Using a median methodology is most effective where there are a large number of panel banks. Given the current size of some of the currency panels, too much reliance may be placed on a particular bank's submission in less liquid currencies and longer tenors
- Consideration should be given to transaction volume weighting the respective submissions
- The volatility of LIBOR is likely to increase if the trimming is reduced to 12.5%
- Lower trimming should imply a slightly more volatile rate, but one in line with the bank funding reality
- Trimming should not be included because the rate is based on real transactions and eliminating some of the rates may misrepresent the Benchmark Submitters
- Using an untrimmed mean is desirable in principle, as it utilises all available information. Moreover, broadening the base of contributing banks via a transaction-based approach should mitigate some of the concerns around outliers.

A recurring perspective was that Benchmark Submitters should submit trade data rather than submissions to IBA, who would then calculate and publish rates for the day. This was seen as likely to result in a reduced need for subjective topics, such as interpolation, trimming, Expert Judgement and Expert Adjustment.

One respondent described three broad types of benefits from this approach as follows:

"First, because banks are only ever asked to provide completely objective transactions data, the risk that they would ever want to defect from a LIBOR panel because of fear of legal exposure—which would jeopardize the ability to produce a LIBOR number and could potentially be a source of systemic risk—would be mitigated. It is hard to see how a bank could ever be accused of acting in bad faith or attempting to manipulate rates if all it ever did was turn over all of its transactions data.

Second, and closely related, the actual scope for manipulation would be reduced, because no individual bank would have any room for discretionary behavior of any sort. There is a separate danger that a bank could conduct a borrowing at a distorted rate in order to manipulate the transactions data, but that danger is present in any case.

Third, the statistical properties of the estimate might be improved by methods that take advantage of the full pool of disaggregated data. For example, ICE would have the ability to give more weight to a given bank's transactions on those days when that bank reported a relatively large number of contemporaneous transactions; this type of optimal transactions weighting would not appear to be possible under the currently proposed approach.".

### A2.10 DATA EMBARGO

*Summary of Position Paper proposals*

Up until April 2013, panel banks' individual LIBOR submissions were published daily alongside the final LIBOR rate. Such publication was intended as a mechanism to promote transparency and public accountability for the accuracy of submissions.

However, this increased the benchmark's susceptibility to manipulation since submitters could estimate the likely impact of their submission on the overall rate.

Real-time publication of submissions were interpreted as signals (often erroneously) of a change in the creditworthiness of a submitter. These considerations led the Wheatley Review to recommend publication of individual submissions after an embargo of at least 3 months.

IBA currently publishes a daily file containing the individual submissions made 3 months prior to that day and, on the first business day of each month, a monthly file containing all of the submissions that became unembargoed in the previous month. This ensures that there is a delay of at least 3 calendar months before the submissions are published.

With the evolution of LIBOR to a rate based as far as possible on transactions, there is a concern that publishing submissions even after 3 months could give an unduly volatile view of banks' costs of funding if their transactions were predominantly interbank on some days and with corporations on other days.

To address this concern and to maintain transparency as far as possible, IBA proposed to publish anonymous rather than attributed submissions three months after the relevant publication of LIBOR. Individual submissions would be available to IBA, the FCA and as appropriate the LIBOR Oversight Committee.

*Position Paper question*

Q47 Do you agree that individual submissions should be published after three months on a non-attributed rather than on an attributed basis? Yes ☐ No ☐

If No, please explain your rationale.

*Feedback*

Comments from Benchmark Submitters reflected their 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.

Publication of data on a non-attributed basis could alleviate these concerns in general terms. However, if it became apparent that one bank's financial stability and credit quality was deteriorating rapidly, there could be false assumptions about the identity of that bank.

The following comments show the range of feedback:

- Anonymised publication should not wait 3 months but be published on the same day. The alternatives are weekly in arrears or maybe just a daily high/low range

- Publication should be on a daily basis as in the past. After one week the information is not relevant. Each Benchmark Submitter should be visible to the public, this is transparency. The 3 month lag is useless and does not give any real information

- Publication, even with a delay, could act as a deterrent to submit any rates at all

- In order to prevent wrong credit signals, submissions should be published on a non-attributed basis

- Publishing own funding transaction rates would disclose to all competitors a bank's funding rate, which is a very sensitive information. Data should be published only on a non-attributable basis with a reasonable lag

- Submissions should be published on an anonymous basis immediately. Indications should be given on submissions relying on Level 1, 2 or 3 inputs. This is an absolute necessity for users to keep confidence in LIBOR

- If submissions are published on an anonymous basis, the embargo could be a shorter period of time. This could also encourage more banks to join the currency panels

- If submissions are published on an attributed basis, a longer embargo period could be appropriate (i.e. 12 months) in order to mitigate the client confidentiality risk as well as the risk of clients expecting identical pricing levels

- Individual submissions should not be published as they are too sensitive to market interpretation which can foster manipulation attempts. Anonymised contributions are all the more important if transactions with corporations are included in the scope of input data

- Data should not be published at all, or only on a non-attributable basis.

## A2.11 OTHER CONSIDERATIONS

*Position Paper question*

IBA invited respondents to raise any other considerations that they thought should be included to further enhance the LIBOR reforms.

**LIBOR tenors**

*Feedback*

One respondent recommended that IBA consider further whether the list of tenors should be reduced.

**Fallback provisions**

*Feedback*

One respondent proposed that IBA investigate the use of fall-back provisions for occasions such as those currently used in loan documentation. In the absence of sufficient transactional evidence from all panel banks upon which to calculate a fixing for a particular tenor, IBA could call on Reference Banks to provide a reference rate for the tenor.

Another suggestion was a "fall back definition" of LIBOR based on sovereign-linked data sources, such as Overnight Index Swap rates, as well as Expert Judgement. Demand for fully collateralized transactions will increase in a crisis; explicit reference to a fully collateralized rate such as OIS could provide the simplicity and transparency needed to reduce price uncertainty among market makers and other participants.

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