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|  | **APPROVED**  by the Moscow Exchange Executive Board 07.09.2022 (Minutes No.65)  Chairman of the Executive Board  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Yury Denisov |

# Indicative Exchange Rate Methodology

1. **General provisions**
   1. The present Methodology for calculation of the indicative foreign exchange rate (the "Methodology") establishes a procedure for calculation of the indicative foreign exchange rate (the "Indicative Exchange Rate") by Public Joint Stock Company Moscow Exchange MICEX-RTS (the "Moscow Exchange") used for calculation of indices of the Moscow Exchange Group Derivatives and Equity Markets and (or) other indicators as required for conducting the on-exchange trading and executing transactions on the Exchange’s markets.
   2. The Indicative Exchange Rate is calculated by the Exchange based on information on FX trading data of the Exchange (the "MOEX Exchange Rate"), and/or information on the exchange rate of a foreign currency of one country expressed in the monetary unit of another country, announced by the central bank of the quoted country and released on the official website of the respective central bank (the "Central Bank Rate of the quoted country"), and/or information on the Bank of Russia exchange rates of a foreign currency against the Russian rouble (the "Bank of Russia Exchange Rate"), and/or information on the ratio of the two Indicative Rates (the "Cross Rate").
   3. The list of Indicative Rates calculated by the Exchange, as well as their calculation parameters and data sources are specified in Appendix 1 to this Methodology.
   4. This Methodology, as well as all amendments and additions thereto, shall be approved by the Exchange and shall come into effect on a date determined by the Exchange.
   5. The Methodology as approved by the Executive Board (amendments and supplements thereto) shall be published on the Moscow Exchange website not later than one working day prior to its effective date, unless the Exchange resolves otherwise.
2. **Calculation of MOEX Exchange Rate**
   1. The MOEX Exchange Rate is calculated on the basis of FX trades in the relevant Instrument executed on the Exchange.
   2. The MOEX Exchange Rate is calculated every second during the trading hours in the main mode on each day the Moscow Exchange FX Market is open.
   3. The MOEX Exchange Rate is calculated according to the following formula:

where:

– the MOEX Exchange Rate at time t;

MAt – moving average at time t, determined in accordance with the paragraph 2.4 of this Methodology.

* 1. The moving average at time t is calculated using the following formula:



where:

MAt – moving average at time t;

Ri – the trade price after elimination of non-market deviations, at time i determined in accordance with paragraph 2.5 of this Methodology;

M - averaging period expressed in seconds, determined according to Appendix 1 to this Methodology.

* 1. The trade price after discarding non-market deviations at time t is determined by the following formula:



where:

Rt - the trade price after discarding non-market deviations at time t;

Rt-1 - the trade price after discarding non-market deviations at time t-1;

RAt - the price of the last trade in the corresponding Instrument at time t (without regard to negotiated trades);

K - max deviation value determined in accordance with Appendix 1 to this Methodology;

S - deviation calculation period, expressed in seconds, determined in accordance with Appendix 1 to this Methodology.

1. **Central Bank Rate of the quoted country**
   1. The exchange rate of the central bank of the state of the quoted currency is determined by the central bank of the state of the quoted currency on the basis of trading data in connection with the respective currency. This rate is published on the official website of the given central bank.
2. **Bank of Russia Exchange Rate**
   1. The Bank of Russia foreign currency to Russian ruble exchange rate is determined by the Central Bank of the Russian Federation and is published on the official website of the Bank of Russia at https://cbr.ru/currency\_base/daily/.
3. **Calculation of Cross Rates**
   1. The calculation of the Cross Rates shown in Table 2 of Appendix 1 shall be carried out according to the formula for calculating the Cross Rate using the Indicative Rates shown in Table 1 of Appendix 1:

where:

Rt – the Indicative Rate at time t;

Rtcur1cur2 – Indicative exchange rate of currency 1 to currency 2 at time t;

Rtcur1cur3 – Indicative exchange rate of currency 1 to currency 3 at time t.

1. **Supplementary**
   1. In case the Exchange does not hold trading in the currency pair usedto calculate the Indicative Rate, it may set the relevant Indicative Rate as a constant (fixed) value for the current day equal to one of the following values:

a) the value of the exchange rate set by the Bank of Russia on the date of determining the Indicative Rate;

b) the value of the cross rate calculated using exchange rates set by the Bank of Russia on the date of setting the Indicative Rate;

c) the value of the Central Bank exchange rate of the state of the quoted currency on the date of determining the Indicative Rate;

d) the value of the exchange rate established on any Russian or international exchange by the time the Exchange decides to establish a constant (fixed) Indicative Rate for the current day.

1. **Publication of Indicative Rate values**
   1. The Exchange may disclose the calculated values of the Indicative Rates for information purposes on its website.

Appendix 1 to the Indicative Exchange Rate Methodology

# List of Indicative Rates and Calculation Parameters

**Table 1**

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| --- | --- | --- | --- | --- | --- | --- |
| **Code** | **Indicative Rate** | **Rates used for indicative exchange rate calculation** | **Instrument** | **Max deviation K** | **Averaging period M** | **Period of deviation calculation S** |
| USD/RUB | Indicative US Dollar to Russian Rouble exchange rate | MOEX Exchange Rate | USDRUB\_TOM | 0.0005 | 60 | 60 |
| EUR/RUB | Indicative Euro to Russian Rouble exchange rate | MOEX Exchange Rate | EURRUB\_TOM | 0.0005 | 60 | 60 |
| CHF/ RUB | Indicative Swiss Franc to Russian Rouble exchange rate | MOEX Exchange Rate | CHFRUB\_TOM | 0.0005 | 60 | 60 |
| JPY/ RUB | Indicative Japanese Yen to Russian Rouble exchange rate | MOEX Exchange Rate | JPYRUB\_TOM / 100 | 0.0005 | 60 | 60 |
| TRY/ RUB | Indicative Turkish Lira to Russian Rouble exchange rate | MOEX Exchange Rate | TRYRUB\_TOM | 0.0005 | 60 | 60 |
| CNY/RUB | Indicative Chinese Yuan to Russian Rouble exchange rate | MOEX Exchange Rate | CNYRUB\_TOM | 0.0005 | 60 | 60 |
| GBP/ RUB | Indicative Pound Sterling to Russian Rouble exchange rate | MOEX Exchange Rate | GBPRUB\_TOM | 0.0005 | 60 | 60 |
| HKD/RUB | Indicative Hong Kong Dollar to Russian Rouble exchange rate | MOEX Exchange Rate | HKDRUB\_TOM | 0.0005 | 60 | 60 |

**Table 2**

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| --- | --- | --- | --- |
| **Code** | **Cross Rate** | Rtcur1cur2 | Rtcur2cur3 |
| USD/JPY | Indicative US Dollar to Japanese Yen exchange rate | USD/RUB | JPY/ RUB |
| USD/CHF | Indicative US Dollar to Swiss Franc exchange rate | USD/RUB | CHF/RUB |
| USD/TRY | Indicative US Dollar to Turkish Lira exchange rate | USD/RU | TRY/ RUB |
| EUR/USD | Indicative Euro to US Dollar exchange rate | EUR/RUB | USD/RUB |