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SECOND CONSULTATION PAPER

ON A

HYBRID METHODOLOGY

FOR

EURIBOR

Summary of stakeholder feedback

12th February 2019

European Money Markets Institute
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*The **European Money Markets Institute** (**EMMI**, formerly known as EURIBOR-EBF) is an international non-profit making association under Belgian law founded in 1999 with the launch of the euro and based in Brussels (56, Avenue des Arts, 1000 Brussels.*

As per EMMI's statutes, its purpose is twofold:

I. *The development and support of activities related to the money and interbank markets. To that end, the association shall have the task of making an evaluation of fluctuations in the interest rates in the money and interbank markets of the euro area and of providing the results of its research to the monetary authorities and interested parties who are active in these markets.*

II. *In ancillary, the association shall also serve to support other practical initiatives fostering the integration of the European financial market such as but not limited to the improvement of the liquidity, safety and transparency of the European short term debt market by means of a harmonized framework for short-term European paper 'STEP'.*

EMMI currently provides the following two indexes: EURIBOR®, the money market reference rate for the euro and Eonia®, the effective overnight reference rate for the euro.

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Executive Summary

On 17th October 2018, the European Money Markets Institute published the Second Consultation Paper on a Hybrid Methodology for EURIBOR. The Consultation Paper presented EMMI's findings after the conclusion of the Hybrid EURIBOR Testing Phase (HETP), the exercise performed by EMMI between May and July 2018 to test its proposed hybrid methodology for EURIBOR.

The consultation period closed on Friday, 30th November 2018, and EMMI received 37 responses from a range of institutions, including banks, trade associations, infrastructure providers, consultancy firms, and other respondents.

This Second Consultation is part of EMMI's commitment to deliver a reformed and robust methodology for EURIBOR, which aims to meet regulatory and stakeholder expectations in a timely manner.

International regulatory best practice places a duty on benchmark administrators to have in place procedures for the potential need for evolution of a benchmark. In particular, IOSCO Principle 10 recommends regularly reviewing conditions in the benchmark's underlying market in order to determine whether changes to the design of the benchmark methodology might be necessary. The EU Regulation 2016/1011 on indices used as benchmarks (EU BMR) also addresses this issue throughout the text. A benchmark administrator should choose a determination methodology that faithfully portrays the underlying interest,[1] taking into account the structure and dynamics of the market for the underlying interest. EMMI believes that the proposed hybrid methodology provides a representative measure of the underlying interest EURIBOR seeks to represent.

As part of the requirements of Article 5 in the EU BMR, EMMI and the EURIBOR Steering Committee have the obligation to review the benchmark's methodology at least on a yearly basis.

Nine questions on the hybrid methodology

Panel Bank contributions – anonymised indicators

EMMI has received broad support for its proposal on the anonymised indicators that will follow the implementation of the hybrid methodology.

With regard to the frequency of publication, respondents' feedback was mixed. Given the heterogeneity of views among the minority of respondents, EMMI believes its proposal strikes the right balance, providing a transparency tool for the market and users while ensuring the confidentiality of the market-sensitive information provided by the panel banks.

Maturity date windows

The majority of respondents supported EMMI definition of the maturity windows on the basis of the analysis performed.

The definition of the maturity windows, as a component of the benchmark methodology, will be reviewed, at least, on a yearly basis, and monitored on a monthly basis as part of the EURIBOR back-testing program.

Non-Financial Corporate counterparties

Given the broad support received in response to its proposal, EMMI will exclude transactions with non-financial corporate counterparties from the list of Level 1 eligible trades.

However, EMMI will continue monitoring and assessing the impact of the inclusion of these rates as markets evolve, in particular as part of the benchmark's methodology yearly review.

[1] A *benchmark's specification* is composed of

(i) Its underlying interest, which defines the market or economic reality that the index seeks to measure; and
(ii) A statement of its determination methodology, which describes how the underlying interest is to be measured, describing the relevant data inputs and the method of calculation.

Floating rate transactions

Given the support of the majority of respondents, floating rate transactions against the unsecured euro overnight interest rate will be eligible under Level 1 of the EURIBOR Hybrid Methodology.

Minimum size threshold

The majority of respondents was supportive of EMMI's proposal to introduce a minimum size threshold as eligibility criteria for a transaction to be considered as input data for Panel Banks' Level 1 submissions. The minimum size threshold will be set at EUR 20 million.

Number of eligible transactions threshold

EMMI's proposal to not introduce a threshold on the number of eligible transactions at Panel Bank level to determine Level 1 contributions was supported by the majority of respondents.

Adjusted Linear Interpolation

Level 2.1 of the hybrid methodology applies to submissions for the 1 month, 3 months and 6 months tenors only.

Feedback received was broadly supportive of EMMI's proposal to calculate the Spread Adjustment Factor for Level 2.1 submissions relying on the previous 5 days of published EURIBOR.

Transactions at Non-Defined EURIBOR Tenors

The Level 2.2 of the hybrid methodology applies to submissions at all tenors. A panel bank's submission is calculated using this technique when it cannot be determined as a Level 1 or Level 2.1 submission at a particular defined EURIBOR tenor.

Respondents indicated that, in order to understand fully the application of this level, it would be beneficial to include worked out examples.

Transactions from Prior Dates

Level 2.3 will apply to submissions at all tenors, *except* the 1 week tenors.

Feedback received was broadly supportive of EMMI's proposal, but many of the respondents questioned the homogeneity in the lookback period for the 12-month tenor.

EMMI's plans for authorisation

EMMI will file for authorisation to the Belgian Financial Services and Markets Authority (FSMA) by Q2 2019. Subsequently, EMMI will start transitioning panel banks from the current EURIBOR methodology to the hybrid methodology, with a view of finishing the process before the end of 2019.

Introduction

On 17th October 2018, the European Money Markets Institute published the Second Consultation Paper on a hybrid methodology for EURIBOR. The Consultation Paper presented EMMI's findings after the conclusion of the Hybrid EURIBOR Testing Phase (HETP), the exercise performed by EMMI between May and July 2018 to test its proposed hybrid methodology for EURIBOR. The results were based on contributions from fifteen EURIBOR Panel Banks, which agreed to participate in this exercise. These Panel Banks provided EMMI with their contributions on a daily basis, including a trade-by-trade report of their unsecured money market activity in the day prior to the contribution, as well as their Level 3 input when required.

The consultation period closed on Friday, 30th November 2018, and EMMI received 37 responses from a range of institutions, including banks, trade associations, infrastructure providers, consultancy firms, and other respondents. A list of respondents can be found on page 16.

This document summarizes the respondents' feedback to EMMI's questions. In the first section, we provide general trends of responses and opinions to the nine closed-ended questions put forward in the Consultation Paper. In turn, in the second section, we provide an account of the questions and concerns transmitted to EMMI in the more general "Other comments" box at the end of the Consultation Paper. In both sections, when appropriate, EMMI provides its view on some of the issues raised. In the last section, we provide some details about next steps.

Feedback to the nine questions in the Consultation Paper

1. Panel Bank contributions—anonymised indicators

The hybrid methodology for EURIBOR will rely on Panel Banks' real transactions to determine contributors' submissions. To that extent, as explained on previous occasions, individual contributions under the hybrid methodology may reveal market-sensitive information, which could affect a Panel Bank's ability to raise funds if misinterpreted.

As of 3rd December 2018, and in preparation for the full implementation of the hybrid methodology, the publication of individual Panel Banks' submissions toward the determination of the EURIBOR benchmark have been discontinued. (See the Feedback Summary to the First Consultation.)

However, following the implementation of the new methodology, aggregated anonymized indicators will be published, providing transparency to the determination process of EURIBOR, as recommended by the IOSCO Principles and required in the EU BMR. In the October 2018 Consultation Paper, EMMI asked for the market's feedback on the following proposal:

Which anonymized indicators will be published?

(i) An indication of the **reliance on each of the different levels of the new methodology**;

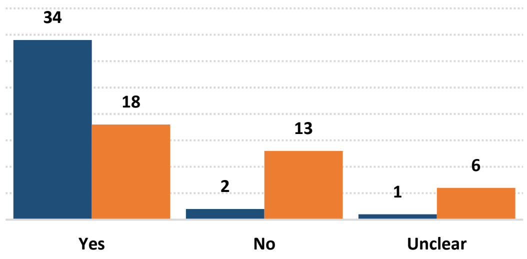
(ii) **Aggregated volume underpinning the benchmark's determination**, i.e. the sum of notional volumes of all transactions used as inputs for Level 1 and Level 2.2 submissions;

(iii) **The percentage of counterparty types** in Level 1 submissions.

With what frequency? EMMI intends to publish these indicators on a monthly basis, and with a one month delay, e.g. the report containing details about January of a given year would be published on the first day of March.

Where will they be published? A report will be published on EMMI's website.

Do you agree with the proposed anonymized indicators under the hybrid methodology and the frequency of publication?



Number of respondents—anonymized indicators, blue; frequency of publication, orange

EMMI has received broad support for its proposal on the anonymised indicators that will follow the implementation of the hybrid methodology. Respondents suggested a wide variety of additional indicators that could be considered.

EMMI will assess the publication of other metrics related to the dispersion of the benchmark's input data, e.g. submissions' standard deviation or percentiles at significant levels, at a later stage, after the implementation of the new methodology.

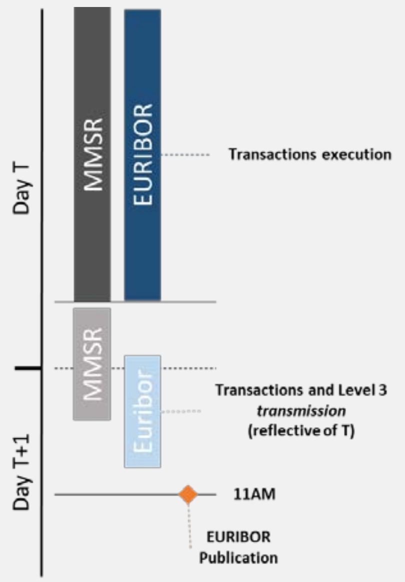
With regard to the frequency of publication, respondents' feedback was mixed. While the majority supported EMMI's proposal for a delayed publication of indicators (as shown above), responses also suggested daily, weekly, or a more delayed publication. Those in favour of a shorter time lag questioned the significance and value of the information published after one month. Those in favour of a longer period indicated that a more frequent publication could increase the opportunity of influencing the final rate, as well as increase the risks associated to contributions to the benchmark. Given the heterogeneity of views among the minority of respondents, EMMI believes its proposal strikes the right balance, providing a transparency tool for the market and users while ensuring the confidentiality of the market-sensitive information provided by the panel banks.

In this context, EMMI would like to emphasise that **the publication of these additional indicators**

intends to increase the transparency of the benchmark's determination, to help EURIBOR's users understand and assess the index's representativeness. To this end, EMMI does not support the publication of any additional data or indicators for other purposes, such as investment decisions—other institutions may be better positioned to offer statistics on the dynamics of the money market. In that respect, EMMI believes also that the proposed frequency and delay of such releases are appropriate.

BOX ***Timing of transactions under the EURIBOR Hybrid Methodology***

In response to the expectations and requirements contained in the IOSCO Principles for Financial Benchmarks and Regulation (EU) 2016/1011 on indices used as benchmarks, EMMI has been working on the development of a determination methodology that is supported by transactions from Panel Banks to the greatest extent possible, and relies on other related market pricing sources when necessary.



This graphic is provided for illustrative purposes only.

In order to guarantee data sufficiency, the collection of transactions to support EURIBOR's determination cannot be limited to those trades executed near the publication time at 11:00 a.m. C.E.T. The collection of data over a longer period of time should lead to an increase in the reliance on executed trades, providing a more representative measure of EURIBOR's underlying interest. In defining this period of time, EMMI considered it necessary to keep consistency in the data to be used as input in the determination of EURIBOR: this would facilitate the understanding of the market reality it intends to measure, and make any moves or changes in the rate more transparent and easy to comprehend.

Given that the publication of the benchmark occurs at 11:00 a.m., and to ensure the quality of the data contributed by Panel Banks, **data reflecting transactions executed on day T will be considered as input for the EURIBOR benchmark published on day T+1**.

In this manner, apart from guaranteeing that EMMI captures all Panel Banks' unsecured money market activity, contributors and EMMI will have enough time to perform all necessary checks and controls on the submitted and received data, respectively.

The development of standards for the transmission of data is a costly endeavour. In order to minimise the burden on contributing banks, EMMI decided to leverage existing synergies with the reporting obligations that credit institutions across the Eurozone have in the context of the European Central Bank's Money Market Statistical Reporting (MMSR) Regulation.

2. Maturity date windows

Maturity windows for the EURIBOR tenors under the Hybrid Methodology will be defined as follows: 1 week ± 2 days; 1 month ± 1 week; 3 months ± 2 weeks; 6 months ± 3 weeks; 12 months - 3 weeks.

EURIBOR is currently published for five tenors:

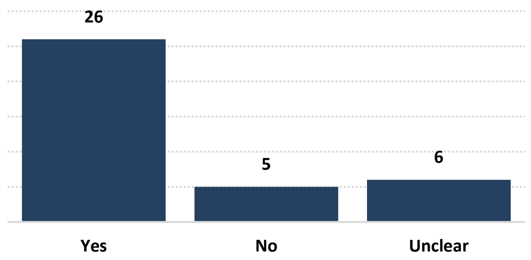
1 week **1 month** **3 months**
6 months **12 months**

Level 1 of the hybrid methodology for EURIBOR relies on real transaction data submitted by Panel Banks. In order to guarantee data sufficiency, it is necessary to define ‘maturity windows’ that will allow the allocation of trades to each of the five tenors depending on their time to maturity since the trade date. In the Consultation Paper, and on the basis of the data analysis performed during the Hybrid EURIBOR Testing Phase, EMMI proposed to have a broad definition of tenor windows, in order to allow for a larger set of transactions to be reflected in the calculation of the index.

The majority of respondents supported EMMI definition of the maturity windows on the basis of the analysis performed.

During the development work for the methodology, and in conversations with market participants, EMMI received consistent feedback on the implications of including transactions beyond the 365 days money market upper limit, as these could reflect pricing and dynamics in the capital markets. As a consequence, the maturity window for the 12 month tenor only considers transactions coming to an end up to 12 months after their settlement date.

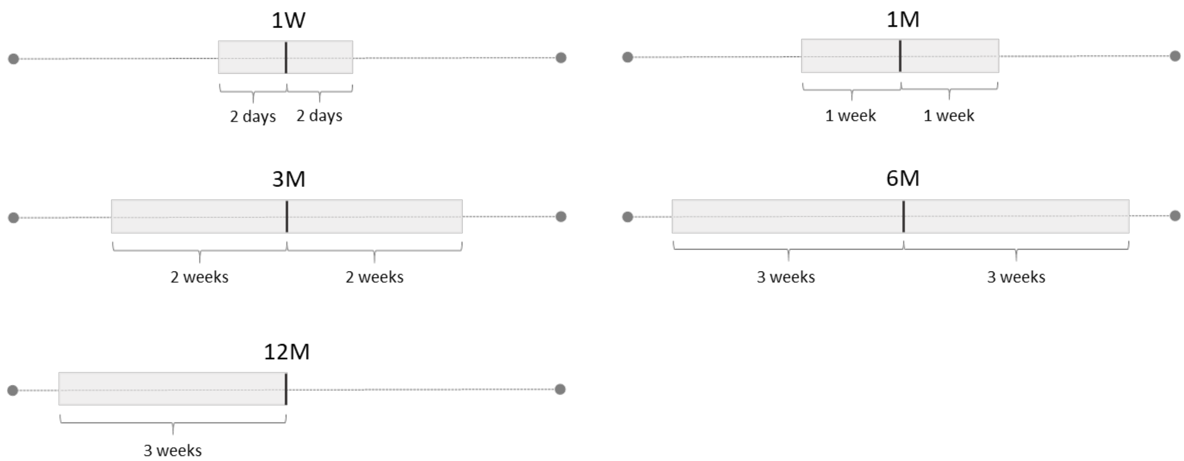
Do you consider that the proposed maturity windows allow EMMI to capture a more representative sample of transactions in the underlying interest?



Number of respondents

Respondents observed that the broadening of the 1 week tenor could imply that, on certain holiday periods, overnight transactions are considered as eligible 1 week input. The calculation of the benchmark is daily monitored and will continue to be so, after the implementation of the new hybrid methodology. EMMI had already identified this shortcoming in the definition of the 1 week maturity window, and will remove any overnight transaction from the 1 week calculation to

Maturity date windows



Pictorial representation of the maturity windows associated to each of the Defined Tenors guarantee the representativeness of the resulting benchmark tenor calculation.

Some respondents indicated that a further broadening of the maturity windows would allow for the capturing of all remaining transactions in the money market spectrum, hence reducing the need for Level 2.2. EMMI notes that, in general, Level 1 submissions under the hybrid methodology will be fully automated and, after the corresponding data quality checks, transactions' details do not undergo any change. However, rates of transactions with broken dates or non-standard maturities *too far* from the standard tenor peg may present discrepancies that require the application of an algorithm—hence the definition of Level 2.2.

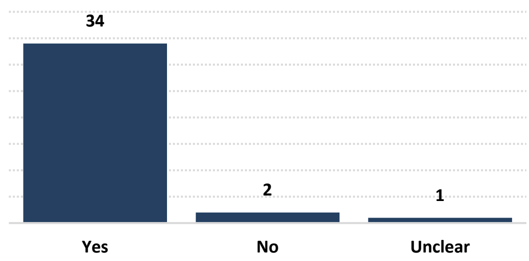
The definition of the maturity windows, as a component of the benchmark methodology, will be reviewed, at least, on a yearly basis, and monitored on a monthly basis as part of the EURIBOR back-testing program.

3. Non-Financial Corporate counterparties

Transactions with non-financial corporate counterparties will not be considered as eligible under Level 1 of the EURIBOR Hybrid Methodology.

As mentioned in the Consultation Paper, the inclusion or exclusion of transactions with non-financial corporate counterparties (ESA code S11) was analysed as part of the data collection exercise performed during the Hybrid EURIBOR Testing Phase, in order to evaluate their eligibility in the set of Level 1 transactions.

Do you agree that transactions with NFCs should be excluded from the set of eligible L1 transactions?



Number of respondents

The Consultation Paper included evidence on the dispersion of prices corresponding to these transactions when compared with other counterparty types. As a conclusion, EMMI proposed the exclusion of these trades from the set of Level 1 eligible transactions.

The majority of respondents agreed with EMMI's assessment that transactions with non-financial corporates do not trade at market levels. The case of trades at positive rates from the 3 months tenor onwards, considering the current negative-rate environment, was highlighted in the feedback as an example of their singular behaviour.

Feedback confirms EMMI's understanding that behavioural and regulatory factors, as well as the relationship between the counterparties, are factors reflected in the pricing of these transactions, and as a result, they do not appropriately reflect the definition of EURIBOR.

Given the broad support received in response to its proposal, EMMI will exclude transactions with non-financial corporate counterparties from the list of Level 1 eligible trades. However, EMMI will continue monitoring and assessing the impact of the inclusion of these rates as markets evolve, in particular as part of the benchmark's methodology yearly review.

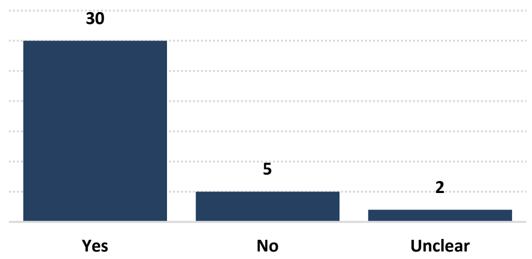
Any potential change in the list of Level 1 eligible counterparty types will occur after the corresponding public consultation has been conducted.

4. Floating rate transactions

Floating rate transactions against the unsecured euro overnight interest rate will be eligible under Level 1 of the EURIBOR Hybrid Methodology.

During the Hybrid EURIBOR Testing Phase, EMMI identified how transactions conducted at a floating rate are an important source of funding in some European countries. EMMI studied the possibility of qualifying transactions conducted against the unsecured euro overnight reference rate as eligible for Level 1 submission, and asked the market for feedback in this regard.

Do you agree with EMMI's proposal to include floating rate transactions referencing the unsecured euro overnight interest rate as eligible under Level 1?



Number of respondents

The majority of respondents agreed that floating rate trades, when converted to a fixed-rate relying on the curve of the corresponding OIS market, reflect accurately market rates. The statistical evidence presented by EMMI in this regard supports this observation. A positive aspect of their inclusion as Level 1 eligible transactions would be the potential reduction of Level 3-derived submissions, anchoring further the determination of banks' submissions in real transactions reflective of the benchmarks' underlying interest.

Feedback strongly recommended EMMI to review the methodologies Panel Banks would apply to convert their floating rate rates into their fixed equivalent, in order to avoid possible misalignments. EMMI has collected individual panel banks' methodologies, and acknowledges that conversion techniques may vary from institution to institution. Respondents recommended, for the sake of transparency and independence in the determination of the converted rates, that EMMI establishes a reference curve for the referenced indices and develops a centralised methodology for the conversion of floating rate trades. While EMMI agrees that this approach would homogenise the determination of the fixed-rate equivalent rates, it also believes that, at this point, panel banks are better positioned to derive the fixed prices, as they can observe the exact time of execution of these trades. The current technical specifications and reporting cycle, which mimics the ECB's money market statistical reporting (MMSR) process, would not allow for the timely conversion.

Respondents questioned the reliability of these transactions, considering EMMI's decision to stop any reform efforts for EONIA, and the upcoming publication of the euro overnight rate ESTER. The Working group on euro risk-free rates has made of the market transition from EONIA onto ESTER one of its priorities, and has recently published a report[2] describing possible transition paths and recommendations. EMMI will monitor the development of the relevant OIS markets around the transition dates, and evaluate the need to reconsider or suspend the eligibility of these trades if these events would pose a threat for the robustness of the EURIBOR benchmark.

[2] See the EUR RFR Working Group report on the transition from EONIA to ESTER at the ECB's website.

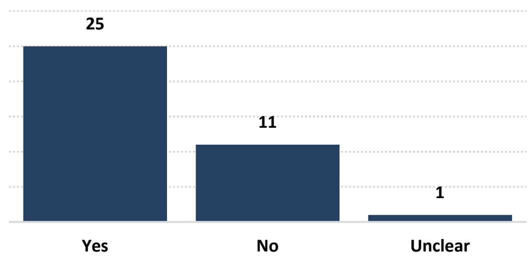
5. Minimum size threshold

A minimum size threshold at EUR 20 million will be an eligibility criterion for a transaction to be considered as input data for Panel Banks' Level 1 submissions.

EMMI considers that the introduction of a minimum size threshold helps stabilize the variability of prices with respect to the aggregated average rate of Level 1 transactions. In the tests performed by EMMI, it was observed how imposing no restriction on transactions' sizes introduced noise in the determination of the benchmark.

This measure should be regarded together with the threshold on the number of eligible transactions for a bank to qualify for a Level 1 submission. EMMI considered that a higher minimum size threshold as a mechanism to minimize the potential of single transactions to influence or drive the benchmark to levels not reflective of the market was a more reasonable approach than requiring more than one transaction, and/or transactions conducted with different counterparties.

Do you agree with EMMI's proposal of a EUR 20 million minimum size threshold for a transaction to be considered eligible under Level 1?



Number of respondents

The majority of respondents were supportive of EMMI's proposal. Those not in favour of the introduction of a EUR 20 million threshold suggested EMMI to consider lowering the threshold to EUR 10 million, in order to broaden the set of eligible trades for Level 1 determination.

Considering the observed higher volatility in the prices of transactions with lower notional volume, EMMI believes there may be factors influencing the pricing of these transactions that are not necessarily reflective of the market. To this end, EMMI considers it is best for these transactions to be used as input in Panel Banks' Level 3 methodologies, under which an approval or automatic check of the submissions should be performed.

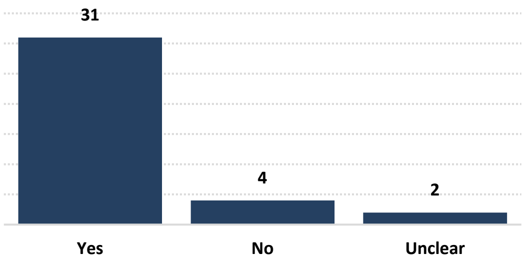
This threshold will also be subject to analysis and evaluation as part of the yearly review of the methodology.

6. Number of eligible transactions threshold

EMMI will not introduce a threshold on the number of eligible transactions at Panel Bank level to determine Level 1 contributions.

The majority of respondents supported EMMI's proposal. The calibration of the hybrid methodology put forward in the Consultation Paper, and more concretely the criteria describing the eligibility of transactions toward Level 1, aims to ensure that transactions not reflective of market rates are not included automatically in the calculation. (E.g. the introduction of a minimum threshold of EUR 20 million and the exclusion of Non-Financial Corporations as eligible counterparties.) The introduction of higher thresholds, or the creation of thresholds based on other criteria (such as the counterpart type of the transaction) would inevitably increase the reliance on the subjective determination of each bank's submission. Data collected as part of the Hybrid EURIBOR Testing Phase reveals that, on average, less than one contributing bank would have qualifying transactions if EMMI were to impose even more restrictive criteria.

Do you agree with EMMI's proposal of not introducing a threshold on the number of eligible transactions?



Number of respondents

As some respondents commented, forcing the determination of submissions under Level 3 seems to defeat the EURIBOR reform's purpose.

Acknowledging the potential risks the non-existence of this threshold may entail in the current low trade frequency environment, EMMI is defining strong benchmark determination surveillance and governance frameworks that discourage and prevent any potential attempt to influence the rate.

This threshold will also be subject to analysis and evaluation as part of the yearly review of the methodology.

7. Adjusted Linear Interpolation

EMMI will calculate the Spread Adjustment Factor for Level 2.1 submissions relying on the previous 5 days of published EURIBOR.

Level 2.1 of the hybrid methodology applies to **submissions for the 1 month, 3 months and 6 months tenors only**. A panel bank's submission is determined using this technique only when the panel bank's submissions at **both** adjacent tenors are calculated using the Level 1 methodology.

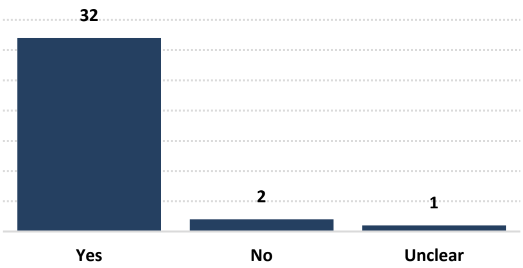
After this check has been performed, the panel bank's submission rate is calculated as the sum of:

a) the linearly interpolated rate at the submission tenor, using the Level 1 submission rates at the adjacent tenors; and

b) a Spread Adjustment Factor (SAF), which seeks to correct for the curvature of the money market yield curve.

The SAF is to be determined based on the EURIBOR fixing rates published in recent days at each of the tenors. EMMI proposed the SAF to be calculated relying on the prior 5 days of published EURIBOR fixing rates at each of the tenors.

Do you agree with EMMI's proposal for the number of days to determine the Spread Adjustment Factor?



Number of respondents

Feedback received was broadly supportive of EMMI's proposal. Respondents praised the limitation in use of this technique by requiring the neighbouring anchor points to be determined on the basis of Level 1 submissions, i.e. executed transactions, and the use of an algorithm to reflect the curvature of the money market curve.

Some respondents indicated that given the limited reliance on Level 2.1, according to the data published by EMMI in the Consultation Paper (see chart 9), EMMI should evaluate the simplification of the methodology by removing this level. The testing exercise showed that the use of this level is not as frequent as the use of other; this is unequivocally related to the limited activity in the unsecured segment of the money market. EMMI requires ***both*** neighbouring tenors to be based on real transactions, and so a low frequency of this event leads to a low number of days in which this level can be used. If market activity were to increase, EMMI expects a larger portion of submissions to be determined as linearly interpolated rates.

8. Transactions at Non-Defined EURIBOR Tenors

The Level 2.2 of the hybrid methodology applies to submissions at all tenors. A panel bank's submission is calculated using this technique when it cannot be determined as a Level 1 or Level 2.1 submission at a particular defined EURIBOR tenor, but:

› The Panel Bank has a transaction that satisfies all of the conditions for being an eligible transaction, except that its maturity date falls between 1 week and 12 months but lies outside of the maturity date windows specified for eligible transactions; and

› The transaction volume allocated to the defined EURIBOR tenor from at least one qualifying non-standard maturity transaction meets the EUR 20 million minimum size criteria for Level 1.

As explained in the past, the idea underlying this technique is to determine the submission rate at the adjacent defined EURIBOR tenor based on a parallel shift of the yield curve from the prior day's EURIBOR fixing.

The Consultation Paper did not include any question about the parameters defining this level, but asked for the public's general opinion.

One respondent expressed a strong opinion with regard to the potential vulnerabilities the introduction of this level and methodology creates. The arguments included to support this view were, however, not exclusive of this methodology level: in a low activity market environment, individual transactions may and will have an influence on the rate, regardless of whether their maturity is standard or non-standard. The qualification criteria for transactions to be used in this level are more stringent than those under Level 1; a single transaction requires more volume than EUR 20 million to be included. The consensus view of the Hybrid EURIBOR Methodology Task Force was to include Level 2.2 in the methodology.

One respondent made explicit reference to the elimination of this technique from another benchmark's initial waterfall methodology. The analyses undertaken by EMMI during the Hybrid EURIBOR Testing Phase do not reveal the introduction of any additional volatility or distortion to the resulting rates. EMMI will, nevertheless, remain vigilant, and monitor the continued appropriateness of Level 2.2 as part of its back-testing program and the yearly review of the methodology.

Respondents indicated that, in order to understand fully the application of this level, it would be beneficial to include worked out examples. EMMI has included three simulated calculations, one for each of the sublevels under Level 2, at the end of the document.

9. Transactions from Prior Dates

Level 2.3 will apply to submissions at all tenors, *except* the 1 week tenor.

A Panel Bank's submission on day T+1, for EURIBOR referencing the market and transactions from day T, will be determined using Level 2.3 when a Level 1 submission is made

- **on any of days T to T-3 for the 1, 3 and 6 months tenors; and**
- **on any of days T to T-5 for the 12 months tenor.**

The Market Adjustment Factor will be calculated based on the movements of the EURIBOR futures market.

Level 2.3 of the hybrid methodology relies on Panel Banks' previous days' Level 1 submissions to calculate their contribution toward the determination of EURIBOR. More specifically, an individual panel bank's submission rate for a given EURIBOR tenor is determined as the sum of:

a) the submission rate on the most recent day at that tenor when a Level 1 submission was made; and

b) a *Market Adjustment Factor* (MAF), which seeks to correct for the overall movement in interest rates between the date of the submission in a) and the current date.

The MAF will be calculated based on both the defined tenor and the market movement between the date of the most recent Level 1 submission and the current date. EMMI proposed **a lookback period of 4 days to find a Level 1 submission to be brought forward under Level 2.3**.

Corrigendum

On page 11 of the First Consultation Paper, a table similar to the one below describes the proposed length of the lookback period used in Level 2.3. The table, as presented there, does not portray the information provided by EMMI in the opening paragraphs to Section 8. EMMI argues and indicates how the analysis to decide on the parameters corresponding to the Level 2 of the hybrid methodology was performed, and what EMMI's recommendations were.

In the text, EMMI clearly suggests **a period of 4 days to find a previous Level 1 submission for Level 2.3,** and refers to this choice as "MAF 4" throughout the remaining of the Consultation. However, the period on the table on page 11 indicated a 5 days' long period, going from T to T-4.

For the sake of transparency and to ensure a full understanding of the methodology, a corrected version of the table follows.

(Corrected table)

Level 2.3 Submission Tenor	When Level 1 Submissions were made on any of:
1 Month	Days T to T-3
3 Months	Days T to T-3
6 Months	Days T to T-3
12 Months	Days T to T-3

Feedback received was broadly supportive of EMMI's proposal, but many of the respondents questioned the homogeneity in the lookback period for the 12 month tenor. On the basis of these comments, and after identifying a clear non-linear relationship between the volatility of the resulting aggregated rate and the reliance on Level 3 that can be leveraged, the lookback period for the 12 month tenor will be increased from days "T-1 to T-4" to "T-1 to T-6."

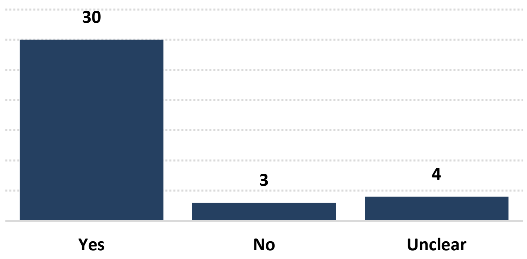
The response chart above only reflects respondent's opinion on the direct answer proposed by EMMI. Other considerations arose in the feedback received.

Respondents also commented on issues that may arise due to the circularity in the determination of bank's submissions, when referring to a derivatives market, which references the EURIBOR rate. As noted above, the MAF is intended to capture the overall movement in interest rates, relevant to each tenor, in order to update the submission data from prior days. As mentioned in the First Consultation, the choice of the EURIBOR futures curve as a MAF was made in the absence of benchmark rates for the OIS market that could be used as a means to observe movements in the swaps market. EMMI agreed that OIS products could be preferable to futures in that the liquid maturities of these swaps align more closely to the EURIBOR tenors than those of the futures. As part of the regular review of the methodology, should such benchmarks emerge in the future, EMMI will re-visit the use of the OIS data to provide a set of MAFs.

A number of respondents also indicated their doubts on the feasibility of this technique to determine 1 month submissions. EMMI was provided a selection of situations in which the application of the Level 2.3 for the 1 month tenor could theoretically have an unfavourable impact on the resulting benchmark. In an attempt to assess the possibility of removing Level 2.3 for this maturity, EMMI analysed the data collected as part of the Hybrid EURIBOR Testing Phase. When conducting said study, EMMI encountered difficulties due to the lack of Level 3 data on days in which Level 2.3 was initially used during the testing period. As a result, EMMI is not able to conduct a thorough analysis of the impact on some of the features of the methodology, such as level and volatility, and derive data-driven conclusions.

EMMI is confident that the application of Level 2.3 to determine 1 month submissions is not

Do you agree with EMMI's proposal on the number of days in Level 2.3's lookback period?



Number of respondents

detrimental to the quality of EURIBOR. To this end, at the time of the implementation of the methodology, EMMI will maintain Level 2.3 to derive submissions for the 1 month, 3 months, 6 months, and 12 months tenors. EMMI will assess the possibility of reviewing this when data to substantiate a different decision becomes available.

Discussion or other comments received

EMMI gave the opportunity to respondents to express their ideas about any of the topics included in the Consultation Paper for which EMMI may have not posed an explicit question, as well as for any aspect of the EURIBOR Reform that, in the respondents' view, was not sufficiently clear. EMMI welcomes all feedback received. In this section, EMMI has reflected the main trends, rather than going into individual respondents' concerns.

Respondents asked for clarification about EMMI's plans for authorisation under the EU BMR. Under the transitional provisions in EU BMR Article 51, administrators of indices used as benchmarks have until 31 December 2019 to file for authorisation with their respective National Competent Authority. In that respect, EMMI expects to submit to the Belgian Financial Services and Markets Authority its authorisation file as administrator of critical benchmarks by Q2 2019, well ahead of the end of the transitional provisions period.

Next steps

Date	What
Q2 2019	EMMI applies for authorisation as the administrator of EURIBOR to the Belgian FSMA
Q2 2019	The EURIBOR hybrid methodology starts being transitioned in

List of respondents

The European Money Markets Institute (EMMI) thanks all consultation respondents for their feedback on EMMI's proposal for a hybrid methodology for EURIBOR. Nineteen (19) out of the thirty-seven (37) organisations that responded to the consultation requested anonymity. In accordance with EMMI's Consultation Policy[3], their names are not included in the list below.

Organization	Sector
BNP Paribas	Panel Bank
Caixa Geral de Depósitos	Panel Bank
DZ Bank	Panel Bank
Intesa Sanpaolo	Panel Bank
Société Générale	Panel Bank
UniCredit	Panel Bank
Bayerische Landesbank	Financial Institution
Landesbank Baden-Württemberg	Financial Institution
Banco BMP Spa	Financial Institution
European Bank for Reconstruction and Development (EBRD)	Financial Institution
IKB Deutsche Industriebank	Financial Institution
NIBC Bank	Financial Institution
Association Française de la Gestion Financière	Trade Association
European Savings and Retail Banking Group	Trade Association
Fédération Bancaire Française/ACI	Trade Association
Finance Finland (FFI)	Trade Association
Amundi	Asset Management
Dutch Pension for Metalworking	Asset Management

[3] EMMI's Consultation Policy and Procedures, 28 November 2014, http://www.emmi-benchmarks.eu/assets/files/D0365C-2014-EMMI%20Consultation%20Policy-procedures.pdf

Example: Level 2.1 Submission (Spread-Adjusted Interpolation)

The following is an example of a Level 2.1 submission for the 6 Months tenor, based on interpolation between Level 1 submissions being made for the 3 Months and 12 Months tenors.

Panel Bank Submissions

Submission Date: **28-Jun-16**

		3 Months			12 Months			6 Months				
Target Date	**Spot Date**	Rate (%)	Maturity Date	Days over Spot	Rate (%)	Maturity Date	Days over Spot	Rate (%)	Maturity Date	Days over Spot		
27-Jun-16	29-Jun-16	**-0.27** Level 1	29-Sep-16	92	**-0.04** Level 1	29-Jun-17	365	No Level 1	29-Dec-16	183	-0.1933	Linearly Interpolated Rate **(1)**
											0.0276	Spread Adjustment Factor **(2)**
								-0.17 **Level 2.1**	<-- Rounded to 2dp <--		-0.1657	Adjusted Submission **(3)**

Spread Adjustment Factor Calculation

			Actual Euribor Fixings									Spread Adjustment Factor	
			3 Months			12 Months			6 Months			**Linearly Interpolated**	**Spread of Actual 6 Months Fixing**
	Target Date	**Spot Date**	Rate (%)	Maturity Date	Days over Spot	Rate (%)	Maturity Date	Days over Spot	Rate (%)	Maturity Date	Days over Spot	Rate (%)	Spread (%)
Lookback Period	20-Jun-16	22-Jun-16	-0.266	22-Sep-16	92	-0.028	22-Jun-17	365	-0.159	22-Dec-16	183	-0.1867	0.0277
	21-Jun-16	23-Jun-16	-0.266	23-Sep-16	92	-0.029	23-Jun-17	365	-0.159	23-Dec-16	183	-0.1870	0.0280
	22-Jun-16	24-Jun-16	-0.268	26-Sep-16	94	-0.029	26-Jun-17	367	-0.161	27-Dec-16	186	-0.1875	0.0265
	23-Jun-16	27-Jun-16	-0.269	27-Sep-16	92	-0.029	27-Jun-17	365	-0.161	27-Dec-16	183	-0.1890	0.0280
	24-Jun-16	28-Jun-16	-0.281	28-Sep-16	92	-0.047	28-Jun-17	365	-0.175	28-Dec-16	183	-0.2030	0.0280
													Average: 0.0276 (2)

In this example, the panel bank is making its 6 Months submission on 28 June 2016, in respect of activity from the previous TARGET day, 27 June 2016.

The bank had no eligible transactions on the previous day to allow it to make a Level 1 submission in the 6 Months tenor. However, the bank has sufficient eligible transactions in order to make Level 1 submissions in the 3 and 12 Months tenors. In this case, the bank can have a Level 2.1 submission in the 6 Months tenor. The submission rate is calculated by interpolation from submissions for the 3 and 12 Months tenors, with a correction factor to account for the curvature of the money market yield curve. This correction factor, the Spread Adjustment Factor, is calculated from the actual EURIBOR fixings in the lookback period of the prior 5 days.

The calculations proceed through the following steps:

1. The bank first determines the linearly interpolated 6 Months rate from its Level 1 submissions of -0.27% (3 Months) and -0.04% (12 Months) using the day count over the Spot Date. The result is a rate of -0.1933%.
2. The Spread Adjustment Factor is calculated from the actual 3, 6 and 12 Months fixings from the prior 5 days. For each of these days, a linearly interpolated 6 Months rate is calculated from the fixings at the 3 and 12 Months tenors. These linear interpolants are then compared to the actual 6 Months fixing rate and the spread calculated. Finally, the average of these spreads over the lookback period is taken, resulting in a Spread Adjustment Factor of +0.0276%. In this case, the yield curve has a positive curvature, so that pure linear interpolation is underestimating the 6 Month rate.
3. Finally, the Spread Adjustment Factor is added to the linearly interpolated 6 Month rate from the bank's Level 1 submissions, and the result is rounded to give the 6 Month Level 2.1 submission of -0.17%:

Linear Interpolant (**-0.1933%**) **+** Spread Adjustment Factor (**+0.0276%**) **=** **-0.1657%,**

or **-0.17%** rounded to 2 decimal places.

Example: Level 2.2 Submission (Transaction with Non-Standard Maturity Date)

The following is an example of Level 2.2 submission for the 3 Months tenor, based on a transaction at a nearby, but non-standard, maturity date.

(1) Input Data				
Submission Date	18-Jun-14			
Transaction Date	17-Jun-14			
Spot Date	19-Jun-14			
Transaction with a Non-Standard Maturity Date				
Maturity Date	**20-Oct-14**	123 days over Spot		
Rate	**0.270%**			
Volume (€ Million)	**60.000**			
			Prior Fix Date	16-Jun-14
Neighboring Tenors			**Prior Fix Rates**	
3 Months	**19-Sep-14**	92 days over Spot	3 Month	**0.223%**
6 Months	**19-Dec-14**	183 days over Spot	6 Month	**0.316%**

(2) Linear Interpolation Weights			
3 Month	(183 - 123) / (183 - 92)	=	**66%**
6 Month	(123 - 92) / (183 - 92)	=	**34%**

In this example, the panel bank is making its 3 Months submission on 18 June 2014, T+1, in respect of activity from the previous TARGET day T, 17 June 2014.

The bank had no eligible transactions on day T to allow it to make a Level 1 submission in the 3 Months tenor. It is further assumed that the bank cannot make a Level 2.1 (interpolation) at this tenor either.

The bank did however execute a funding transaction on day T at approximately the 4 Months tenor, for EUR 60 Million at a rate of 0.27%. This transaction is inferred to be split between two transactions at the 3 Months and 6 Months tenors respectively. The inferred transaction at 3 Months is used as the basis for a Level 2.2 submission at this tenor.

The rates for the two inferred transactions are derived by shifting the rates at the prior EURIBOR fixings in parallel so that the linearly interpolated rate at the non-standard maturity matches the actual transaction rate. This shift adjustment is intended to compensate for any overall market movement between the prior fixing and the time of the transaction.

The calculations proceed through the following steps:

4. The basic input data, the transaction terms and the prior fixings, are given in the table above.

5. The linear interpolation weights to be ascribed to the 3 Months and 6 Months tenors, relative to the non-standard maturity date, are calculated based on day counts over the Spot Date. In the given example of a 4 Months transaction, a weight of approximately 2/3rds (**66%**) is assigned to the 3 Months tenor and of 1/3rd (**34%**) to the 6 Months tenor.

(3) Rate Calculation			
Transaction Rate			0.270%
Linearly Interpolated Rate from Prior Fixes to Maturity Date	66% x 0.223% + 34% x 0.316%	=	0.255%
Spread to Linearly Interpolated Rate ("Shift Adjustment")			**0.015%**
Inferred 3 Months Rate	0.223% + 0.015%	=	**0.238%**
Inferred 6 Months Rate	0.316% + 0.015%	=	**0.331%**

(4) Volume Calculation			
			(€ Million)
Allocated 3 Months Volume	66% x 60.000	=	**39.560**
Allocated 6 Months Volume	34% x 60.000	=	**20.440**
Total Volume			60.000

6. The shift adjustment to be applied to the prior day fixings is next calculated. The linearly interpolated rate to the non-standard maturity is determined based on the prior day fixings. In this example, the rate is calculated as 0.255%. The actual transaction rate was 0.270%, so the transaction rate was 0.015% above the interpolated rate from the prior day fixings. This shift adjustment is interpreted as the overall market movement between the prior fixing and the time of the transaction.

   The inferred 3 Months and 6 Months rates are calculated by adding the shift adjustment to the prior fixing rates at these tenors. This results in inferred rates of **0.238%** (3 Months) and **0.331%** (6 Months) respectively.

7. A transaction can contribute to a Level 2.2 submission at a Defined Tenor only when the volume allocated to that tenor meets a threshold amount, currently set at EUR 20 Million. The allocated volume is calculated based on the same linear interpolation weights as determined above.

   In this example, the allocated volumes are EUR 39.560 Million (3 Months) and EUR 20.440 Million (6 Months). The 3 Months volume exceeds the minimum threshold of EUR 20 Million. Consequently, the transaction can be used to provide a Level 2.2 submission at 3 Months. [The same is true for the 6 Months tenor also in this particular case.]

(5) Inferred Transactions				
	Original		**3 Months**	**6 Months**
Maturity Date	**20-Oct-14**	==>	**19-Sep-14**	**19-Dec-14**
Rate	**0.270%**	==>	**0.238%**	**0.331%**
Volume (€ Million)	**50.000**	==>	**39.560**	**20.440**

8. The inferred transactions are summarized in the above table.

   If the example transaction is the only transaction at a non-standard maturity that would contribute to the 3 Months tenor, then the Panel bank will make a Level 2.2 submission at this tenor of 0.24%, that is, the inferred transaction rate of 0.238% rounded to decimal places.

If the bank has further transactions contributing to the 3 Months tenor, then the bank would make a Level 2.2 submission of the volume-weighted average rate, based on the allocated volumes and inferred rates of all of the relevant transactions.

Example: Level 2.3 Submission (Transactions from Prior Dates)

The following is an example of Level 2.3 submission for the 3 Months tenor, based on a recent Level 1 submission.

	Transaction and Market Data					Submission Data			
	TARGET Date		VWAR (%)	Volume (€ Million)	Closing Futures Price (Sep 16 Contract)	TARGET Date		Level	Submission Rate (%)
	T-7	21-Jun-16	:	:	100.270	T-6	22-Jun-16	:	:
	T-6	22-Jun-16	:	:	100.275	T-5	23-Jun-16	:	:
Lookback Period	T-5	23-Jun-16	-0.24	15	100.270	T-4	24-Jun-16	1	-0.24
Lookback Period	T-4	24-Jun-16	n/a	n/a	100.315	T-3	27-Jun-16	:	:
Lookback Period	T-3	27-Jun-16	n/a	n/a	100.300	T-2	28-Jun-16	:	:
Lookback Period	T-2	28-Jun-16	**-0.25**	30	**100.305**	T-1	29-Jun-16	**1**	**-0.25**
Lookback Period	T-1	29-Jun-16	n/a	n/a	100.310	T	30-Jun-16	:	:
	T	**30-Jun-16**	n/a	n/a	**100.315**	**T+1**	**1-Jul-16**	**2.3**	**-0.26**

Change in futures from T-2 to T: (positive, so rates decreased) **0.010**

In this example, the panel bank is making its 3 Months submission on 1 July 2016, T+1, in respect of activity from the previous TARGET day T, 30 June 2016.

The bank had no eligible transactions on day T in order to make a Level 1 submission. It is further assumed that the bank cannot make Level 2.1 (interpolation) or Level 2.2 (non-standard maturity) submissions either.

The bank examines its activity for the applicable 5-day lookback period. It made Level 1 submissions during this period and so can make a Level 2.3 submission on T+1 based on these submissions. The methodology uses only the most recent Level 1 submission.

The bank made its most recent Level 1 submission two days earlier, on 29 June 16, at a rate of -0.25%, in respect of transaction activity on day T-2. To calculate its submission for the current day, it must adjust this rate to account for market movements in the interim. For the 3 Months tenor, the Market Adjustment Factor uses the near-month EURIBOR futures contract, in this case the September 2016 contract. The factor is calculated as the change in the futures price between the closes on T-2 and T. The futures price increased by 1 basis point during this period, indicating a rate decrease of -0.01%. The submission rate for the current day is therefore:

Prior Level 1 Submission Rate (**-0.25%**) + Market Adjustment Factor (**-0.01%**) = **-0.26%**