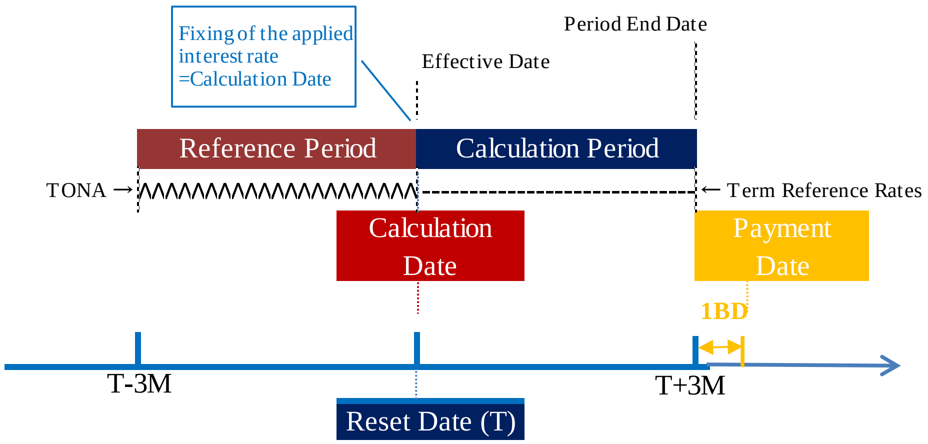
(Tentative translation)

[IV] Issues with regard to Possible Options for Term Reference Rates

(1) O/N RFR Compounding（Fixing in Advance）



<u>Definitions</u>

- Reset Date: Designates the first day of each Calculation Period, or the Effective Date for almost all financial instruments.
- Calculation Date: The earliest day on which it becomes practicable to provide notice on the floating rate or the coupon amount, after all reference rates have been released and the coupon rate is fixed.
- Payment Date: The day on which the coupon amount fixed on the Calculation Date is settled.

(a) Is it feasible that the Calculation Date and the Reset Date are on the same day?

⇒ <u>A large number of respondents deemed it feasible that the Calculation Date and the Reset Date are on the same day</u> because there is a considerable period from the Calculation Date to the Payment Date. Several respondents pointed out that it is better for the Calculation Date to be set 2 business days before the Reset Date, same as LIBOR.

(b) Which method do you think is suitable for calculating interest rates, “Compounding” or “Weighted Average?”

⇒ <u>A large number of respondents deemed the “Compounding” method to be suitable</u> because of consistency with the current OIS market convention. Also, <u>it was pointed that consistency with the overseas market convention is important</u>.

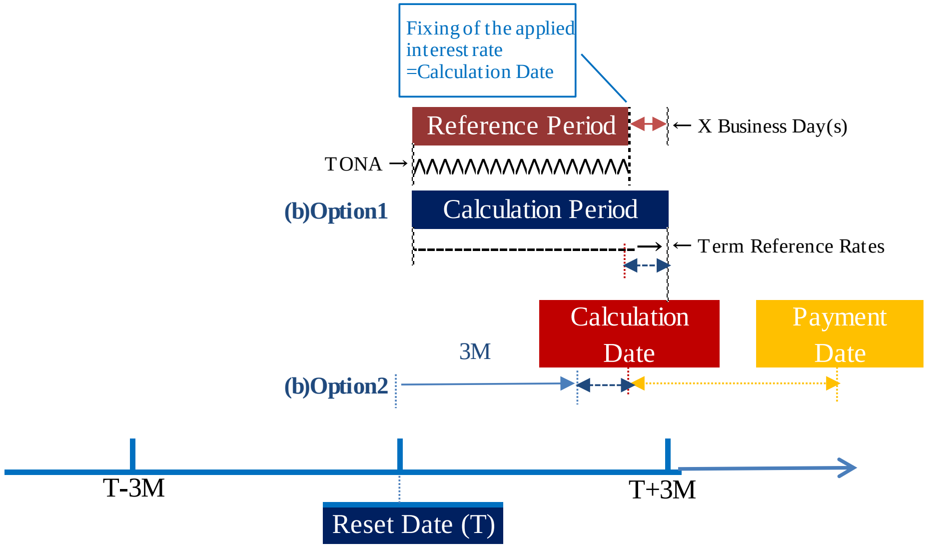
(c) Should spreads be added when calculating by the “Compounding” method?

⇒ <u>A large number of respondents deemed that spreads should not be added</u> considering the public accessibility of base interest rates and simplicity of calculation method.

(d) Which day count fraction do you think is suitable, "Act/360" or "Act/365"?

⇒ A large number of respondents deemed the "Act/365" day count fraction to be suitable because of consistency with the market conventions of TONA and the current OIS rate. Also, it was pointed that consistency with the overseas market convention or LIBOR is important.

(2) O/N RFR Compounding（Fixing in Arrears）



Definitions

- Reset Date: Designates the first day of each Calculation Period, or the Effective Date for almost all financial instruments.
- Calculation Date: The earliest day on which it becomes practicable to provide notice on the floating rate or the coupon amount, after all reference rates have been released and the coupon rate is fixed.
- Payment Date: The day on which the coupon amount fixed on the Calculation Date is settled.

(a) How many business days do you think are necessary from the Calculation Date to the Payment Date?

⇒ A large number of respondents deemed "2 or more business days" are necessary from the Calculation Date to the Payment Date considering consistency with the market conventions of the current OIS rate and LIBOR as well as settlement risk. Several respondents deemed "5 or more business days" are necessary considering operational flow. Other respondents pointed out that the number of business days should be flexibly set by underlying asset and that convexity effect should be considered.

(Tentative translation)

(b) How Calculation Period should be set: (Option1) setting a unique Calculation Period for each financial instrument, or (Option2) setting a Calculation Period based on the Reset Date and tenor (3 months for 3-month interest rates)?

⇒ The responses were split between (Option1) and (Option2). While respondents who supported the former valued flexibility, those who supported the latter considered it important to have consistency with the LIBOR market convention and offer convenience. Also, it was pointed out that consistency with the overseas market convention is important considering cross-currency basis swaps.

(c) Is it necessary to subsequently adjust RFRs released from the end date of the Reference Period to the end date of the Calculation Period?

⇒ The responses were split. A few respondents pointed out that, although theoretically necessary, the effects will be extremely small, and that calculation models will become more complicated when adjusting RFRs. Also, it was advised that it should be discussed considering both theory and practice including in overseas cases.

(d) Which method do you think is suitable for calculating interest rates, “Compounding” or “Weighted Average?”

(e) Should spreads be added when calculating by the “Compounding” method?

(f) Which day count fraction do you think is suitable, “Act/360” or “Act/365?”

(d) to (f) above are the same as (1) O/N RFR Compounding (Fixing in Advance).

(Tentative translation)

(3) Term Reference Rates (Swap)

<table>
<tr><th rowspan="3">Data source</th><th rowspan="3">Methodology</th><th colspan="5">Assessment</th></tr>
<tr><th rowspan="2">Transparency</th><th rowspan="2">Model</th><th rowspan="2">Data sufficiency</th><th colspan="2">Main issues</th></tr>
<tr><th>Individual</th><th>Common</th></tr>
<tr><td>Executed transactions</td><td>Weighted average rate</td><td>A</td><td>-</td><td>Low</td><td>・ Revitalization of money markets
・ Action when transactions are not executed
・ Reset risk of Term Reference Rates</td><td rowspan="6">・ Requirement for administrator [*2]
・ Leeway for manipulation
・ Linkage between data holder and administrator if they are not identical
・ Specific calculation method including the scope of transactions, fixing time, and calculation method of interest rates
・ Public accessibility of Term Reference Rates
・ Required tenor
・ Mitigation of litigation risk from Term Reference Rate users
・ Development of swap markets referencing Term Reference Rates
・ Concern about risk management</td></tr>
<tr><td>Executed transactions including forward OIS</td><td>Weighted average rate</td><td>A</td><td>Required</td><td>Low
*Forward OIS is not generally executed in Japan</td><td>・ Revitalization of money markets including forward OIS
・ Action when transactions are not executed
・ Reset risk of Term Reference Rates
・ Development of calculation model</td></tr>
<tr><td>Firm quotes on CLOBs</td><td>Weighted average rate at top of order book</td><td>B+</td><td>-</td><td>Necessary to establish CLOBs</td><td>・ Establishment of CLOBs including deliberation on linkage among IDBs
・ Revitalization of money markets</td></tr>
<tr><td rowspan="2">Firm quotes in daily point-in-time auction (Upper: Executed)</td><td>Single value</td><td>A</td><td rowspan="2">-</td><td rowspan="2">Necessary to develop structure of the auction</td><td rowspan="2">・ Development of structure of the auction
・ Revitalization of money markets</td></tr>
<tr><td>Weighted average rate at top of auction order book</td><td>B-</td></tr>
<tr><td>Streamed indicative quotes on voice RFQ</td><td>Average of best bids and offers</td><td>C/E+ [*1]</td><td>-</td><td>Available</td><td>・ Development of structure of data aggregation
・ Compliance with the IOSCO principle</td></tr>
</table>

(Tentative translation)

Data source	Methodology	Assessment				
		Transparency	Model	Data sufficiency	Main issues	
					Individual	Common
Survey of indicative quotes	Trimmed average of submissions	E	-	Dependent on panel banks	・ Development of selection criteria of panel banks and structure of data aggregation ・ Clarification of difference with the current LIBOR ・ Compliance with the IOSCO principle	

*1 C：Executable / undisclosed data;　E：Not　executable / undisclosed data

*2 An organization or legal person that controls the creation and operation of the Benchmark Administration process, such as the calculation of the Benchmark, determining and applying the Benchmark Methodology and disseminating the Benchmark. An administrator is required to manage conflicts of interest, possess a regulatory framework and a framework for internal oversight, etc.

(Tentative translation)

(4) Term Reference Rates (Futures)

<table>
<tr><th rowspan="3">Data source</th><th rowspan="3">Methodology</th><th colspan="5">Assessment</th></tr>
<tr><th rowspan="2">Transparency</th><th rowspan="2">Model</th><th rowspan="2">Data sufficiency</th><th colspan="2">Main issues</th></tr>
<tr><th>Individual</th><th>Common</th></tr>
<tr><td>Executed transactions</td><td>Weighted average rate</td><td>A</td><td>Required</td><td>Suspended</td><td>・ Action when transactions are not executed</td><td rowspan="2">・ Resurgence by Exchange
・ Modification of requirements for futures trade to calculate Term Reference Rates
・ Requirement for administrator
・ Leeway for manipulation
・ Linkage between Exchange and administrator if they are not the same
・ Development of calculation model including convexity effect
・ Public accessibility of Term Reference Rates
・ Revitalization of money markets
・ Mitigation of litigation risk from Term Reference Rate users
・ Concern about risk management</td></tr>
<tr><td>Firm quotes on CLOBs</td><td>Weighted average rate at top of order book</td><td>B+</td><td>Required</td><td>Suspended</td><td>・ Average weighing method</td></tr>
</table>

With regard to options (3) and (4) above, main comments are as below.

- ✓ Would be preferable to adopt a waterfall methodology with a priority order, rather than narrowing down the options to one each.
- ✓ Would be preferable to adopt a step-by-step approach which is to first develop Term Reference Rates based on options with high feasibility, and then develop the rates based on options with higher transparency when market liquidity rises.

(Tentative translation)

⇒ Regarding options (1) to (4) above, it is necessary to continue deliberation in the sub-groups taking account of developments in deliberation in other currencies.