MODEL QUOTE SPECIFICATION

Model Quote Specification (Annex 8 to the WIBID and WIBOR Fixing Participant Code of Conduct), adopted by Management Board Resolution No. 16/2020 of 3 March 2020 (as amended)		
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Translation according to legal condition as of 23rd April 2025.

NOTE: Only the Polish version of this document is binding. Translation is provided for information only, although all efforts have been made to ensure its accuracy.

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1.2.1. for the Financial Institutions Segment equals 1,

1.2.2. for the Other Financial Institutions Segment equals 1.

2. TRANSACTIONS ELIGIBLE FOR TRANSACTION DATA USED BY THE FIXING PARTICIPANT IN THE WATERFALL METHOD

2.1. Eligible Transactions satisfy conditions regarding Transaction Data Windows referred to in point 3.

2.2. Eligible Transaction volumes may not be lower than the volume-based values of Eligibility Thresholds referred to in points 2.3 and 2.4.

2.3. The volume-based Eligibility Threshold for the Underlying Market equals PLN 1 million.

2.4. For Related Markets, the volume-based Eligibility Thresholds are:

2.4.1. PLN 1 million for the Financial Institutions Segment,

2.4.2. PLN 1 million for the Segment of Other Financial Institutions.

2.5. Eligible Transactions do not include non-negotiated transactions. A non-negotiated transaction is a transaction concluded according to predefined rules. In absence of information on the above attribute, it is assumed that the transaction is non-negotiated.

2.6. The requirements specifying rules for preparation of Transaction Data are the same as those described in Annex 1 to the Instruction to the Data Delivery Procedure module of the WIBIX Fixing System - specification of assumptions for the Data Delivery Procedure module, as indicated in Annex 3 to Technical Conditions for the WIBIX Fixing System.

3. TRANSACTION DATA WINDOWS

3.1. Transaction Data Windows for the Underlying Market are defined as follows:

3.1.1. for all Fixing Tenors, except the overnight Fixing Tenor (O/N) and Fixing Tenor tomorrow/next (T/N): Transaction Data from the Business day preceding the Fixing Day (T-1),

3.1.2. for Fixing Tenor - overnight (O/N): Transaction Data from the Fixing Day (T) until 4:30 pm.

3.1.3. for Fixing Tenor - tomorrow/next (T/N): Transaction Data from the Fixing Day (T) until 4:30 pm.

3.2. Transaction Data Windows for Related Markets are defined as follows:

3.2.1. for all Fixing Tenors, except the Fixing Tenor - overnight (O/N) and Fixing Tenor - tomorrow/next (T/N): Transaction Data from the Business Day preceding the Fixing Day (T-1),

3.2.2. for Fixing Tenor - overnight (O/N): Transaction Data on the Fixing Day (T) until 3:30 pm,

3.2.3. for Fixing Tenor - tomorrow/next (T/N): Transaction Data on Fixing Day (T) until 3:30 pm.

4.1. The starting point for the application of the BID/OFFER Spread Calculation Procedure is the Transaction. The Transaction Factor FT_T set at level 1, 2.2, or 3.1 - 3.4 of the Waterfall is considered to be the Transaction Factor, depending on the availability of Eligible Transactions at the appropriate level of the Waterfall Method, or the outcome of the formula of point 8.4 (FT_T). The BID/OFFER Spread Calculation Procedure is applied to determine the bid rate and the offer rate based on the value of the Transaction Factor, i.e., to determine the Model Quotes resulting from the operation of the Waterfall Method at levels 1, 2.2 3.1 - 3.4 and at level 2.1.

4.2. Let o_t denote the value of the offer rate of the Fixing Participant's Committed Quote in Fixing Days $t \in \{T-1, T-2, \dots, T-5\}$ for this Fixing Tenor and let b_t denote the value of the bid rate of the Fixing Participant's Committed Quote in days $t \in \{T-1, T-2, \dots, T-5\}$ for this Fixing Tenor.

Let:

$$s_T = \frac{1}{5}\sum_{k=1}^{5}(o_{t-k} - b_{t-k})$$

denote the arithmetic average of the spread between the offer rate and the bid rate of the Fixing Participant's Committed Quotes on Fixing Days $T-1, T-2, \dots, T-5$.

4.3. Let FT_T denote the Transaction Factor calculated by the Fixing Participant for a specific Fixing Tenor on Fixing Day T. The procedure for determining the bid rate of the Model Quote, denoted by B_T, and of the offer rate of the Model Quote, denoted by O_T, of the Fixing Participant, based on the Transaction Factor FT_T, involves application of the following formulas:

$$B_T = FT_T - \frac{s_T}{2}$$

$$O_T = FT_T + \frac{s_T}{2}$$

whereby $\boldsymbol{B_T}$ and $\boldsymbol{O_T}$ values should be rounded to two decimal places[1]

4.4. If, as a result of the rounding referred to in para. 4.3, the spread between the offer rate and the bid rate, i.e. $\boldsymbol{O_T}$ - $\boldsymbol{B_T}$ exceeds the value indicated in point 6.4 of the WIBID and WIBOR Fixing Participants Code of Conduct, the Fixing Participant shall adjust the values of the $\boldsymbol{B_T}$ rate and the value of the $\boldsymbol{O_T}$ rate as follows:

$$B_T^{\star} = B_T + n \times 0{,}01$$

$$\text{ss}O_T^{\star} = O_T - n \times 0{,}01$$

[1] At the earlier stages of calculation under the Waterfall Method, rounding is not applied. When the third digit of the decimal expansion of the number to be rounded is 5, for positive numbers the rounding is upwards (towards infinity), while for negative numbers the rounding is downwards (towards minus infinity).

where n is the smallest natural number such that the spread between the offer rate and the bid rate after adjustment, i.e. $O_T^\star - B_T^\star$ does not exceed the value indicated in point 6.4 of the WIBID and WIBOR Fixing Participants Code of Conduct.

5. PROCEDURE OF ALLOCATION OF FIXING TENORS TO TRANSACTIONS

5.1. Each Transaction is assigned one of the following (or none) Fixing Tenor:

(a) ON, TN, SW, 2W, 1M, 3M, 6M, 1Y, based on three dates:

- transaction date,
- currency date,
- maturity date.

5.2. In order to assign Fixing Tenors to Transactions, time ranges are calculated – expressed in business days and in calendar days - between:

(a) transaction date and currency date

(b) currency date and maturity date

5.3. The time ranges are used to assign Fixing Tenors to Transactions in accordance with the rules laid down in Table 1.

Table 1- Rules for assigning Fixing Tenors to transactions.

	Business Days[2]		Calendar Days[3]	
TENOR	**CURRENCY DATE - DATE OF TRANSACTION[4]**	**MATURITY DATE - CURRENCY DATE[5]**	**CURRENCY DATE - DATE OF TRANSACTION[6]**	**MATURITY DATE - CURRENCY DATE[7]**
ON	0 days	1 day	-	-
TN	1 day	1 day	-	-
SW	2 days	-	-	1W*
2W	0 – 2 days	-	-	2W*
1M	0 – 2 days	-	-	1M** +/- 5 days

[2] Difference expressed in business days
[3] Difference expressed in calendar days
[4] Difference between date of transaction and currency date
[5] Difference between maturity date and currency date
[6] Difference between date of transaction and currency date
[7] Difference between maturity date and currency date

3M	0 – 2 days	-	-	3M** +/- 10 days
6M	0 – 2 days	-	-	6M** +/- 30 days
1Y	0 – 2 days	-	-	1Y** +/- 30 days

5.3.1. Symbols 1W* and 2W* in Table 1 represent a number of calendar days between the transaction's currency date and the corresponding day of week which is 1 or 2 weeks from transaction's currency date respectively. If that day is not a Fixing Day, the Fixing Day which directly follows that day shall be used.

5.3.2. Symbols 1M **, 3M **, 6M ** and 1Y ** represent a number of calendar days between the transaction's currency date and the day falling on the calendar 1, 3, 6 and 12 months from the transaction's currency date, respectively. If that day is not Fixing Day, the Fixing Day which directly follows that day shall be used. However, if this day falls in the next month, then the closest Fixing Day preceding that day shall be used.

5.4. Transactions that cannot be assigned to Fixing Tenors in accordance with the procedure described in points 5.1 - 5.3 are referred to as Non-Fixing Tenor Transactions.

6. PROCEDURE OF ALLOCATION OF FIXING TENORS TO TRANSACTIONS WITH NON-FIXING TENORS - LEVEL 2.2, LEVEL 3.2, LEVEL 3.4 OF THE WATERFALL METHOD

6.1. In order to use data on Eligible Non-Fixing Tenors Transactions in the Waterfall Method, each Eligible Non-Fixing Tenor Transaction meeting the conditions from point 6.3 is assigned exactly two Fixing Tenor Transactions[8].

6.2. The Procedure of Allocation of Fixing Tenors to Non-Fixing Tenor Transactions is applied at levels 2.2, 3.2 and 3.4 of the Waterfall Method.

6.3. The Procedure of Allocation of Fixing Tenors to Non-Fixing Tenor Transactions is applied under the Waterfall Method only for Eligible Non-Fixing Tenors Transactions for which the difference between the currency date and the maturity date expressed in calendar days is greater than 1W* (see: definition in point 5.3.1) and less than 1Y** (see: definition in point 5.3.2) and the difference between the transaction date and the currency date expressed in business days is between 0 and 2[9].

6.4. To each Eligible Non-Fixing Tenor Transaction meeting the conditions from point 6.3, two adjacent Fixing Tenors are assigned. Let $\tau' < \tau < \tau''$ denote tenors, where τ' and τ'' are Fixing Tenors adjacent to the tenor τ. Fixing Tenors are expressed in the number of calendar days. Let χ_τ denote a Non-Fixing Tenor transaction with tenor τ. Let $\chi_{\tau'}$ and $\chi_{\tau''}$ denote transactions resulting from assignment of Fixing Tenors to transaction χ_τ. This involves distribution of the volume of transaction χ_τ denoted by $v(\chi_\tau)$, into volumes assigned to transaction $\chi_{\tau'}$, denoted by $v(\chi_{\tau'})$, and to transaction $\chi_{\tau''}$, denoted by $v(\chi_{\tau''})$.

[8]Fixing Tenor Transactions, which are created using Procedure of Allocation of Fixing Tenors to Non-Fixing Tenor Transactions for Eligible Non-Fixing Tenor Transactions do not have to meet the volume-based Eligibility thresholds.

[9] Eligible Transactions with Non-Fixing Tenors that do not meet at least one of the conditions specified in point 6.3 are not subject to the of Allocation of Fixing Tenors to Non-Fixing Tenor Transactions.

Let:

$$\phi = \frac{\tau'' - \tau}{\tau'' - \tau'}$$

denote the multiplier which expresses the ratio of the difference (expressed in calendar days) between maturity date of the tenor τ'' and maturity date of the tenor τ to the difference (expressed in calendar days) between maturity date of the tenor τ'' and maturity date of the tenor τ'.

6.4.1. Calculation of volumes $v(\chi_{\tau'})$ and $v(\chi_{\tau''})$ involves the following formulas:

$$v(\chi_{\tau'}) = \phi \times v(\chi_{\tau})$$

$$v(\chi_{\tau''}) = (1 - \phi) \times v(\chi_{\tau})$$

6.4.2. Calculation of prices of transactions $\chi_{\tau'}$ and $\chi_{\tau''}$, denoted by $r(\chi_{\tau'})$ and $r(\chi_{\tau''})$ respectively, goes as follows. Let $\chi^{F}_{\tau'}$ and $\chi^{F}_{\tau''}$ denote arithmetic average of the Fixing bid rate on Fixing Day which corresponds to the date in which the transaction χ_{τ} was concluded and the Fixing offer rate on the Fixing Day which corresponds to the date in which the transaction χ_{τ} was concluded, for Fixing Tenors τ' and τ'' respectively.

(a) Let $f(\tau|\chi^{F}_{\tau'}, \chi^{F}_{\tau''}, \chi_{\tau'}, \chi_{\tau''})$ denote the interpolating function given by the formula:

$$f(\tau|\chi^{F}_{\tau'}, \chi^{F}_{\tau''}, \tau', \tau'') = \chi^{F}_{\tau'} + \frac{\chi^{F}_{\tau''} - \chi^{F}_{\tau'}}{\tau'' - \tau'}(\tau - \tau')$$

(b) Let:

$$\Delta' = f(\tau|\chi^{F}_{\tau'}, \chi^{F}_{\tau''}, \tau', \tau'') - \chi^{F}_{\tau'}$$

and:

$$\Delta'' = \chi^{F}_{\tau''} - f(\tau|\chi^{F}_{\tau'}, \chi^{F}_{\tau''}, \tau', \tau'')$$

(c) Prices $r(\chi_{\tau'})$ and $r(\chi_{\tau''})$ are calculated using the following formulas:

$$r(\chi_{\tau'}) = r(\chi_{\tau}) - \Delta'$$

and:

$$r(\chi_{\tau''}) = r(\chi_{\tau}) + \Delta''$$

7. LEVEL 1 OF THE WATERFALL METHOD - ELIGIBLE FIXING-TENOR TRANSACTIONS, CONCLUDED ON T-1 DAY ON THE UNDERLYING MARKET

7.1. On day T, for a given Fixing Tenor, the Fixing Participant calculates the Transaction Factor at level 1 of the Waterfall Method, denoted by $FT_{P1,T}$, based on Eligible Fixing Tenor Transactions of this Fixing Participant on the Underlying Market on day[10] $T - 1$, only if the number of these Transactions is equal at least to the value of the Incrementality Parameter for the Underlying Market. The value of the Transaction Factor at level 1 of the Waterfall is determined according to the following formula:

[10] For Tenors ON and TN: from day T, hours as defined in the Transaction Data Window.

$$FT_{P1,T} = \frac{\sum_i \left(r_{i,T-1} \times v_{i,T-1} \right)}{\sum_i v_{i,T-1}}$$

where:

$r_{i,T-1}$ is the price at which the transaction was concluded (interest rate),

$v_{i,T-1}$ indicates the volume of the transaction (nominal value)

7.2. If the Fixing Participant calculated the Transaction Factor on day T on level 1 of the Waterfall Method for a given Fixing Tenor, they shall proceed to the application of the BID/OFFER Rate Calculation Procedure to determine Model Quote bid rate and Model Quote offer rate for this Fixing Tenor, which ends the application of the Waterfall Method for this Fixing Tenor on day T.

7.3. Otherwise, the Fixing Participant's behavior depends on the value of the Incrementality Parameter for the Underlying Market.

7.3.1 If the Incrementality Parameter for the Underlying Market is 1, the Fixing Participant proceeds to level 2.1 of the Waterfall Method.

7.3.2 If the value of the Incrementality Parameter for the Underlying Market is greater than 1, the Fixing Participant proceeds as follows. If the number of Eligible Fixing Tenor Transactions concluded by the Fixing Participant on the Underlying Market on day[11] T-1 is less than the value of the Incrementality Parameter for the Underlying Market, but greater than or equal to 1, these transactions are stored in the Transaction Set at level 1 of the Waterfall, denoted by $\mathrm{ZT}_{\mathrm{P1}}$, and the Fixing Participant moves to level 2.1 of the Waterfall. If the number of Eligible Fixing Tenor Transactions concluded by the Fixing Participant on the Underlying Market on day T-1 is zero, we assume that $\mathrm{ZT}_{\mathrm{P1}} = \emptyset$.

8. LEVEL 2.1 ANALYTICAL PROCEDURE OF THE WATERFALL METHOD - INTERPOLATION OF MODEL QUOTES PROCEDURE

8.1. Only Model Quotes for Fixing Tenors 2W, 1M, 3M as well as 6M are subject to interpolation. On the day T, for the given Fixing Tenor, the Fixing Participant interpolates the Model Quotes, if on the same day T they calculated the Model Quotes at level 1 of the Waterfall for two Fixing Tenors adjacent to the given Fixing Tenor:

8.1.1 The Fixing Participant performs interpolation on day T of Model Quotes for the 2W Fixing Tenor if on day T they calculated the Transaction Factor at the level 1 of the Waterfall for SW Tenor as well as 1M Tenor, and then, using the BID/OFFER Spread Calculation Procedure, the Model Quote at level 1 of the Waterfall on that day is determined in the form of bid and offer rates.

8.1.2 The Fixing Participant performs interpolation on day T of Model Quotes for the Tenor 1M if on day T they calculated the Transaction Factor at level 1 of the Waterfall for Tenors 2W as well as 3M, and then, using the BID/OFFER Rate Calculation Procedure, the Model Quote at level 1 of the Waterfall on that day is determined in the form of bid and offer rates.

8.1.3 The Fixing Participant performs interpolation on Model T of Model Quotes for day 3M if on day T they calculated the Transaction Factor at Waterfall level 1 for Tenors 1M as well as 6M, and then, using the BID/OFFER Rate Calculation Procedure, the Model Quote at level 1 of the Waterfall on that day is determined in the form of bid and offer rates.

[11] For Tenors ON and TN: from day T, hours as defined in the Transaction Data Window.

8.1.4 The Fixing Participant performs interpolation on day T of Model Quotes for Tenor 6M, if on day T they calculated the Transaction Factor at Waterfall level 1 for 3M as well as 1Y Tenors, and then, using the BID/OFFER Spread Calculation Procedure, the Model Quote at level 1 of the Waterfall on that day is determined in the form of bid and offer rates.

8.1.5 Let τ denote Fixing Tenor for which interpolation is carried out. Let τ'denote an adjacent Fixing Tenor shorter than the Tenor τ and let τ''denote an adjacent Fixing Tenor longer than the Tenor τ. Fixing Tenors τ, τ' and τ'' are determined in accordance with the rules described in point 5.3.

8.1.6 Let x_{ψ}^{S} denote the value of the bid (for $S = B$) or of the offer (for $S = O$) Model Quote determined on day T on level 1 of the Waterfall for the Fixing Tenor ψ, where $\psi \in \{\tau', \tau''\}$.. Furthermore, let

$$x_{\psi}^{M} = \frac{x_{\psi}^{B} + x_{\psi}^{O}}{2}$$

denote the arithmetic average of the bid and offer rates of the Model Quote determined on day T at level 1 of the Waterfall for the Fixing Tenor ψ. Linear interpolation of the average of the bid and offer rates for the Fixing Tenor τ marked . $x_{\tau}^{M,L}$ is determined as the value of the interpolating function: $f(\tau|x_{\tau'}^{M}, x_{\tau''}^{M}, \tau', \tau'')$:

$$x_{\tau}^{M,L} = f(\tau|x_{\tau'}^{M}, x_{\tau''}^{M}, \tau', \tau'')$$

given by the formula

$$f(\tau|x_{\tau'}^{M}, x_{\tau''}^{M}, \tau', \tau'') = x_{\tau'}^{M} + \frac{x_{\tau''}^{M} - x_{\tau'}^{M}}{\tau'' - \tau'}(\tau - \tau')$$

8.2. After determining the linearly interpolated average value of the bid or offer for the Fixing Tenor τ, i.e. x_{τ}^{ML} the Fixing Participant determines the Spread Adjustment Factor for this Fixing Tenor, marked SAF_{τ}, , as follows.

8.3. Let $y_{t,\psi}^{S}$ denote the value of the bid (for $S = B$) or offer (for $S = O$) fixing rate set on the day t, where $t \in \{T-1, T-2, \dots, T-5\}$, for Fixing Tenor ψ, where $\psi \in \{\tau, \tau', \tau''\}$. Furthermore, let:

$$y_{t,\psi}^{M} = \frac{y_{t,\psi}^{B} + y_{t,\psi}^{O}}{2}$$

denote the arithmetic average of the bid and offer Fixing rates determined on day t for Fixing Tenor ψ. The value of the Spread Adjustment Factor is determined in accordance with the formula:

$$SAF_{\tau}^{S} = \frac{1}{5} \times \sum_{k=1}^{5} y_{T-k,\tau}^{S} - f(\tau|y_{T-k,\tau'}^{S}, y_{T-k,\tau''}^{S}, \tau', \tau'')$$

8.4. Linear interpolation of the average value of the bid and offer rates for the Fixing Tenor τ i.e. $x_{\tau}^{M,L}$ is adjusted by the Spread Adjustment Factor SAF_{τ}, which leads to obtaining the interpolated Transaction Factor FT_{τ} for the Fixing Tenor τ according to the formula

$$FT_\tau = x_\tau^{M,L} + SAF_\tau$$

8.5. If the Fixing Participant calculated for a given Fixing Tenor on day T the interpolated Transaction Factor FT_τ at the level of 2.1 of the Waterfall, then proceeds to applying the BID/OFFER Spread Calculation Procedure to determine the bid and offer rates of the Model Quote for that Fixing Date, which completes the application of the Waterfall Method for this Fixing Tenor on day T. Otherwise, the Fixing Participant proceeds to level 2.2 of the Waterfall.

8.6. Within the BID/OFFER Spread Calculation Procedure, the interpolated Transaction Factor FT_τ corresponds to the Transaction Factor FT_T determined at level 1, 2.2, or 3.1 - 3.4 of the Waterfall.

9. LEVEL 2.2 OF THE WATERFALL METHOD - ELIGIBLE NON-FIXING TENOR TRANSACTIONS CONCLUDED ON DAY T-1 ON THE UNDERLYING MARKET

9.1. On day T, for a given Fixing Tenor, the Fixing Participant calculates the Transaction Factor at level 2.2 of the Waterfall Method, denoted by $FT_{P2.2,T}$, on the basis of transactions contained in the Transaction Data set at level 2.2, denoted by, $ZT_{P2.2}$, as follows:

9.1.1 If the value of the Incrementality Parameter for the Underlying Market is 1, the set $ZT_{P2.2}$ consists of transactions resulting from the application for Eligible Non-Fixing Tenor Transactions concluded by the Fixing Participant on day T-1 on the Underlying Market of the Procedure of Allocation of Fixing Tenors to Transactions with Non-Fixing Tenor to which the given Fixing Tenor was assigned, denoted by $ZT_{RB,NFIX}$:

$$ZT_{P2.2} = ZT_{RB,NFIX}$$

9.1.2 If the value of the Incrementality Parameter for the Underlying Market is greater than 1, the set $\mathrm{ZT_{P2.2}}$ constitutes the sum of the set $\mathrm{ZT_{P1}}$ and the set of transactions resulting from the application for Eligible Non-Fixing Tenor Transactions concluded by the Fixing Participant on day T-1 on the Underlying Market of the Procedure of Allocation of Fixing Tenors to Non-Fixing Tenor Transactions to which the given Fixing Tenor was assigned, denoted by $\mathrm{ZT_{RB,NFIX}}$:

$$ZT_{P2.2} = ZT_{P1} \cup ZT_{RB,NFIX}$$

9.1.3 If the number of Transactions contained in the set $\mathrm{ZT_{P2.2}}$ is equal to at least the value of the Incrementality Parameter for the Underlying Market, the value of the Transaction Factor at level 2.2 of the Waterfall Method $\mathrm{FT_{P2.2,T}}$ is calculated using the following formula:

$$FT_{P2.2,T} = \frac{\sum_{x \in ZT_{P2.2}} (r_x \times v_x)}{\sum_{x \in ZT_{P2.2}} v_x}$$

where:

x denotes a transaction,

r_x is the price of the transaction x (interest rate),

v_x is the volume of the transaction x (nominal value).

9.2. If the Fixing Participant calculated the Transaction Factor at the level 2.2 of the Waterfall Method for a given Fixing Tenor on day T, they shall proceed to the application of the BID/OFFER Spread Calculation Procedure to determine Model Bid Quote and Model Offer Quote for this Fixing Tenor, which ends the application of the Waterfall Method for this Fixing Tenor on day T.

9.3. Otherwise, the Fixing Participant proceeds to level 3.1 of the Waterfall.

10. PROCEDURE OF EXTRAPOLATION OF PRICES FROM RELATED MARKETS TO THE UNDERLYING MARKET - LEVEL 3.1, LEVEL 3.2, LEVEL 3.3, LEVEL 3.4 OF THE WATERFALL METHOD

10.1. The Procedure of Extrapolation of Prices from Related Markets to the Underlying Market is carried out as follows:

10.1.1 Let $ZT_{RP,t}$ denote - in the case of levels 3.1 and 3.3 of the Waterfall - a set of Eligible Transactions with a given Fixing Tenor concluded by the Fixing Participant on the Related Market $RP \in \{IF, PIF\}$ on days[12] $t \in \{T-2, T-3 \dots, T-21\}$ as well as – in the case of levels 3.2 and 3.4 of the Waterfall - a set of Eligible Transactions with a given Fixing Tenor concluded by the Fixing Participant on the Related Market $RP \in \{IF, PIF\}$ on days $t \in \{T-2, T-3 \dots, T-21\}$ increased by a set of transactions resulting from the application of the Procedure of Allocation of Fixing Tenors to Non-Fixing Tenor Transactions for Eligible Non-Fixing Tenor Transactions concluded by the Fixing Participant on the Related Market RP on days $t \in \{T-2, T-3 \dots, T-21\}$, to which a given Fixing Tenor was assigned[13]. If - in the case of levels 3.1 and 3.3 - on a given day the Fixing Participant did not conclude Eligible Transactions with a given Fixing Tenor on the Related Market RP, or - in the case of levels 3.2 and 3.4 - did not conclude Eligible Transactions with a given Fixing Tenor on the Related Market RP as well as a result of application of the Procedure of Allocation of Fixing Tenors to Non-Fixing Tenor Transaction no transaction has been created to which the given Fixing Tenor has been assigned, it is assumed that $ZT_{RP,t} = \emptyset$. It is required for at least 3 days $t \in \{T-2, T-3, \dots, T-21\}$ we have $ZT_{RP,t} \neq \emptyset$. Otherwise, the Fixing Participant cannot extrapolate prices from the Related Market to the Underlying Market on day T for a given Fixing Tenor and proceeds to the next Level of the Waterfall Method.

(a) Let Γ denote the set of days t, for which we have $ZT_{RP,t} \neq \emptyset$:

$$\Gamma = \left\{t \in \{T-2, T-3, \dots, T-21\} : ZT_{RP,t} \neq \emptyset\right\}$$

(b) Let:

$$ZT_{RP} = \bigcup_{t \in \Gamma} ZT_{RP,t}$$

10.1.2 It is required that the number of elements of the set $\mathrm{ZT_{RP}}$ is at least equal to 5. Otherwise, the Fixing Participant cannot extrapolate prices from the Related Market

[12] In paragraph 10 for Tenors ON and TN, instead of the Fixing Days $t \in \{T-2, T-3 \dots, T-21\}$ the Fixing Days $t \in \{T-1, T-3 \dots, T-20\}$ should be taken.

[13] Non-Fixing Tenor Transactions which are used by the Procedure of Allocation of Fixing Tenors to Non-Fixing Tenor Transactions must be Eligible Transactions, but transactions resulting from this procedure do not have to meet the volume-based Eligibility threshold.

to the Underlying Market for a given Fixing Tenor on day T and Fixing Participant moves to the next Level of the Waterfall Method.

10.1.3 Let $x^*_{RP,t}$ denote the volume-weighted average price of transactions contained in the set $ZT_{RP,t}$:

$$x^*_{RP,t} = \frac{\sum_{x \in ZT_{RP,t}} (r_x \times v_x)}{\sum_{x \in ZT_{RP,t}} v_x}$$

10.1.4 Let m_t denote the arithmetic average of the bid and offer rates of the Fixing Participant's Committed Quote for a given Fixing Tenor on the day t for $t \in \Gamma$.

Let:

$$\Delta_{RP,t} = m_t - x^*_{RP,t}$$

denote the difference between the arithmetic average of the bid and offer rates of the Fixing Participant's Committed Quote for a given Fixing Tenor on day t and the volume-weighted average price of transactions contained in the set $ZT_{RP,t}$.

Let:

$$\bar{\Delta}_{RP} = \frac{1}{|\Gamma|} \sum_{t \in \Gamma} \Delta_{RP,t}$$

10.1.5 The value $\bar{\Delta}_{RP}$ is an extrapolation factor using which the volume-weighted average prices of transactions on the Related Market RP on day[14] T-1 are extrapolated to the Underlying Market according to:

$$x^*_{RB,T-1} = x^*_{RP,T-1} + \bar{\Delta}_{RP}$$

where $x^*_{RP,T-1}$ denotes the volume-weighted average price on the Related Market RP on day T-1, and $x^*_{RB,T-1}$ denotes the volume-weighted average price on day T-1 extrapolated from the Related Market to the Underlying Market.

(a) The volume-weighted average price on day T-1 extrapolated from the Related Market to the Underlying Market, $x^*_{RB,T-1}$, is then, in the case of Fixing Tenors other than ON and TN, smoothed using the following formula:

$$\hat{x}^*_{RB,T-1} = \frac{1}{5} \sum_{k=0}^{4} F_{T-k}$$

where $F_T = x^*_{RB,T-1}$, and F_{T-k} for $k = 1,2,3,4$ denotes the arithmetic average of the bid rate and the offer rate for a given Fixing Tenor submitted by the Fixing Participant to the Administrator on Fixing Days $T-1, T-2, T-3, T-4$, regardless of whether these are rates based on Model Quotes or Committed Quotes, as well as in the case of rates based on Model Quotes, regardless of which level of the Waterfall they originate from.

[14] For Tenors ON and TN we assume in point 10.1.5 transactions from day T which means, that $x^*_{RB,T} = x^*_{RP,T} + \bar{\Delta}_{RP}$.

11. LEVEL 3.1 ANALYTICAL PROCEDURES OF THE WATERFALL METHOD - ELIGIBLE FIXING-TENOR TRANSACTIONS CONCLUDED ON DAY T-1[15] ON THE FINANCIAL INSTITUTIONS SEGMENT

11.1 On day T, for a given Fixing Tenor, the Fixing Participant calculates the Transaction Factor at level 3.1 of the Waterfall, denoted by $FT_{P3.1,T}$, on the basis of Eligible Transactions contained in the transaction set at level 3.1, denoted by $ZT_{P3.1}$, as follows:

11.1.1 If the value of the Incrementality Parameter for the Financial Institutions Segment is 1, the set $\mathrm{ZT_{P3.1}}$ consists of Eligible Transactions with Fixing Tenors concluded by the Fixing Participant on day T-1 on the Financial Institutions Segment, denoted $\mathrm{ZT_{IF,FIX}}$:

$$ZT_{P3.1} = ZT_{IF,FIX}$$

11.1.2 If the value of the Incrementality Parameter for the Financial Institutions Segment is greater than 1, the set $\mathrm{ZT_{3.1}}$ constitutes the sum of the set $\mathrm{ZT_{P2.2}}$ and set of Eligible Fining-Tenor Transactions concluded by the Fixing Participant on day T-1 on the Financial Institutions Segment, denoted by $\mathrm{ZT_{IF,FIX}}$:

$$ZT_{P3.1} = ZT_{P2.2} \cup ZT_{IF,FIX}$$

11.2 If the number of Transactions contained in the set $\mathrm{ZT_{P3.1}}$ is at least equal to the value of the Incrementality Parameter for the Financial Institutions Segment, the value of the Transaction Factor at the level 3.1 of the Waterfall, denoted by $\mathrm{FT_{P3.1,T}}$, is Calculated according to:

$$FT_{P3.1,T} = \frac{x^*_{ZT_{P_1}} v_{ZT_{P_1}} + x^*_{ZT_{RB,NFIX}} v_{ZT_{RB,NFIX}} + \hat{x}^*_{ZT_{IF,FIX}} v_{ZT_{IF,FIX}}}{v_{ZT_{P_1}} + v_{ZT_{RB,NFIX}} + v_{ZT_{IF,FIX}}}$$

where:

$x^*_{\mathrm{ZT_x}}$ denotes the volume-weighted average price of transactions contained in the set ZT_x (if $\mathrm{ZT_x} = \emptyset$, we assume that $x^*_{\mathrm{ZT_x}} = 0$),

$v_{\mathrm{ZT_x}}$ denotes the sum of volumes of transactions contained in the set $\mathrm{ZT_x}$, (if $\mathrm{ZT_x} = \emptyset$, we assume that $v_{\mathrm{ZT_x}} = 0$),

$\hat{x}^*_{\mathrm{ZT_x}}$ denotes the volume-weighted average price of transactions contained in the set $\mathrm{ZT_x}$, extrapolated to the Underlying Market as a result of the application of the Procedure of Extrapolation of Prices from Related Markets to the Underlying Market

11.3 If the Fixing Participant has calculated the Transaction Factor at the level 3.1 of the Waterfall for the given Fixing Tenor on day T, they shall proceed to the BID/OFFER Spread Calculation Procedure in order to determine Model Quote bid rate and Model Quote offer rate for this Tenor, which ends the application of the Waterfall Method for this Fixing Tenor on day T.

11.4 Otherwise, the Fixing Participant proceeds to level 3.2 of the Waterfall.

[15] For Tenors ON and TN – in day T.

12. LEVEL 3.2 ANALYTICAL PROCEDURES OF THE WATERFALL METHOD - ELIGIBLE NON-FIXING TENOR TRANSACTIONS CONCLUDED ON DAY T-1 ON THE FINANCIAL INSTITUTIONS SEGMENT[16]

12.1. On day T, for a given Fixing Tenor, the Fixing Participant calculates the Transaction Factor at the level of 3.2 of the Waterfall, marked $FT_{P3.2,T}$ as follows.

12.1.1 If the value of the Incrementality Parameter for the Financial Institutions Segment is 1, the set $ZT_{P3.2}$ consists of transactions resulting from the application of the Procedure of Allocation of Fixing Tenors to Non-Fixing Tenor Transactions, for Eligible Non-Fixing Tenor Transactions concluded by the Fixing Participant on day T-1 in the Financial Institutions Segment, to which the Fixing Tenor was assigned, denoted by $ZT_{IF,NFIX}$:

$$ZT_{P3.2} = ZT_{IF,NFIX}$$

12.1.2 If the value of the Incrementality Parameter for the Financial Institutions Segment is greater than 1, the set $ZT_{P3.2}$ is created as the sum of the set $ZT_{P3.1}$ and set of transactions resulting from the application of the Procedure of Allocation of Fixing Tenors to Non-Fixing Tenor Transactions, for Eligible Non-Fixing Tenor Transactions concluded by the Fixing Participant on day T-1 in the Financial Institutions Segment, , denoted by $ZT_{IF,NFIX}$:

$$ZT_{P3.2} = ZT_{P3.1} \cup ZT_{IF,NFIX}$$

12.2. If the number of Transactions contained in the set $ZT_{P3.2}$ is at least equal to the value of the Incrementality Parameter for the Financial Institutions Segment, the value of the Transaction Factor at the level 3.2 of the Waterfall $FT_{P3.2,T}$ is calculated according to the following formula:

$$FT_{P3.2,T} = \frac{x^*_{ZT_{P1}} v_{ZT_{P1}} + x^*_{ZT_{RB,NFIX}} v_{ZT_{RB,NFIX}} + \hat{x}^*_{ZT_{IF,FIX}} v_{ZT_{IF,FIX}} + \hat{x}^*_{ZT_{IF,NFIX}} v_{ZT_{IF,NFIX}}}{v_{ZT_{P1}} + v_{ZT_{RB,NFIX}} + v_{ZT_{IF,FIX}} + v_{ZT_{IF,NFIX}}}$$

where:

$x^*_{\mathrm{ZT_x}}$ denoted the volume-weighted average price of transactions contained in the set ZT_x (if $\mathrm{ZT_x} = \emptyset$, we assume that $x^*_{\mathrm{ZT_x}} = 0$),

$v_{\mathrm{ZT_x}}$denotes the sum volumes of transactions contained in the set $\mathrm{ZT_x}$, (if $\mathrm{ZT_x} = \emptyset$, we assume that $v_{\mathrm{ZT_x}} = 0$),

$\hat{x}^*_{\mathrm{ZT_x}}$ denotes the volume-weighted average price of transactions contained in the set $\mathrm{ZT_x}$, extrapolated to the Underlying Market as a result of the application of the Procedure of Extrapolating Prices from the Related Markets to the Underlying Market.

12.3. If the Fixing Participant calculated the Transaction Factor at the level 3.2 of the Waterfall for the given Fixing Tenor on day T, they shall proceed to the application of the BID/OFFER Spread Calculation Procedure in order to determine Model Quote bid rate and Model Quote offer rate for this Tenor, which ends the application of the Waterfall Method for this Fixing Tenor on day T.

[16] For Tenors ON and TN - from day T.

12.4. Otherwise, the Fixing Participant proceeds to level 3.3 of the Waterfall.

13. LEVEL 3.3 ANALYTICAL PROCEDURES OF THE WATERFALL METHOD - ELIGIBLE TRANSACTIONS WITH FIXING TENORS CONCLUDED ON DAY T-1 IN THE OTHER FINANCIAL INSTITUTIONS SEGMENT

13.1. On day T, for a given Fixing Tenor, the Fixing Participant calculates the Transaction Factor at level 3.3 of the Waterfall, denoted by $FT_{P3.3,T}$, on the basis of Eligible Transactions contained in the Transaction Set at level 3.3, denoted by $ZT_{P3.3}$, as follows:

13.1.1 If the value of the Incrementality Parameter for the Other Financial Institutions Segment is 1, the set $ZT_{P3.3}$ consists of Fixing-Tenor Eligible Transactions concluded by the Fixing Participant on day T-1 in the Other Financial Institutions Segment, denoted by $ZT_{PIF,FIX}$:

$$ZT_{P3.3} = ZT_{PIF,FIX}$$

13.1.2 If the value of the Incrementality Parameter for the Other Financial Institutions Segment is greater than 1, the set $\mathrm{ZT}_{\mathrm{P3.3}}$ is created as the sum of the set $\mathrm{ZT}_{\mathrm{P3.2}}$ and set of Fixing Tenor Eligible Transactions concluded by the Fixing Participant on day T-1 in the Other Financial Institutions Segment, denoted by $\mathrm{ZT}_{\mathrm{PIF,FIX}}$:

$$ZT_{P3.3} = ZT_{P3.2} \cup ZT_{PIF,FIX}$$

13.2. If the number of Transactions included in the set $ZT_{P3.3}$ is at least equal to the value of the Incrementality Parameter for the Other Financial Institutions Segment, the value of the Transaction Factor at level 3.3 of the Waterfall $FT_{P3.3,T}$ is determined according to the following formula:

$$FT_{P3.3,T} = \frac{x^*_{ZT_{P_1}} v_{ZT_{P_1}} + x^*_{ZT_{RB,NFIX}} v_{ZT_{RB,NFIX}} + \hat{x}^*_{ZT_{IF,FIX}} v_{ZT_{IF,FIX}} + \hat{x}^*_{ZT_{IF,NFIX}} v_{ZT_{IF,NFIX}} + \hat{x}^*_{ZT_{PIF,FIX}} v_{ZT_{PIF,FIX}}}{v_{ZT_{P_1}} + v_{ZT_{RB,NFIX}} + v_{ZT_{IF,FIX}} + v_{ZT_{IF,NFIX}} + v_{ZT_{PIF,FIX}}}$$

where:

$x^*_{\mathrm{ZT_x}}$ denotes the volume-weighted average price of transactions contained in the set ZT_x (if $\mathrm{ZT_x} = \emptyset$, we assume that $x^*_{\mathrm{ZT_x}} = 0$),

$v_{\mathrm{ZT_x}}$ denotes the sum volumes of transactions contained in the set $\mathrm{ZT_x}$, (if $\mathrm{ZT_x} = \emptyset$, we assume that $v_{\mathrm{ZT_x}} = 0$),

$\hat{x}^*_{\mathrm{ZT_x}}$ denotes the volume-weighted average price of transactions contained in the set $\mathrm{ZT_x}$, extrapolated to the Underlying Market as a result of the application of the Procedure of Extrapolating Prices from the Related Markets to the Underlying Market.

13.3. If the Fixing Participant calculated the Transaction Factor at level 3.3 of the Waterfall for the given Fixing Tenor on day T, they shall proceed to the application of the BID/OFFER Spread Calculation Procedure in order to determine Model Quote bid rate and Model Quote offer rate for this Tenor, which ends the application of the Waterfall Method for this Fixing Tenor on day T.

13.4. Otherwise, the Fixing Participant moves to level 3.4 of the Waterfall.

14. LEVEL 3.4 ANALYTICAL PROCEDURES OF THE WATERFALL METHOD - ELIGIBLE NON-FIXING TENOR TRANSACTIONS CONCLUDED ON DAY T-1 IN THE OTHER FINANCIAL INSTITUTIONS SEGMENT

14.1. On day T, for a given Fixing Tenor, the Fixing Participant calculates the Transaction Factor at level 3.4 of the Waterfall, marked $FT_{P3.4,T}$, which is determined as follows.

14.1.1 If the value of the Incrementality Parameter for the Other Financial Institutions Segment is 1, the set $ZT_{3.4}$ consists of transactions resulting from the application of the Procedure of Allocation of Fixing Tenors to Non-Fixing Tenor Transactions for Eligible Non-Fixing Tenor Transactions concluded by the Fixing Participant on day T-1 in the Other Financial Institutions Segment to which the Fixing Tenor was assigned, denoted by $ZT_{PIF,NFIX}$:

$$ZT_{P3.4} = ZT_{PIF,NFIX}$$

14.1.2 If the value of the Incrementality Parameter for the Other Financial Institutions Segment is greater than 1, the set $\mathrm{ZT_{P3.4}}$ is created as the sum of the set $\mathrm{ZT_{P3.3}}$ and of a set of transactions resulting from the application of the Procedure of Allocation of Fixing Tenors to Non-Fixing Tenor Transaction for Eligible Non-Fixing Tenor Transactions concluded by the Fixing Participant on day T-1 in the Other Financial Institutions Segment, denoted by $\mathrm{ZT_{PIF,NFIX}}$:

$$ZT_{P3.4} = ZT_{P3.3} \cup ZT_{PIF,NFIX}$$

14.2. If the number of Transactions contained in the set $ZT_{P3.4}$ is at least equal to the value of the Incrementality Parameter for the Other Financial Institutions Segment, the value of the Transaction Factor at level 3.4 of the Waterfall marked $FT_{P3.4,T}$ is calculated according to the following formula:

$$FT_{P3.4,T} = \frac{x^*_{ZT_{P1}} v_{ZT_{P1}} + x^*_{ZT_{RB,NFIX}} v_{ZT_{RB,NFIX}} + \hat{x}^*_{ZT_{IF,FIX}} v_{ZT_{IF,FIX}} + \hat{x}^*_{ZT_{IF,NFIX}} v_{ZT_{IF,NFIX}} + \hat{x}^*_{ZT_{PIF,FIX}} v_{ZT_{PIF,FIX}} + \hat{x}^*_{ZT_{PIF,NFIX}} v_{ZT_{PIF,NFIX}}}{v_{ZT_{P1}} + v_{ZT_{RB,NFIX}} + v_{ZT_{IF,FIX}} + v_{ZT_{IF,NFIX}} + v_{ZT_{PIF,FIX}} + v_{ZT_{PIF,NFIX}}}$$

where:

$x^*_{\mathrm{ZT_x}}$ denotes the volume-weighted average price of transactions contained in the set ZT_x (if $\mathrm{ZT_x} = \emptyset$, we assume that $x^*_{\mathrm{ZT_x}} = 0$),

$v_{\mathrm{ZT_x}}$ denotes the sum volumes of transactions contained in the set $\mathrm{ZT_x}$, (if $\mathrm{ZT_x} = \emptyset$, we assume that $v_{\mathrm{ZT_x}} = 0$),

$\hat{x}^*_{\mathrm{ZT_x}}$ denotes the volume-weighted average price of transactions contained in the set $\mathrm{ZT_x}$, extrapolated to the Underlying Market as a result of the application of the Procedure for Extrapolating Prices from the Related Markets to the Underlying Market.

14.3. If the Fixing Participant calculated the Transaction Factor at level 3.4 of the Waterfall on day T, they shall proceed to the BID/OFFER Spread Calculation Procedure to determine Model Quote bid rate and Model Quote offer rate for this Tenor, which ends the application of the Waterfall Method for this Fixing Tenor on day T.

14.4. Otherwise, level 4 of the Waterfall is applied in accordance with the Administrator's Recommendations regarding the Committed Quotes, while the result of the Waterfall Method from levels 1-3.4 returns an empty set.

15. MODEL QUOTE REPORT

15.1. Elements of the Model Quote Report:

15.1.1 data or identifiers of the Quote Submitter and Quote Approver, subject to point 16.1.1 (i),

15.1.2 Model Quote value,

15.1.3 the Waterfall level from which the Model Quote originates,

15.1.4 indication of Transaction Data on the basis of which Model Quote was calculated,

15.1.5 indication of the level of deviation of the Model Quote from the Quote on the Fixing Day T-1,

15.1.6 period of time measured in calendar days from the date on which the Model Quote was last calculated,

15.1.7 indication of Transaction Data that did not reach the volume eligibility threshold on the T-1 Fixing Day.

16. MODEL QUOTE SYSTEM

16.1. The Fixing Participant implements an IT tool – a Model Quote System, designed to calculate Model Quotes on each Fixing Day, for each Fixing Tenor, and send them to the API Interface for Model Quotes of the WIBIX Fixing System. Model Quotes are sent to the Administrator from the Interface for Model Quotes of the WIBIX Fixing System.

16.1.1 Technical requirements for the implementation of the Model Quote System and the IT environment in which the Model Quotes System is implemented:

(a) The Model Quote System consists of a database and a quote calculator.

(b) the quote calculator is designed to calculate Model Quotes, both current and historical, based on Transaction Data contained in the database (hereinafter: "Quote Calculator").

(c) the database is intended for storing current and historical Transaction Data as well as current and historical values of Model Quotes calculated by the Quote Calculator and sent to the Interface API for Model Quotes of the WIBIX Fixing System (hereinafter: "Database").

(d) The Fixing Participant feeds the Database with Transaction Data on each Fixing Day. Feeding the Database with Transaction Data can be either manual or automated. In case where the Database is fed automatically, the Database is fed directly from the Fixing Participant's IT systems with which the Model Quote System is integrated. Subject to the error correction procedure referred to in point 16.1.3 (b) and the data update procedure referred to in point 16.1.3 (e), employees of the Fixing Participant after feeding the Database with Transaction Data can’t modify the Transaction Data.

(e) Based on the data contained in the Database, the Quote Calculator performs the calculation of Model Quotes on a given Fixing Day and stores Model Quotes in the Database.

(f) Transaction Data is stored in the Database for a minimum period of 5 years from the date of their registration in such a way that it is possible to view the historical values of Model Quotes and recalculate the values of Model Quotes for any Fixing Day from the date of implementation of the Model Quote System by the Fixing Participant.

(g) The Model Quote System is integrated with the API Interface for Model Quotes of the WIBIX Fixing System, through which Model Quotes are sent to the Administrator on each Fixing Day.

(h) The Model Quote System does not allow employees of the Fixing Participant to modify the value of Model Quotes calculated by the Quote Calculator, but it may give the possibility to view the calculated Model Quote values before sending them to the Interface API for Model Quotes of the WIBIX Fixing System.

(i) The Quote Calculator, each time the Model Quote calculation process is initiated, prepares the Model Quote Report referred to in point 15, with the proviso that instead of identification of the Quote Submitter and the Quote Approver, user who initiated the process of calculating the Model Quotes is indicated, along with information about the date and time of initializing the Model Quote calculation process, the address in the Database where the Model Quotes were stored, and information about whether the Model Quotes were sent to the Interface API for Model Quotes of the WIBIX Fixing System.

(j) The Database allows versioning of data entries so that it is possible to analyze the write and modify the values of the data stored in it, including analyzing their deletion and overwriting.

(k) The Database and the Quote Calculator contain security measures against unauthorized access. Access to the Database is available only to authorized users or IT systems of the Fixing Participant that supply the Database with Transaction Data. Access to the Quote Calculator is only granted to employees of the Fixing Participant who comply with the obligations referred to in point 12.3 of the Code of Conduct, in accordance with the Quoting Policy, whereby the Quote Supplier is considered to be an employee of the Fixing Participant who is responsible for initiating the Model Quote System in accordance with the procedures Fixing Participant's internal.

(l) The Model Quote System saves activity logs containing at least the following information:

  (i) start date and time of the session,

  (ii) the name of the user or users performing the session,

  (iii) subsequent actions of the user or users carried out during the session,

  (iv) end date and time of the session.

(m) The Model Quote System is located in a separate, dedicated execution environment.

(n) Technological parameters of the Model Quote System execution environment and the computational complexity of the Model Quote System implementation ensure throughput and responsiveness enabling the timely submission of Model Quotes to the API Interface for Model Quotes of the WIBIX Fixing System on each Fixing Day, for volumes of Transaction Data at the level of 200% of anticipated by the Fixing Participant volumes of Transaction Data, within a minimum period of 1 year from the date of implementation or update of the Model Quote System, which is confirmed by the use test at the stage of implementation or update of the Model Quote System. In the case of the expected increase in the volume of Transaction Data during the current period of utilization of the Model Quote System, the Fixing Participant conducts a use test to confirm the possibility of timely submission of Model Quotes to the API Interface for Model Quotes of the WIBIX Fixing System and, if necessary, technological parameters of the environment in which the Model Quote System is executed are updated.

(o) The Fixing Participant ensures that the level of security of data transmission between the Model Quote System and the Interface API for Model Quotes of the WIBIX Fixing System not lower than in the case of data transfer to the Interface for Committed Quotes of the WIBIX Fixing System.

(p) The Quote Calculator is managed from the console or from the graphical user interface.

(q) The graphical user interface and / or console provide the option of implementing all the functionalities provided for in point 16.1.2.

(r) The Model Quote System has an independent backup environment (backup). The initialization time of the backup environment for the Model Quote System provides the possibility of timely submission of Model Quotes to the API Interface for Model Quotes of the WIBIX Fixing System, if the basic environment does not allow it.

(s) The technological and safety requirements for the operation of the Model Quote System in a backup environment are not less than those specified for the basic environment.

(t) In the case in which both the basic environment and the replacement environment do not allow sending Model Quotes to the API for handling Model Quotes of the WIBIX Fixing System, the Fixing Participant immediately informs the Administrator and takes the necessary steps to restore the functionality of both environments.

16.1.2 The implementation of the Model Quotes System provides the ability to implement at least the following functionalities:

(a) The Model Quote System enables the Database to be fed with Transaction Data on each Fixing Day.

(b) The Model Quote System allows to perform Model Quote calculations on each Fixing Day and send Model Quotes to the API Interface for the Model Quotes of the WIBIX Fixing System.

(c) The Model Quote System enables the initialization of the Model Quote calculation process in two modes:

(i) Cyclical mode.

(ii) On demand mode.

(d) The Model Quote System allows to load into the Calculator the predefined (in cyclical mode) and modifiable (in the on-demand mode) ranges of Transaction Data from the Database, perform the calculation of the Model Quote values (in both modes) and save the results of the calculation to the Database (in both modes).

(e) The Model Quote System allows to view the results of the Model Quote calculations before sending them to the API Interface for Model Quotes of the WIBIX Fixing System, but does not allow the user to modify the Model Quote calculated by the Quote Calculator.

(f) The Model Quote System verifies the Transaction Data used by the Quote Calculator in a cyclical and on-demand mode each time the Quote Calculator is initialized, and generates alerts when errors are identified, along with an indication of the scope of data to which the errors relate and types of errors.

(g) The Model Quote System stops the process of calculating Model Quotes in the event of errors in the Transaction Data being identified, both in cyclical and on-demand mode.

(h) If the Quote Calculator has been stopped as a result of errors in the Transaction Data, and the Quote Calculator has been initiated to calculate Model Quotes and send them to the API Interface for Model Quotes of the WIBIX Fixing System, the Fixing Participant should remove errors in the Transaction Data and re-initialize the process of calculating Model Quotes in the on-demand mode and send the results of the Model Quotes calculations carried out on Transaction Data without errors to the API Interface for Model Quotes of the WIBIX Fixing System.

(i) The Model Quote System gives the possibility to send quotes to the API Interface for Model Quotes of the WIBIX Fixing System in cyclical and on-demand modes.

(j) The Model Quote System gives the ability to configure, activate and deactivate the cyclic Model Quote Calculator mode.

(k) The Model Quote System generates the Model Quotes Report each time the Quote Calculator is initialized.

(l) The Model Quotes System carries out, in an automated manner, verification of Transaction Data each time the Quote Calculator is initialized, both in cyclical and on-demand mode. The scope of verification includes, at least:

(i) Verification of data syntactic correctness.

(ii) Verification of data timeliness.

(iii) Verification of data completeness.

(iv) Verification of data consistency.

(m) The Model Quote System gives the possibility to change Incrementality Parameters and Eligibility Thresholds in accordance with the Fixing Participant's internal Procedures contained in the Quoting Policy only in the event of the situation referred to in point 18.1.

16.1.3 Procedures whose implementation is necessary to ensure the correct operation of the Model Quote System:

(a) The procedure for registering information on Transaction Data ensuring on the part of the Fixing Participant that information on Transaction Data will be entered into the Fixing Participant's IT systems in such a way and in such a time that it is possible to supply it to the Database on a given Fixing Day and take it into account in the calculation Model Quotes, specifying:

(i) an obligation for the employees of the Fixing Participant to immediately enter information regarding Transaction Data into the Fixing Participant's IT systems from which the Fixing Participant will take information to supply the Database,

(ii) scope of information entered into the Fixing Participant's IT systems covering individual types of Transaction Data,

(iii) the time of entering into the Fixing Participant's IT systems information including Transaction Data,

(iv) scopes of tasks of persons responsible for entering information including Transaction Data into the Fixing Participant's IT systems,

(v) means of verification of correctness of information involving Transaction Data entered into the Fixing Participant's IT systems, also including annual Database verification, subject to point 17.5, the results of which the Fixing Participant submits to the Administrator, including:

i. assessment of the correctness of information supplying the Database and the frequency of error correction in data on individual Fixing Days.

ii. assessment of the timeliness of information supplying the Database and the timeliness of data used to calculate Model Quotes on individual Fixing Days and assessment of the impact of incomplete timeliness of data on the values sent to the Model Quote Administrator on individual Fixing Days.

iii. assessment of the completeness of information supplying the Database, in particular the frequency and scale of corrections of data in the Database in individual Fixing Days, and assessment of the impact of limited completeness of data on the values sent to the Model Quote Administrator on individual Fixing Days.

iv. assessment of the consistency of information supplying the Database based on the analysis of data reconciliation with data contained in the Fixing Participant's accounting and / or transaction systems, taking into account the provisions of the Code of Conduct regarding the Change in Transaction Terms, in particular on the basis of the Database Tests referred to in points 17.4 and 17.5.

(b) Error correction procedure for information including Transaction Data in the Database:

(i) defining the situations identified as an error,

(ii) determining the tasks of Fixing Participant’s employees responsible for identifying errors,

(iii) defining the reporting process for identified errors,

(iv) determination of the process of correction of identified errors.

(c) Procedure for access of employees of the Fixing Participant to the Database, ensuring compliance with the requirements of the Model Quote System referred to in points 16.1.1 and 16.1.2

(d) The procedure for switching the basic environment to the backup environment referred to in point 16.1.1 (r)

(e) The procedure for updating data in case of a Transaction Cancellation in the scope of information including Transaction Data in the Database.

16.2. Procedures whose implementation will ensure continuous monitoring of the proper functioning of the Model Quote System and control of the Model Quote System after each update or change of its software.

(a) A procedure for continuous monitoring of the proper functioning of the Model Quote System and ensuring control of the Model Quote System after each update, specifying:

(i) scope of monitoring of the Model Quote System,

(ii) frequency of monitoring of the Model Quote System,

(iii) tasks of the Fixing Participant's employees responsible for monitoring the Model Quote System,

(iv) description of the control processes of meeting the technological and functional requirements by the Model Quote System and verification of the correct implementation of the Model Quote calculation algorithm,

(b) During the implementation of the Model Quote System, and each time it is updated, the Fixing Participant carries out a system implementation correctness test to confirm that the Model Quote System implemented by the Fixing Participant:

(i) Meets the technical requirements set out in point 16.1.1.

(ii) Meets the functional requirements mentioned in point 16.1.2.

(iii) Provides calculation of Model Quotes on each Fixing Day in a manner consistent with the Model Quote Specification.

(c) The minimum scope of testing is set out in point 17.1.

16.3. Scope of minimum qualifications of Quote Submitter.

16.3.1 In the case of an automated Model Quote System:

(a) Ensures knowledge of the Procedures for the Model Quote System,

(b) Ensures knowledge of the Model Quote Specification sufficient to verify the results of the System Report and respond to System errors,

(c) Ensures servicing of the Model Quote System by changing the Quote Calculation Parameters, if changes referred to in point 18.1 are carried out.

16.3.2 The Model Quote Submitter acquires the qualifications referred to above by completing training, in accordance with point 17 of the Code of Conduct.

17. CONFIRMATION OF THE IMPLEMENTATION OF THE MODEL QUOTES SYSTEM BY A FIXING PARTICIPANT

17.1. The Fixing Participant's implementation of the Model Quote System under the option of Automation of the Model Quotes is confirmed to the Administrator in form of a report consisting of the following parts:

(a) Technological, including the results of the following necessary tests, confirming the correct operation of the Model Quote System:

i) Use test consisting in simulating the values of Model Quotes for a period of at least 252 Fixing Days preceding the day of the test.

ii) Use tests through selection of Fixing Days, in which the Model Quote comes from levels 1, 2.1, 2.2, 3.1, 3.2, 3.3 and 3.4 of the Waterfall, as far as the Fixing Participant's Transaction Data allows, and verification of the correctness of determining the Model Quote value by calculating it independently of the Model Quote System.

iii) Use test which verifies that the Model Quote System meets the technical requirements set out in point 16.1.1 and the functional requirements set out in point 16.1.2.

iv) Database test which verifies the data in the Database supplied by the Fixing Participant with the data from the Fixing Participant's internal

systems from which the transaction data originate, taking into account the provisions of the Code of Conduct regarding the Change in Transaction Terms.

(b) Legal and regulatory, confirming the compliance of the Model Quote System with the Model Quote Specification and the Benchmarks Regulation together with its implementing acts, as well as the correct implementation of the procedures listed in the Model Quote Specification.

17.2. In order for the Fixing Participant to utilize the option of Automation of the Model Quote, the report referred to in point 17.1 must be delivered to the Administrator.

17.3. The Fixing Participant that has implemented a Model Quote System is required to conduct Database Tests and Quote Calculator Tests.

17.4. The Database Test consists of verifying the value of the Database fed by the Fixing Participant with the databases of the Fixing Participant's internal systems from which the Transaction Data is derived taking into account the provisions of the Code of Conduct regarding the Change in Transaction Terms, and shall be carried out over a period of not less than 21 consecutive Fixing Days, whereby the test period adopted shall ensure the occurrence of a non-zero number of transactions with Fixing Dates ON or TN and a non-zero number of transactions with Fixing Dates SW to 1Y.

17.5. The Database Test shall be performed periodically, at least once every 24 months, and each time there are changes to the Model Quote System resulting from a change to the Administrator's documentation, other than a change to the parameters of the Methods referred to in point 17.6 (b) and (c), and in the case of the first Database Test, before the expiry of 10 months from the date of implementation of the Model Quote System.

17.6. The Quote Calculator Test involves a test of the Quote Calculator parameters and consists of a simulation of the Model Quote values for a period of at least 252 Fixing Days assuming a change in the Method parameters: (a) the Volume Thresholds, (b) the Incrementality Parameter and (c) the value of the variable determining the length of the Transaction Factor Smoothing Window in the formula set out in paragraph 10.1.5(a) of the Model Quote Specification.

17.7. The Quote Calculator Test shall be performed upon any change to the Quote Calculator, other than a change to the parameters referred to in point 17.6, resulting from a change to the Model Quote Specification.

17.8. The results of the Database Tests and the Quote Calculator Tests, confirming the correct operation of the Model Quote System, shall be presented to the Administrator in the form of a report immediately after the completion of each test.

18. MODE FOR CHANGING THE MODEL QUOTE SPECIFICATION

18.1. The Administrator may amend the Model Quote Specification in accordance with the procedure provided for in the Regulations for the WIBID and WIBOR Reference Rates.

18.2. Changing the Model Quote Specification does not require application of the procedure of amendment to the Code of Conduct.

18.3. The Administrator provides Fixing Participants with the uniform text of the amended Model Quote Specification.

18.4. The amended Model Quote Specification shall enter into force within 60 days of its receipt by Fixing Participants.

18.5. The Administrator may amend the Model Quote Specification within a period shorter than that indicated in point 18.4, under condition of the written consent of all Fixing Participants.

19. FINAL AND TRANSITIONAL PROVISIONS

19.1. All terms not defined in this Model Quote Specification in capital letters, have the meaning given to them in the Code of Conduct.

19.2. The following points of the Model Quote Specification, i.e.:

(a) 4.1 (amended),

(b) 4.3 (amended),

(c) 4.4 (added),

(d) 8.1.5 (amended),

(e) 8.1.6 (amended),

(f) 8.2 (amended),

(g) 8.3 (amended),

(h) 8.4 (amended),

(i) 8.5 (amended),

(j) 8.6 (added),

(k) 17.5 (amended),

(l) 19.2 (added),

(m) 19.3 (added),

(n) 19.4 (added),

shall come into force on 26 Nov. 2021, in the manner set out in point 18.5 of the Model Quote Specification, subject to point 19.3.

19.3. Each Fixing Participant shall, within 7 days of the amended Model Quote Specification becoming effective, i.e. by 3 Dec. 2021, provide the Administrator with a written declaration indicating the Fixing Participant's intended date for adjusting its activity to the amended or added points of the Model Quote Specification referred to under (a) to (k) in point 19.2 above, such date not to be later than 31 March 2022.

19.4. Until the Fixing Participant adjusts its activity to the amended or added items of the Model Quotation Specification referred to under (a) to (k) in point 19.2 above, in accordance with the declaration made to the Administrator pursuant to point 19.3 above, the Fixing Participant shall apply the Model Quote Specification in its existing wording, i.e. in the version dated as of 31 May 2021.

Annex 1 Model Quote System Compliance Report - drafting rules

1.1 This Annex to the Model Quote Specification specifies:

1.1.1 the substantive scope of the report referred to in point 17.1. b) of the Specification of Model Quotes (hereinafter: "**the Compliance Report**"),

1.1.2 the format and methodology of preparation of the Compliance Report,

1.1.3 the manner and format of submitting the Compliance Report to the Administrator.

1.2 The scope of the Compliance Report should confirm:

1.2.1 Compliance of the Model Quote System with the Model Quote Specification,

1.2.2 Compliance of the Model Quote System with the Benchmarks Regulation along with its implementing acts,

1.2.3 Correct implementation of the following procedures specified in the Model Quote Specification in the organizational structure of the Fixing Participant:

a) procedures for recording information on transaction data,

b) procedures specifying the measures to control the correctness of information including transaction data fed into the Fixing Participant's IT systems and specifying the control measures related to feeding the Database with information on transaction data,

c) procedures for feeding the Database with information on transaction data,

d) procedures for monitoring the proper functioning of the Model Quote System,

e) the error correction procedure which regards to the information including transaction data in the database,

f) procedures regulating the access of Fixing Participant's employees to the database,

g) the procedure of switching from the basic environment in which the Model Quote System runs to its backup environment,

h) training procedures for Model Quote Suppliers,

i) control procedures for the Model Quote System after each update or change of its software and test procedures.

1.3 The content of the Compliance Report should include:

a) the scope of the Compliance Report and the legal basis for its preparation,

b) indication of conclusions from the Compliance Report,

c) a list of all the requirements of the Model Quote Specification, adequate for the subject of the Compliance Report, broken down into the list of features and functionalities of the Model Quote System and elements of the Fixing Participant's policies and procedures,

d) a list of all the requirements of the Benchmarks Regulation, adequate for the subject of the Compliance Report, along with its implementing acts, the fulfillment of which by the Fixing Participant is subject to assessment in the Compliance Report,

e) a list of all materials used, including, in particular, a list of internal and external documents of the Fixing Participant, technical (functional) documents of the Model Quote Specification on the basis of which the Compliance Report was drafted.

1.4 In order to draft the Compliance Report, the processes implemented by the Fixing Participant with regard to determining Model Quotes (using the Model Quote System) should be subject

to detailed assessment from the moment a transaction is concluded by an employee of the Fixing Participant being the basis for the Fixing Participant to establish a Model Quote under the Waterfall Method, until the moment the Fixing Participant performs all control processes on an ex-post basis in accordance with the procedures specified in the Model Quote Specification.

1.5 With regard to the elements of the Compliance Report referred to in point 1.3. c) - d), the Compliance Report should contain a descriptive indication (subject to confidentiality rules) of how the Fixing Participant meets a given requirement of the Model Quotes Specification or the Benchmarks Regulation (or its implementing act) and what internal or external document or technical document (functional) of the Model Quote System confirms its fulfillment.

1.6 Due to the fact that the Compliance Report should confirm the compliance of the Model Quote System with generally applicable legal provisions, which include the Benchmarks Regulation and its implementing acts, the Compliance Report should be drafted by an entity with appropriate substantive and professional qualifications authorizing it to conduct verification and issuing legal opinions.

1.7 The Compliance Report should be submitted to the Administrator along with the Fixing Participant's declaration regarding the Fixing Participant's use of the Automation Option for the Model Quote Contribution Process, a template of which is attached as Annex 9 to the Code of Conduct.

1.8 The Compliance Report alongside with the statement referred to in point 1.7 is provided to the Administrator only in electronic form, on condition that the Compliance Report and the above-mentioned declarations are signed with a qualified signature in accordance with the rules of representation of the Fixing Participant, by sending an e-mail to the following address: wibor@gpwbenchmark.pl

1.9 The Fixing Participant may submit to the Administrator a scan of the Compliance Report and of the declaration referred to in point 1.7, signed with an ordinary signature, in accordance with the rules of representation of the Fixing Participant, in electronic format on the above-mentioned e-mail address, which does not release the Fixing Participant from the need to provide the Administrator with these documents immediately in writing.