



KEY ELEMENTS
OF
THE WKF METHODOLOGY

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Definitions & acronyms

Administrator – Instytut Rynku Finansowego (hereinafter also called the IRF).

Panel Bank – a supervised entity, understood in accordance with the definition set out in Article 3 (1.10) of the BMR, meeting the criteria specified in the Code of Conduct of the Panel Bank and providing input data to WKF.

BMR – (*) Regulation (EU) 2016/1011, of the European Parliament and of the Council of 8 June 2016 on indices used as benchmarks in financial instruments and financial contracts or to measure the performance of investment funds and amending Directives 2008/48/EC and 2014/17/EU and Regulation (EU) No 596/2014.

Input data – data concerning transactions, understood in accordance with BMR 3, 1.14), provided to the Administrator. This is the data containing information on deposits accepted by the Panel Bank and used for the purpose of calculating WKF, understood in accordance with BMR Article 3(1.15).

Publication Day or Publication Date – every day when WKF is calculated and published.

Start Date – the start date of the deposit, about which information is sent in the input data.

Contract Date – the day on which the client first deposited in the bank the funds in a deposit transaction.

End Date – the date of the maturity of the deposit, about which information is sent in the input data; usually coincides with the date of payment of interest.

Deposit or Term deposit – cash deposit placed on a term bank account.

Transaction Day – every day from Monday to Friday excluding public holidays, in which the clearing system in PLN operates and deposit transactions are concluded.

Code of Conduct of the Panel Bank (or Code of Conduct) – procedure adopted by the Administrator and applied by entities contributing the input data, set out in a separate document, used in calculating of WKF and published on the Administrator's website.

IRF Steering Committee – (an oversight entity; a supervisory unit as defined in the IRF organizational regulations, performing the functions set out in Article 5 of the BMR regulation.

WKF Methodology – a procedure adopted and applied by the Administrator, defining a set of rules for determining WKF on the basis of received input data. A selection of the most important elements of the WKF Methodology published on the Administrator's website as Key Elements of the WKF Methodology (KEM).

WKF Panel – set of all Panel Banks contributing input data to WKF.

[Consultations policy and procedure](#) – document adopted by the Administrator, meeting the requirements of the BMR regulation, on how to conduct consultations in the event of changes to the benchmark, its definition, method of calculation or code of conduct of the entities contributing input data. The document is published on the Administrator's website.

[Policy and procedure for reviewing, amending or discontinuing the calculation of the benchmark and conducting consultations](#) – document adopted by the Administrator, meeting the requirements of the BMR, regarding the principles of conducting the methodology review, consultations in the event of any changes to the benchmark, its definition or the code of conduct of the entities contributing input data. The document is published on the Administrator's website.

[RTS](#) – COMMISSION DELEGATED REGULATION (EU) 2018/1639 supplementing Regulation (EU) 2016/1011 of the European Parliament and of the Council with regard to regulatory technical standards specifying further the information to be provided by administrators [...] of benchmarks on the methodology used to determine the benchmark, the internal review and approval of the methodology and on the procedures for making material changes in the methodology.

[WKF system](#) – computer programs used in the process of calculating WKF.

[Contract](#) – contract between the Panel Bank and the Administrator.

[Threshold value of the balance sheet total](#) – value of the balance sheet total laid down in Annex 2, below which banks can be part of the WKF Panel.

[WKF](#) – Cost of Funds Benchmark, an interest rate benchmark determined on the basis of the WKF Methodology and supporting documents, especially the Code of Conduct of the Panel Bank, that meets the requirements of the BMR Regulation.

Definition of WKF

WKF represents interest rate measuring cost of funding of the entities contributing the input data. The above mentioned is reflected as an index based on interest rates on Term Deposits accepted in PLN by entities providing the input data, which is calculated in accordance with the WKF Methodology.

The entities contributing the input data to WKF are cooperative banks operating in the Republic of Poland with a balance sheet total below the threshold value of the balance sheet total.

The institutions that meet the above-mentioned subjective criterion may be Panel Banks, which are part of the WKF Panel. Only Panel Banks have the right to contribute the input data.

WKF is specified for the following tenors: 1 month (1M), 3 months (3M), 6 months (6M), 12 months (1Y or 12M).

Active market for the purposes of WKF shall be understood as the market of deposit transactions contracted for a specific time between contributors meeting the criteria specified in the WKF Methodology and their clients.

General framework of WKF

The WKF Methodology assumes the use of actual transactional data on term deposits accepted by Panel Banks. Transactional data is sent in the input data.

The WKF Methodology does not provide for the use of expert judgement by Panel Banks, nor does it provide for the use of quotes.

The aim of WKF is to reflect the economic reality of the cost of acquiring liabilities by Panel Banks. Deposits received from non-banking clients are the main source of the banks' financing. WKF is a reflection of the interest rate for obtaining bank funding. The aim is to determine the interest rate, which depends on current supply and demand.

Deposit transactions concluded on the day preceding the date of publication of WKF or earlier are taken into account in the process of calculating WKF.

The economic rationale for the various stages of input data processing is described in Annex 4.

In order to calculate the marginal cost of financing, the method of flagging transactions sent in the input data is used.

Flagged transactions are not taken into account in the calculation of WKF. Moreover, only term deposits in accordance with Annex 3 are used to calculate WKF.

In case of missing input data from some Panel Banks, or if there are reasons to not include it in the calculation of WKF, the provisions described in the section on the substitution mechanism shall apply.

Rules of the WKF Methodology

Input data

WKF is calculated on the basis of input data.

Input data is contributed by Panel Banks that are part of the WKF Panel.

Input data is prepared and sent by Panel Banks in accordance with Code of Conduct .

The input data used to determine WKF concerns term deposits made by clients. These deposits must have a specific maturity date, which determines their assignment to individual WKF tenors.

Input data is subject to monitoring before the publication of WKF and to validation after the publication of WKF. For details, see the section on validation of the input data.

For sending and processing of the input data, schedule described in the Code of Conduct applies.

Hierarchy of the procedures used in the Methodology

The first process of flagging transactions concerns the fulfilment of reasonable transaction conditions by transactions included in the input data. This is the qualitative verification procedure of the transactions. The parameters of this procedure are specified in Annex 1A.

The second flagging procedure concerns the parameters of the WKF Methodology. The parameters of the WKF Methodology are specified in Annex 1B. Transactions that are not flagged in this procedure are included in the allocation described below and are used to calculate WKF for defined tenors.

The third procedure is the allocation of the deposits for individual WKF tenors, in accordance with Annex 3.

The procedure of flagging deposits is carried out in the order indicated above. It means that the transactions not flagged in the procedure defined by the parameters in Annex 1B cannot be flagged in the procedure defined by the parameters in Annex 1A.

Parameters of the WKF Methodology

Parameters of the methodology are the features and criteria that must be met by the transactions included in the input data used to calculate WKF.

The parameters of the WKF Methodology are:

- deposit amount (lower and upper limit);
- client segment;
- the period from Contract Date to Start Date;
- the period from Start Date to End Date;
- cut-off limit for the interest rate threshold value;
- the number of days of the time window used to calculate the arithmetic mean of the benchmark.

Key rules of the calculation

For the calculation of WKF, transactions that have not been flagged and have been allocated to specific maturity terms in accordance with Annex 3 are used.

The calculations are made on consolidated data (with no breakdown into input data from individual Panel Banks).

The benchmark is calculated for each tenor according to the allocation as the volume weighted average interest rate on the deposit from all input data that have not been flagged.

Calculation of the Benchmark formula

WKF is calculated as volume weighted average interest rate on specific deposits accepted by entities that are part of the WKF Panel, in the 10 working day period (daily average) preceding the publication date of WKF. The benchmark is calculated according to the following formulas.

On the prepared set of transactions (which have not been flagged and have been allocated in accordance with Annex 3) for each transaction day and for each VWAR tenor, a daily volume weighted average rate (VWAR) is calculated according to the following formula:

$$S_{t-n}^x = \frac{\sum_{i=1}^I r_i * v_i}{\sum_{i=1}^I v_i}$$

where:

S_{t-n}^x – volume weighted interest rate on tenor x on day t-n (where t is the benchmark publication date, n is the number of working days)

r_i – interest rate of transaction i concluded on day t-n

v_i – volume of transaction i concluded on day t-n

WKF is calculated as the arithmetic mean of the ten day time window daily volume weighted average rate (VWAR) (for all days fixed observation weights are assumed) according to the formula:

$$WKF_t^x = \frac{\sum_{n=1}^{10} S_{t-n}^x}{10}$$

where:

WKF_t^x – WKF published on day t for maturity tenor of x months

S_{t-n}^x – average interest rate for tenor x for day t-n, where t is the Publication Day and n is the number of working days prior the Publication Day (natural numbers from 1 to 10) constituting the Transaction Days preceding the Publication Day

Substitution mechanism

The substitution mechanism is an element of the WKF Methodology intended for cases where the quantity or quality of input data sent from the Panel Bank may or no longer meet the standards for the accurate and reliable determining of the benchmark or in a situation where a file has not been sent as scheduled.

To determine when the substitution mechanism should be used, each Panel Bank has a substitution parameter that characterizes its relative volume and relevance of the input data compared to other Panel Banks

The substitution parameter is assigned by the Administrator upon admission to the Panel and updated for each Panel Bank at least once a year.

The substitution mechanism is triggered on the basis of the amount of data flagged after applying the qualitative parameters specified in Annex 1A to the input data of a given Panel Bank.

Validation of input data

The Administrator performs the validation of the input data, i.e. a multi-stage analysis including the back testing.. The validation of input data is carried out in order to detect possible inadequacies of the applied WKF Methodology or problems with the input data.

The Administrator shall verify the integrity of input data, review The WKF Methodology and assess the evolution of business processes described by the input data.

The Administrator should monitor, asses and validate input data during daily processing, prior to the publication and after publication of WKF.

Prior to the publication of WKF, during the daily monitoring process a formal and technical control is performed to check the completeness, correctness and compliance with the qualitative verification parameters of the input data (in accordance with the parameters specified in Annex 1A). Deviations or deficiencies are automatically signalled to persons supervising the WKF system.

At the end of the daily WKF calculation process and after the publication of WKF, the validation of input data is performed. The system automatically generates deviation reports, including deviations from historical levels by maturity tenors. Synthetic results of these reports are recorded in the register.

Verification and validation after publication is used by Administrator to analyse the term deposit market. In particular, this concerns the identification of material change on the bank funding market. The conclusions and findings of this analysis, as a synthesis of the economic reality of the market from which the transactions included in the calculation of WKF originate, are used to verify WKF. The analysis also allows to monitor the effectiveness of WKF against the objective defined in its definition.

The analysis of the data is performed for the whole WKF Panel as well as for each Panel Bank

On the basis of conducted analyses the Administrator prepares reports that are presented to the IRF Management Board as well as to the IRF Steering Committee.

Methodology Review

The WKF Methodology and its parameters shall be regularly reviewed.

Periodically the Administrator reviews the threshold volume of the balance sheet of the contributors of input data, market and economic reality measured by WKF.

At least once a year the Administrator shall submit to the IRF Steering Committee a report on the review of the WKF Methodology. In particular, it analyses:

- the adequacy of the Methodology in relation to the economic reality described by WKF,
- parametrization of the Methodology in relation to input data,
- alternative data sources,
- the size and liquidity of the physical market being assessed by WKF,
- the adequacy of the provision of WKF,
- representativity of the Panel and WKF,
- resistance of WKF to manipulation.

The administrator shall review the WKF Methodology. For this purpose, the analysis of the input data after publication is used in order to check the correctness and adequacy of the Methodology in relation to the current market conditions. During this process, a back testing of the methodology is performed.

In order to prepare a report on the review of the WKF Methodology, the Administrator may (apart from the input data) use all available and reliable data.

The Administrator shall make available to the public a summary of the report on the review of the WKF Methodology.

In case the IRF Steering Committee recommends a change of the WKF Methodology, this will be done in accordance with the Policy and procedure concerning review, change or cessation of the benchmark determination and consultations.

Other provisions

The WKF Panel is created in accordance with the procedure described in the Code of Conduct of the Panel Banks.

The parameters of the WKF Methodology detailed in the Annexes 1A, 1B and 3 are based on the principles of discretion. Set parameters are periodically fixed. The justification for the implemented principle of discretion can be found in Annex 4. The Administrator may modify the values of the methodology parameters following periodical reviews of the methodology.

The Administrator aims to collect the input data from the maximum number of entities meeting the criteria of the WKF Methodology and the Code of Conduct of the Panel Bank.

Annex 1A

Qualitative verification parameters of the input data

| Category | Type | Variable | Symbol | Volume | Unit |
|--------------------------|------------------------|-------------------|--------|----------------------------|--------|
| Qualitative verification | condition for flagging | interest rate | <= | 0.00 ¹ | % p.a. |
| Qualitative verification | condition for flagging | interest rate | >= | max(4*REF, 6) ² | % p.a. |
| Qualitative verification | condition for flagging | notional | < | 100 | PLN |
| Qualitative verification | condition for flagging | notional | > | 1 000 000 000 | PLN |
| Qualitative verification | condition for flagging | currency | ≠ | PLN | - |
| Qualitative verification | condition for flagging | date_Z- date_R | <= | 0 | days |
| Qualitative verification | condition for flagging | date_Z- date_R | > | 4 000 | days |
| Qualitative verification | condition for flagging | date_R- date_U | < | 0 | days |

date_Z – (end date),

date_R – (start date),

date_U – agreement date (date of the first deposit agreement)

REF – reference rate of NBP.

¹ The value of 0% p.a. as the deposit interest rate is applied due to the fact that in the environment of positive interest rates as well as market functioning practices, negative or zero rates as of the date of preparation of the Methodology are not applied.

² The analysis of historical data was performed in a low interest rate environment (in accordance with market conditions in November 2019, at the NBP reference rate = 1,5%). Transactions with interest rates exceeding 6% (i.e. four times the NBP reference rate) do not occur or the assignment of such interest rate to a transaction may be the result of an obvious mistake.

Annex 1B

Parameters of the Methodology

| Category | Type | Variable | Symbol | Volume | Unit |
|------------------------------|---|---|--------|------------|---------------------|
| Parameter of the Methodology | condition for not flagging of the transaction | notional | < | 10 000 000 | PLN |
| Parameter of the Methodology | condition for not flagging of the transaction | segment | = | 2, 3, 4, 5 | No. |
| Parameter of the Methodology | condition for not flagging of the transaction | the length of the renewal period of the deposit agreement, calculated as: date_R - date_U | < | 1460 | days |
| Parameter of the Methodology | condition for not flagging of the transaction | the cut-off limit as the parameter for determining the interest rate threshold | > | 25% | of the total volume |
| Parameter of the Methodology | the volume weighted average rate (VWAR) calculated from transactions from the days preceding the Transaction Day, for which WKF is calculated | the observation period to determine the average from Transaction Days | = | 10 | last working days |

Identification of client segments*:

- 1 – banks
- 2 – non-banking financial institutions
- 3 – public sector

4 – corporate clients

5 – retail clients

*The purpose of segment identification is to identify deposit transactions concluded between the Panel Banks and other banks, as well as between the Panel Banks and other entities. The Panel Banks make allocations to client segments in accordance with the adopted rules used for the purposes of statutory reporting to the NBP. Client segments as defined in the WKF Methodology refer to the following categories specified in the NBP Instruction of December 12th 2018:

| Client segments according to the WKF Methodology | Category of the economy sector division in accordance with the NBP Instruction of December 12th 2018*. |
|--|--|
| Banks | Monetary financial institutions (Instruction, chapter 3.1.1) |
| Non-banking financial institutions | Non-monetary financial institutions (NBP Instruction, chapter 3.1.2) |
| Public sector | State and local government institutions (NBP Instruction, chapter 3.2.1) |
| Corporate clients | Non-financial companies (NBP Instruction, chapter 3.2.2) |
| Retail clients | Households (NBP Instruction, chapter 3.2.3) Non-commercial institutions serving the households (NBP Instruction, chapter 3.2.4) |

* <https://www.nbp.pl/statystyka/sprawozdawczosc2010/Nowa-sprawozdawczosc-Instrukcja-FI.pdf>

Annex 2

Threshold value of the balance sheet total

| Threshold value of the balance sheet total | Explanation |
|--|--|
| 4 billion PLN | <ol style="list-style-type: none"> <li data-bbox="719 517 1382 667">1. The entities contributing the input data to WKF are cooperative banks. These banks, unlike most commercial banks, have a low balance sheet total. <li data-bbox="719 674 1382 987">2. Cooperative banks, compared to other banks prevailing in the banking system, have a different cost of funding, which is due to the nature of their operations and the different availability of funding instruments and thus a different liability structure. <li data-bbox="719 994 1382 1144">3. Banks with a low balance sheet total are usually regional (rather than nationwide), which fosters the local profile of liability interest rates. <li data-bbox="719 1151 1382 1509">4. Cooperative banks have never participated and probably will not participate in the calculation of the WIBOR index, which is currently the primary benchmark for asset interest rates used by banks in Poland. It is therefore reasonable to create a new benchmark representing the cost of their liabilities. <li data-bbox="719 1516 1382 1630">5. Cooperative banks are not subject to bank tax because their balance sheet total is below the threshold. <li data-bbox="719 1637 1382 1868">6. In order to reduce the risk of concentration and with a view to a possible consolidation of the cooperative banking sector, a threshold value for balance sheet total is introduced. <li data-bbox="719 1874 1382 1989">7. Threshold value of the balance sheet total was determined in such a way that it does not exclude any |

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|--|--|
| | cooperative bank operating in Poland as on December 31 st 2019. |
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Annex 3

Rules for the allocation of deposit terms – MODIFICATION

| WKF term | Number of days from the start date to the end date of the Deposit (Deposit term) |
|----------|--|
| 1M | 18–75 days |
| 3M | 76–135 days |
| 6M | 136–270 days |
| 1Y | 271–370 days |

Note:

- 1) Deposits with maturities of less than 18 days and more than 370 days are not flagged, but are not included in the calculation of the benchmark.
- 2) The terms of WKF were set by the Administrator through consultations with the stakeholders.

Annex 4

Steps of the processing of input data

| Action | Explanation |
|---|---|
| Client segments used to calculate WKF: <ul style="list-style-type: none"> • non-banking financial institutions • public sector • corporate clients • retail clients | Banks are diversified in terms of sources of funding, but the main source of funding is the non-banking sector. The inter-bank market may generate different prices due to different perception of credit risk and the impact of liquidity regulation on banks' policies. |
| Deposits of less than 100 PLN and more than 10 million PLN are flagged and ultimately not included in the calculation of WKF. | Deposits of standard denominations are used in the calculation of the benchmark. Deposits that are too small are rejected because they may be technical settlements (e.g. resulting from the system processes). Too large volumes, on the other hand, may be one-off transactions with prices deviating from market conditions. |
| Only transactions concluded on Transaction Days are taken into account. | Deposits placed on public holidays are either automatic extensions of Deposits maturing on holidays or Deposits placed through electronic banking outside bank opening hours. These deposits are predominantly concluded at prices that do not meet the requirement of representing current money market forces of supply and demand, and the volume share of these transactions is not significant. |
| Only Deposits not older than 4 years, i.e. 1460 days (calculated as the difference between the date of conclusion of the first agreement or receipt of funds and the date of commencement of the next deposit transaction included in the input data) are taken into account. | Deposits renewed for more than several years under one contract are not price-sensitive and their renewal is often automatic (without an informed decision made by the client). In order to achieve a set of transactions that represents current money market supply and demand forces, repeatedly extended Deposits are not taken into account. The 4-year limit was set on the basis of the analysis of the data used in the parametrization of the model. |

| Action | Explanation |
|--|---|
| Deposits are allocated to maturity periods (1M, 3M, 6M and 1Y) depending on the number of days to maturity of the transaction. | Banks accept Deposits with different maturities. WKF is calculated for the four most popular tenors 1M, 3M, 6M, 1Y (as agreed with the stakeholders). In order to use the maximum data range, all maturities between 18 and 370 days are taken into account for the calculation of the benchmark for each tenor. |
| Transactions with an interest rate equal to or lower than the lower quartile (25th percentile relative to volume) are flagged. | Deposits with a very low interest rate (significantly below average) are usually not sensitive to the current market situation and are not considered as a source of information for the calculation of WKF. |
| The volume weighted average rate (VWAR) is calculated on the population prepared in this way. | The method is applied to the consolidated population (without division into input data from individual Panel Banks). The benchmark based on the transaction data represents the interest rate for the WKF Panel. The daily interest rate is weighted by the volume of concluded transactions. Accordingly, large transactions have a greater impact on the value of the benchmark than small transactions. At the same time, unlike in the benchmarks that are based on expert judgement, the principle of equal shares (weights) of each Panel Bank is not applied. As a result, WKF is derived from actual transactions, and their impact is directly proportional to the volume. |
| WKF is calculated as the arithmetic mean of the ten-day window averages for each day (fixed weights for all observation days). | Deposits meeting the definition of WKF are accepted by the Panel Banks on different days, which results in a high variance of the benchmark calculated on a daily basis (due to different pricing policies of the Panel Banks and different customer sensitivity to the offered prices). Averaging of the multiple day observation window makes it possible to even out the time series and stabilise the interest rate, which is no longer sensitive to one-off (one-day) events. |

| Action | Explanation |
|--|--|
| In the case of missing input data from a Panel Bank or a large amount of data flagged under Annex 1A, an automatic data substitution procedure is applied. | In order to ensure the reliability and completeness of the set of banks contributing the input data, a procedure has been introduced to automatically fill in the missing elements in the multiple day observation window. For technical reasons, incomplete sets of data for individual days are allowed. |

Annex 5

Publication of WKF in case of disruption of the WKF publication process

| Procedure name | Policy |
|------------------|--|
| LATE PUBLICATION | <ol style="list-style-type: none"> 1. In a situation when it is not possible to publish WKF at 3:30 p.m., the Administrator announces on their website an information about the planned delay of publication. 2. If possible the above information will be posted on the Administrator's website no later than at 3:15 p.m. on the Publication Day and should include the planned time of publication of WKF. 3. Late publication of WKF should take place no later than at 6:30 p.m. on the Publication Day. 4. The Administrator informs the IRF Steering Committee about the reasons for the delay of WKF publication no later than by the end of the Publication Day on which the delay occurred. |
| RE-PUBLICATION | <ol style="list-style-type: none"> 1. In case the Administrator becomes aware that the published WKF is incorrect or was based on incorrect input data WKF shall be re-determined. 2. In the event that the re-determined WKF differs from the original by more than one basis point the re-determined WKF is published. 3. Information about re-publication of WKF appears on the Administrator's website together with the scheduled time of re-publication. 4. The re-publication of WKF may occur on the same Publication Day as the original publication of WKF, but no later than at 6:30 p.m. 5. The Administrator informs IRF Steering Committee about the reasons for re-publication of WKF no later than by the end of the Publication Day. |

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|----------------|--|
| NO PUBLICATION | <ol style="list-style-type: none">1. In the event that it is not possible to calculate or publish WKF, WKF shall not be published.2. If possible, the Administrator shall inform about the inability to calculate and publish WKF on a given Publication Day no later than at 3:15 p.m.3. In the event of no publication, WKF from the previous Transaction Day shall apply.4. The information will be posted on the Administrator's website.5. The Administrator informs IRF Steering Committee about the reasons of no publication of WKF no later than by the end of the Publication Day. |
|----------------|--|