



NDF Compression

FX Blending

Overview

FX blending reduces notional amounts and line items for trades with varying trade prices, notional amounts and direction but otherwise contain matching attributes

Core Principles for FX blending

- Reduces number of line items or gross notional
- Blending may occur across buys and/or sells
- Decimal precision of the resulting trade price is in line with market standards
- All blending occurs EOD

Blending Solution

- Full and Partial Blending supported:
 - Two USD/Contra remnants are created in partial blending

Account Setup

- FX Blending is an account level setting represented by two blending options:
 - **Blending** – Trades with same fixing date & contract blend regardless of Client ID
 - **Selective Blending** – Requires matching Client IDs to blend

Full Blending

No Remnants Created

Sum of primary and contra notional of the portfolio are equal to 0. All trades are terminated in EOD cycle:

	Product	Rate	B/S	Signed USD Notional	Signed BRL Amount
Trade 1	USD/BRL	2.4291	B	25,000,000.00	(60,727,500.00)
Trade 2	USD/BRL	2.3936	S	(32,000,000.00)	76,595,200.00
Trade 3	USD/BRL	2.4063	B	9,000,000.00	(21,656,700.00)
Trade 4	USD/BRL	2.3946	S	(5,600,000.00)	13,409,760.00
Trade 5	USD/BRL	2.3561	B	2,350,000.00	(5,536,835.00)
Trade 6	USD/BRL	2.3969	S	(2,677,056.32)	6,416,636.30
Trade 7	USD/BRL	2.417	B	6,500,000.00	(15,710,500.00)
Trade 8	USD/BRL	2.4902	S	(12,000,000.00)	29,882,400.00
Trade 9	USD/BRL	2.4048	B	10,000,000.00	(24,048,000.00)
Trade 10	USD/BRL	2.4008	S	(572,943.68)	1,375,538.70
		Sum Notional		0	0

Partial Blending

Two USD/BRL Remnants Created

Step 1: Determine the highest and lowest trade price

- Use **highest price** for Remnant 1
- Use **lowest price** for Remnant 2

$$\text{Net Weighted Average} = \sum_{i=1}^n \text{Price}_i \times \text{Notional}_i$$

Step 2: Calculate the net weighted average

- Weighted average notional is the product of the trade price and signed notional amount
- Net weighted notional is the sum of the weighted notional amounts

	Product	Trade Price	B/S	Signed USD Notional	Weighted Average
Trade 1	USD/BRL	2.4125	B	25,000,000.00	60,312,500.00
Trade 2	USD/BRL	2.4149	S	(32,000,000.00)	(77,276,800.00)
Trade 3	USD/BRL	2.4004	B	9,000,000.00	21,603,600.00
Trade 4	USD/BRL	2.3983	S	(5,600,000.00)	(13,430,480.00)
Trade 5	USD/BRL	2.3546	B	2,350,000.00	5,533,310.00
Trade 6	USD/BRL	2.3987	S	(7,500,000.00)	(17,990,250.00)
Trade 7	USD/BRL	2.41265	B	6,500,000.00	15,682,225.00
Trade 8	USD/BRL	2.49875	S	(12,000,000.00)	(29,985,000.00)
Trade 9	USD/BRL	2.39821	B	10,000,000.00	23,982,100.00
Net Weighted Average					(11,568,795.00)

***Please note:** If the sum of the signed contra notional = "0", CME will omit the trade with the lowest signed USD notional, resulting in a partial blend.

Partial Blending

Step 3: Derive Remnant 1 USD notional using the formula below

- Notional amount is rounded to two decimal places

$$\text{Remnant 1} = \frac{\text{Net Weighted Average} - (\sum \text{Signed USD Notional} \times \text{Lowest Price})}{\text{Highest Price} - \text{Lowest Price}}$$

$$\text{Remnant 1} = \frac{(11,568,795) - (4,250,000) \times 2.3546}{2.49875 - 2.3546} = \$(10,834,165.80)$$

Step 4: Determine Remnant 2 USD notional to adjust the cash flows of Remnant 1

- Notional amount of Remnant 2 is calculated as follows:

$$\begin{aligned} \text{Remnant 2} &= \sum \text{Signed USD Notional} - \text{Remnant 1 USD Notional} \\ &= (4,250,000) - (10,834,165.80) = \$6,584,165.80 \end{aligned}$$

Step 5: Calculate contra notional for Remnants 1 and 2

- Notional amounts are calculated as follows:

	Price	USD Notional	BRL Notional
Remnant 1	2.49875 ×	(10,834,165.80) × -1 =	27,071,871.79
Remnant 2	2.3546 ×	6,584,165.80 × -1 =	(15,503,076.79)

Partial Blending

Sum notional of the two remnants are equal to the sum notional of original 9 trades:

	Product	Trade Price B/S		Signed USD Notional	Weighted Average	Signed BRL Notional
Trade 1	USD/BRL	2.4125	B	25,000,000.00	60,312,500.00	(60,312,500.00)
Trade 2	USD/BRL	2.4149	S	(32,000,000.00)	(77,276,800.00)	77,276,800.00
Trade 3	USD/BRL	2.4004	B	9,000,000.00	21,603,600.00	(21,603,600.00)
Trade 4	USD/BRL	2.3983	S	(5,600,000.00)	(13,430,480.00)	13,430,480.00
Trade 5	USD/BRL	2.3546	B	2,350,000.00	5,533,310.00	(5,533,310.00)
Trade 6	USD/BRL	2.3987	S	(7,500,000.00)	(17,990,250.00)	17,990,250.00
Trade 7	USD/BRL	2.41265	B	6,500,000.00	15,682,225.00	(15,682,225.00)
Trade 8	USD/BRL	2.49875	S	(12,000,000.00)	(29,985,000.00)	29,985,000.00
Trade 9	USD/BRL	2.39821	B	10,000,000.00	23,982,100.00	(23,982,100.00)
	Sum			(4,250,000.00)	(11,568,795.00)	11,568,795.00

	Product	Trade Price		Signed USD Notional		Signed BRL Notional
Remnant 1	USD/BRL	2.49875		(10,834,165.80)		27,071,871.79
Remnant 2	USD/BRL	2.3546		6,584,165.80		(15,503,076.79)
	Notional			(4,250,000.00)		11,568,795.00

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