

May 09, 2024
070/2024-PRE

CIRCULAR LETTER

Listed B3 Participants

Re.: **Change to the Pricing Model for Brazilian Real Based Currency Futures Contracts**

To improve the pricing methodology for derivatives contracts, B3 hereby informs you that the settlement price calculation methodology for Brazilian Real Based Currency Futures Contracts will change for the contracts listed below as of the **May 20, 2024** trading session.

- Australian Dollar Futures Contract (AUD)
- Canadian Dollar Futures Contract (CAD)
- New Zealand Dollar Futures Contract (NZD)
- Euro Futures Contract (EUR)
- Mini Euro Futures Contract (WEU)
- Swiss Franc Futures Contract (CHF)
- Japanese Yen Futures Contract (JPY)
- Pound Sterling Futures Contract (GBP)
- Turkish Lira Futures Contract (TRY)

070/2024-PRE

- Argentine Peso Futures Contract (ARS)
- Chilean Peso Futures Contract (CLP)
- Mexican Peso Futures Contract (MXN)
- South African Rand Futures Contract (ZAR)

The settlement price of the contracts listed above will henceforth be calculated, in Brazilian Reals, by multiplying the closing settlement price of the BRL/USD Futures Contract (DOL) by the settlement price of the U.S. Dollar based futures contract in the respective currency.

The settlement price calculation methodology on the last day of trading and on the expiration date of the contracts listed above will not change. The details of the existing methodology and of the new methodology are contained in the Annexes hereto.

The pricing methodology for the futures contracts is available in the B3 Pricing Manual – Futures, at www.b3.com.br/en_us/, Market data and indices, Data services, Market data, Reports, Derivatives, Methodology, B3 Pricing Manual.

Further information can be obtained from the Listed Products Department by telephone on +55 11 2565-4042/7950; or from the Risk Management Department via the Risk Service Center, by telephone on +55 11 2565-5030 or by email at pricing@b3.com.br.

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Annex I to CIRCULAR LETTER 070/2024-PRE

Settlement price calculation of Brazilian Real based currency futures up until the May 17, 2024 trading session

The settlement price calculation of the contracts listed in this Circular Letter follows the steps below.

1) Settlement price calculation on the last trading day (fixing date)

- a) If the exchange rate relationship is direct, the settlement price is obtained by the following formula:

$$PA_X^{Liq} = TP_t \times TD_t \times FCot$$

- b) If the exchange rate is indirect, the settlement price is obtained by the following formula:

$$PA_X^{Liq} = 1/TP_t \times TD_t \times FCot$$

Where:

PA_X^{Liq}: settlement price on the fixing date for the Brazilian Real based "currency X" futures contract;

TP_t: exchange rate between "currency X" of the futures contract and the U.S. Dollar (USD) calculated by The World Markets Company PLC (WM) published by Reuters for date t and denoted as TP_t. If the currency is ARS or CLP, the exchange rate will be obtained respectively from the Mercado Abierto Electrónico (MAE) or from the Central Bank of Chile;

TD_t: sell exchange rate of Brazilian Reals in U.S. Dollars published by the Central Bank of Brazil for date t; and

070/2024-PRE

FCot: quotation factor of the Brazilian Real based “currency X” futures contract, defined in the contract’s specifications.

- 2) The settlement price on the settlement date will be the price calculated on the last day of trading, described in item 1 of this Annex.
- 3) The settlement price on the days prior to the last day of trading will be calculated using non-arbitrage formulas. The contract’s currency will be denoted by “X”.
 - a) If the exchange rate is direct, the settlement price is calculated by the following formula:

$$PA_{X,n} = \text{Spot}_{\text{BRL}}^{\text{USD}} \times \text{Spot}_X^{\text{USD}} \times \frac{(1 + \text{PRE}^n)^{DU_n/252}}{\left(1 + \text{CL}_{\text{BRL}/X}^n \times \frac{DC_n}{360}\right)} \times \text{FCot}$$

- b) If the exchange rate is indirect, the settlement price is calculated by the following formula:

$$PA_{X,n} = \text{Spot}_{\text{BRL}}^{\text{USD}} \times \frac{1}{\text{Spot}_X^{\text{USD}}} \times \frac{(1 + \text{PRE}^n)^{DU_n/252}}{\left(1 + \text{CL}_{\text{BRL}/X}^n \times \frac{DC_n}{360}\right)} \times \text{FCot}$$

Where:

PA_{X,n}: settlement price of the nth contract month of “currency X” in Brazilian Reals;

Spot_{BRL}^{USD}: Brazilian Reals exchange rate in U.S. Dollar;

070/2024-PRE

Spot^{USD}_X: Exchange rate of "currency X" in U.S. Dollar obtained from Refinitiv/LSEG;

DU_n: number of business days up until nth contract month expiration;

DC_n: number of calendar days up until nth contract month expiration;

PREⁿ: interest rate defined from settlement of the DI1 futures contract for the nth contract month;

CLⁿ_{BRL/X}: interest rate in "currency X" for the nth contract month;

FCot: quotation factor of the Brazilian Real based currency contract, defined in the contract's specifications.

The quotation factor and the direct or indirect exchange rate are available in the contracts' specifications at www.b3.com.br/en_us/, Products and Services, Trading, Exchange rates.

Annex II to CIRCULAR LETTER 070/2024-PRE

Settlement price calculation of Brazilian Real based currency futures as of the May 20, 2024 trading session

The settlement price calculation of the contracts listed in this Circular Letter follows the steps below. The methodology has been changed only in relation to step 3, as described below.

- 1) Settlement price calculation on the last trading day (fixing date) is calculated as described in item 1 of Annex I of this Circular Letter.
- 2) The settlement price on the settlement date will be the price calculated on the last day of trading, described in item 1 of Annex I of this Circular Letter.
- 3) The settlement price on the days prior to the last day of trading will be calculated using non-arbitrage formulas. The contract's currency will be denoted by "X".
 - a) If the exchange rate is direct, the settlement price is calculated by the following formula:

$$PA_{X,n} = \left(\frac{PA_{DOL,n}}{FCot_{DOL}} \right) \times \left(\frac{PA_{X,n}^{USD}}{FCot_{X}^{USD}} \right) \times FCot_{X}^{BRL}$$

- b) If the exchange rate is indirect, the settlement price is calculated by the following formula:

$$PA_{X,n} = \left(\frac{PA_{DOL,n}}{FCot_{DOL}} \right) \times \left(\frac{FCot_{USD}^X}{PA_{USD,n}^X} \right) \times FCot_{X}^{BRL}$$

070/2024-PRE

Where:

PA_{X,n}: settlement price of the nth contract month of the Brazilian Real based futures contract in "currency X";

PA_{DOL,n}: settlement price of the nth contract month of the BRL/USD futures contract (DOL);

PA_{X,n}^{USD}: settlement price of the nth contract month of the futures contract in U.S. Dollar in "currency X";

PA_{USD,n}^X: settlement price of the nth contract month of the "currency X" futures contract in U.S. Dollars;

FCot_{DOL}: quotation factor of the BRL/USD futures contract (DOL), which corresponds to 1,000 units and is available in the contract's specifications;

FCot_X^{USD}: quotation factor of the U.S. Dollar based futures contract in "currency X", which corresponds to 1,000 units and is available in the contract's specifications;

FCot_{USD}^X: quotation factor of the "currency X" futures contract in U.S. Dollar, which corresponds to 1,000 units and is available in the contract's specifications; and

FCot_X^{BRL}: quotation factor of the Brazilian Real based futures contract in "currency X", which corresponds to 1,000 units and is available in the contract's specifications.

The quotation factor and the direct or indirect exchange rate are available at www.b3.com.br/en_us/, Products and Services, Trading, Exchange rates.