

Consultation Paper

Date: 16 April 2020



Responding to this paper

The Danish Financial Benchmark Facility (DFBF) invites comments on all matters in this paper and in particular on the specific questions summarised in Appendix 1. Comments are most helpful if they:

- respond to the question stated;
- indicate the specific question to which the comment relates;
- contain a clear rationale; and
- describe any alternatives DFBF should consider.

DFBF will consider all comments received by 30 April 2020.

All contributions should be submitted via email to cpresponses@dfbf.dk under the heading 'Your input - Consultations'.

Publication of responses

All contributions received will be published following the close of the consultation, unless you request otherwise. Please clearly and prominently indicate in your submission any part you do not wish to be publicly disclosed.

Data protection

Information on data protection can be found at <https://dfbf.dk/privacy/> under the heading Privacy.

Who should read this consultation paper?

This paper may be specifically of interest to contributors of input data to the DFBF benchmarks and to any investor dealing with financial instruments and financial contracts whose value is determined by the DFBF benchmarks or with investment funds whose performances are measured by means of the benchmarks.

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1 Introduction

The Danish Financial Benchmark Facility (DFBF) is the administrator of four Danish benchmarks: CIBOR®, Tom/Next, CITA and SWAP. Authorisation, under European Benchmark Regulation (BMR) was granted to the DFBF as of 1 January 2020 by the Danish financial regulator, Finanstilsynet, who acts as supervisor.

At a meeting of the DFBF Oversight Committee held on 25 March 2020, attention was paid to the quorum required for the calculation of each of the four respective benchmarks.

As a result of the COVID-19 pandemic, Panel Banks that contribute input data to the DFBF for the calculation of the four benchmarks have enacted their own Business Continuity Plans (BCP's). As administrator, the DFBF has reminded the Panel Banks of their obligations for continued compliance with the DFBF Panel Bank Code of Conduct, whilst operating under BCP arrangements. Panel Banks have maintained their compliance with the Panel Bank Code of Conduct and their ongoing contribution of input data has not been interrupted.

The DFBF Oversight Committee noted at their recent meeting that whilst there had been no issue thus far with the contribution of input data under Panel Bank BCP arrangements there was a potential for increased operational risk for Panel Banks that could increase the likelihood of an interruption to the provision of input data. This potentially could result in the minimum quorum of contributions not being met for the calculation of the benchmarks.

Considering these observations, the DFBF Oversight Committee was of the opinion that an adjustment to the minimum quorum of input data contributions would increase the robustness and reliability of the methodology under stressed scenarios and therefore it has recommended to the DFBF Board of Directors (the Board) that changes be implemented to the calculation methodologies.

2 Consultation Responsibility

The Board has authorised this consultation process to be undertaken after the recommendation from the Oversight Committee, as in the opinion of the Board these proposed changes are considered material as defined by the DFBF Consultation Policy.

As such the DFBF is conducting a public consultation to allow stakeholders and the broader community:

- a. the opportunity to provide feedback on such material change which the DFBF can take into consideration for its decision-making processes
- b. sufficient notice to apply the necessary actions to accommodate the changes

3 Current Danish Benchmark Calculation Methodologies

The current benchmark Calculation Methodology and Contingency Calculations are detailed in section 2.2 of the publicly available Calculation Methodology documents. The Quorum for Calculation are detailed in section 2.3 of the same documents. The Danish benchmark calculation methodology documents are as follows:

DFBF 17034 CIBOR Calculation Methodology

<https://dfbf.dk/wp-content/uploads/2019/12/CIBOR-calc.pdf>

DFBF 17035 Tom/Next Calculation Methodology

<https://dfbf.dk/wp-content/uploads/2019/12/TN-calc.pdf>

DFBF 17036 CITA Calculation Methodology

<https://dfbf.dk/wp-content/uploads/2019/12/CITA-calc.pdf>

DFBF 17037 SWAP Calculation Methodology

<https://dfbf.dk/wp-content/uploads/2019/12/SWAP-calc.pdf>

4 Summary of Amendments to the Calculation Methodologies

The DFBB proposes that the current daily quorum is replaced with an alternative, more reliable model.

In summary the new model will apply the previous days' aggregate benchmark rate into the calculation to supplement input data contributions should the number of Panel Bank contributions be below the minimum stipulated, but greater than one.

For each Panel Bank contribution that is missing the aggregate benchmark rate from the previous day shall be applied. Importantly the minimum number of Panel Banks contributing is set at two, on the premise that one only would be deemed insufficient. Should only one Panel Bank contribution be received then under such circumstances the previous day's benchmark rates will be published.

5 Proposed Revised Calculation Methodology Documents

5.1 DFBB 17034 CIBOR Calculation Methodology

Sections 2.2 and 2.3 of the CIBOR Calculation Methodology will be amended to read as follows:

Section 2.2 Calculation Methodology and Contingency Calculation

CIBOR shall be calculated as the mathematical arithmetic mean rounded to four decimal places for the following maturities: 1 and 2 weeks, 1, 2, 3, 6 and 9 months, and 1 year, in the following manner:

- a. if the DFBB receives Input Data from twelve (12) or more panel banks, the rate for the relevant maturity shall be the arithmetic mean of the rates, net of the three highest and three lowest rates;
- b. if the DFBB receives Input Data from between eight (8) and eleven (11) panel banks, the rate for the relevant maturity shall be the arithmetic mean of the remaining rates net of the two highest and two lowest rates;
- c. if the DFBB receives Input Data from between four (4) and seven (7) panel banks, the rate for the relevant maturity shall be the arithmetic mean of the remaining rates net of the highest and lowest rate;
- d. if the DFBB receives Input Data from less than four (4) panel banks, but greater than one panel bank, then the shortfall of one or two contributions will be replaced by using the previous day's CIBOR rates once or twice respectively.
- e. If the DFBB receives Input Data from only one panel bank, then yesterday's aggregate benchmark rate rate will be published.

Number of Submissions	Calculation Method and Contingency Calculations
12 or more	Top and tail three (3) highest and lowest then arithmetic mean of remaining submissions
8 - 11	Top and tail two (2) highest and lowest then arithmetic mean of remaining submissions
4 - 7	Top and tail one (1) highest and lowest then arithmetic mean of remaining submissions
2 - 3	The shortfall of one or two contributions from four contributions will be replaced by using the previous day's CIBOR rates once or twice respectively
1	Publish yesterday's aggregate benchmark rate

Once announced and published, the CIBOR rates shall be final subject to the Post Publication Re-determination policy as described in 2.4.

Section 2.3 Quorum for calculation

The minimum quorum for calculation is two. In the case that only one contribution is received, yesterday's aggregate benchmark rate will be published.

The text and table provided below is for example purposes only to describe the calculation methodology for CIBOR under the proposed methodology. This example will not form part of the Calculation Methodology document.

The current calculation methodology states that when the DFBF receives Input Data from four panel banks, the rate for the relevant maturity is determined as the arithmetic mean of the remaining rates, net of the highest and lowest rate, rounded to four decimal places.

Day	Banks contributing	Calculated Fixing rate	Calculation	Bank 1	Bank 2	Bank 3	Bank 4	Calculation Conditions
1	4	0.2500	$(0.25+0.25)/2$	0.24	0.25	0.25	0.26	Normal quorum calculation
2	3	0.2550	$(0.25+0.26)/2$	0.25	0.26	0.27	0.25	Contingency using previous day's fixing once
3	2	0.2550	$(0.255+0.255)/2$	0.24	0.26	0.255	0.255	Contingency using previous day's fixing twice
4	4	0.2350	$(0.23+0.24)/2$	0.22	0.23	0.24	0.25	Returns to normal quorum calculation

In the event of a formal change in the Central Bank certificate of deposit rate occurring when only two or three contributions are received, the previous day's rate that would be used to replace the missing bank(s) from the calculation would be adjusted by the net change in the corresponding movement reflected in the CITA fixing for that day. For 1 and 2-week CIBOR, the adjustment will be equal to the 1-month CITA fixing, there being no corresponding CITA fixing for these maturities.

In the unlikely event that CITA did not make quorum on a day of a Central Bank rate movement, then the CITA fixing would still be used to measure the adjustment to CIBOR referenced above, even if the CITA rate used was the previous day's published rate.

Q1. Do you agree with the proposed amendments to sections 2.2 and 2.3 of the DFBF 17034 CIBOR Calculation Methodology document as above? Do you have any additional suggestions? Please specify.

5.2 DFBF 17035 Tom/Next Calculation Methodology

Sections 2.2 and 2.3 of the Tom/Next Calculation Methodology will be amended to read as follows:

Section 2.2 Calculation Methodology and Contingency Calculations

Tom/Next shall be calculated for transactions with starting value on the first Danish banking day after the day of entry and expiry on the second Danish banking day after the day of entry with the act/360 convention.

Tom/Next shall be calculated as the volume weighted average rate of interest based on reporting, where each financial institution's interest rate is entered with a weight that corresponds to the institution's share of the overall deposit lending conducted for the previous day, rounded to four decimal places.

If the overall reported turnover is under the required amount of DKK 3,000 million, the actual reported turnover needs to be subtracted from DKK 3,000 million and the remaining amount is divided equally by the number of panel banks that quote Tom/Next interest rates. This amount must be rounded up to the nearest DKK million.

The submitted rate will therefore be the weighted average interest rate of both actual transactions and those synthetically created as described above.

Number of Submissions	Calculation Method and Contingency Calculations
Four or more banks contributing quotes when daily volume < DKK3,000 million	Volume weighted average of submissions received as of 11.59am
Three or less banks contributing quotes when daily volume < DKK3,000 million	Volume weighted average of actual daily reported volume supplemented by quotes and volume from available panel banks and any difference, made up from the previous day's fixing to make the required volume of DKK 3,000 million, adjusted if necessary to reflect any formal change movement in the Central Bank Certificate of deposit rate since the last fixing.

Once announced and published, the Tom/Next rates shall be final, subject to the Post Publication Re-determination policy as described in 2.4.

Section 2.3 Quorum for Calculation

There is no minimum quorum for calculation.

Q2. Do you agree with the proposed amendments to sections 2.2 and 2.3 of the DFBF 17035 Tom/Next Calculation Methodology document as above? Do you have any additional suggestions? Please specify.

5.3 DFBF 17036 CITA Calculation Methodology

Sections 2.2 and 2.3 of the CITA Calculation Methodology will be amended to read as follows:

Section 2.2 Calculation methodology and contingency calculations

CITA shall be calculated for transactions that are to be settled on the second business day following the calculation date, with the act/360 convention.

CITA shall be calculated as the mathematical arithmetic mean rounded to four decimal places for the following maturities: 1 month, 2 months, 3 months, 6 month, 9 months and 12 months maturity

- a) if the DFBF receives Input Data from twelve (12) or more panel banks, the rate for the relevant maturity shall be the arithmetic mean of the rates, net of the three highest and three lowest rates;
- b) if the DFBF receives Input Data from between eight (8) and eleven (11) panel banks, the rate for the relevant maturity shall be the arithmetic mean of the rates, net of the two highest and two lowest rates;
- c) if the DFBF receives Input Data from between four (4) and seven (7) panel banks, the rate for the relevant maturity shall be the arithmetic mean of the rates, net of the highest and lowest rates;
- d) if the DFBF receives Input Data from three (3) panel banks, then a simple average of the rates is calculated.
- e) if the DFBF receives Input Data from two (2) panel banks, the shortfall of one contribution from three contributions will be replaced by using the previous day's aggregate benchmark rate for the relevant maturity.
- f) If the DFBF receives Input Data from only one (1) panel bank yesterday's aggregate benchmark rate will be published.

Once announced and published, the CITA rates shall be final, subject to the Post Publication Re-determination policy as described in 2.4.

Number of Submissions	Calculation Methodology and Contingency
12 or more	Top and tail three (3) highest and lowest then arithmetic mean of remaining submissions
8-11	Top and tail two (2) highest and lowest then arithmetic mean of remaining submissions
4-7	Top and tail one (1) highest and lowest then arithmetic mean of remaining submissions
3	Arithmetic mean of submitted rates
2	The shortfall of one from three contributions will be replaced by using the previous day's aggregate benchmark rate
1	Publish yesterday's aggregate benchmark rate rate

Once announced and published, the CITA rates shall be final subject to the DFBF Post Publication Re-determination policy as described in 2.4.

Section 2.3 Quorum for calculation

The quorum for calculation is two. In the case that only one contribution is received, yesterday's rate will be published.

Q3. Do you agree with the proposed amendments to sections 2.2 and 2.3 of the DFBF 17036 CITA Calculation Methodology document as above? Do you have any additional suggestions? Please specify.

5.4 DFBF 17037 SWAP Calculation Methodology

Sections 2.2 and 2.3 of the SWAP Calculation Methodology will be amended to read as follows:

Section 2.2 Calculation Methodology and Contingency Calculations

SWAP shall be calculated for transactions that are to be settled on the second business day following the calculation date, with the 30/360 day-count convention.

SWAP shall be calculated as the mathematical arithmetic mean rounded to four decimal places for the following maturities: 2 years, 3 years, 4 years, 5 years, 6 years, 7 years, 8 years, 9 years and 10 years' maturity, in the following manner:

- a) if the DFBF receives Input Data from eight (8) or more panel banks, the rate for the relevant maturity shall be the arithmetic mean of the rates, net of the two highest and two lowest rates;
- b) if the DFBF receives Input Data from between four (4) and seven (7) panel banks, the rate for the relevant maturity shall be the arithmetic mean of the remaining rates net of the highest and lowest rate;
- c) if the DFBF receives Input Data from three (3) panel banks, the rate for the relevant maturities will be the arithmetic mean of submitted rates
- d) if the DFBF receives Input Data from two (2) panel banks, the shortfall of one contribution from three contributions will be replaced by using the previous day's aggregate benchmark rate for the relevant maturity.
- e) If the DFBF receives Input Data from only one (1) panel bank yesterday's aggregate benchmark rate will be published.

Number of Submissions	Calculation Method and Contingency calculations
8 or more	Top and tail (2) highest and lowest then arithmetic mean of remaining submissions
4-7	Top and tail (1) highest and lowest then arithmetic mean of remaining submissions
3	Arithmetic mean of submitted rates
2	The shortfall of one contribution from three contributions will be replaced by using the previous day's aggregate benchmark rate once
1	Publish yesterday's aggregate benchmark rate

Once announced and published, the SWAP rates shall be final, subject to the post Publication Re-determination policy as described in 2.4.

Section 2.3 Quorum for calculation

The quorum for calculation is two. In the case that only one contribution is received, yesterday's rate will be published.

Q4. Do you agree with the proposed amendments to sections 2.2 and 2.3 of the DFBF 17037 SWAP Calculation Methodology document as above? Do you have any additional suggestions? Please specify.

6 Consultation Timeframes

Although the standard timeframe for DFBF consultations is 30 days the consultation timeframe for this consultation has been reduced to 10 business days, as provided for by the DFBF Consultation Policy. The policy allows for the consultation timeframes to be shortened due to sudden unexpected events affecting the Danish benchmarks determination.

The timetable for this consultation is as follows:

- | | |
|--|---------------|
| • Consultation Paper publication | 16 April 2020 |
| • Closing date for respondents' comments | 30 April 2020 |
| • Collation and consideration of responses | 14 May 2020 |
| • Publication of DFBF decision | 21 May 2020 |

7 Respondents Confidentiality

In the case that some respondents indicate that they would like their responses kept confidential, the DFBF will ensure that the respondent's individual response is not published. The DFBF however, will be able to include their response in any aggregated summary of responses from all respondents – as long as the aggregate summary would not identify the respondent who require confidentiality.

All responses, whether requiring confidentiality or not, will be processed and reviewed by the DFBF and may also be shared with the DFBF secretariat, governance and potentially regulatory bodies.

8 Post Consultation Summary to Stakeholders

The DFBF will respond to comments by stakeholders, provided as part of the consultation process, after collation and approval by both the Oversight Committee and the Board. The DFBF will provide a summary of responses and will declare its position regarding the aggregated feedback on each issue contained in the consultation paper. The outcome of the consultation process will be posted according to the timeframes detailed above to the DFBF website and in some cases provided directly to stakeholders via email.

Appendix 1 – Summary of Questions

Q1. Do you agree with the proposed amendments to sections 2.2 and 2.3 of the DFBB 17034 CIBOR Calculation Methodology document as above? Do you have any additional suggestions? Please specify.

Q2. Do you agree with the proposed amendments to sections 2.2 and 2.3 of the DFBB 17035 Tom/Next Calculation Methodology document as above? Do you have any additional suggestions? Please specify.

Q3. Do you agree with the proposed amendments to sections 2.2 and 2.3 of the DFBB 17036 CITA Calculation Methodology document as above? Do you have any additional suggestions? Please specify.

Q4. Do you agree with the proposed amendments to sections 2.2 and 2.3 of the DFBB 17037 SWAP Calculation Methodology document as above? Do you have any additional suggestions? Please specify.