

# CME Group Latin American IRS Clearing

- *Brazilian CDI Swaps*
- *Chilean Cámara Swaps*
- *Colombian IBR Swaps*
- *Mexican TIE Swaps*



# Brazilian CDI Swap Product Scope

Settled in USD (Non-Deliverable)



<b>BRL CDI Zero Coupon Swaps</b>	
Maximum Maturity	10 Years
Floating Rate Index	BRL-CDI*
Floating Index Tenor	1D
Price Alignment Interest	Fed Funds Overnight Rate
Variation Margin, Coupons, and Fees	USD
Holiday Calendar	Brazil Business Day (BRBD) and New York (USNY)
Settlement Convention	USD will be settled on a next day (T+1) basis
Business Day Convention	Default will be ACT/252.FIXED
FX Rate	“ask” price reported on Bloomberg Page BZFXPTAX at approximately 1:15 p.m. Sao Paulo time, on the relevant date
Curve Snap Times*	3:00 pm Chicago / 5:00 pm São Paulo

\* Not adjusted for daylight saving time (DST) or summer time

# Chilean Cámara Swap Product Scope

Settled in USD (Non-Deliverable)



Chilean Peso Interest Rate Swap & Zero Coupon Swap	
Maximum Maturity	20 years
Floating Rate Index	CLP-TNA (Indice Cámara Promedio)
Settlement Currency & Convention	USD (T+1)
Price Alignment Rate	Fed Funds Overnight Rate
Variation Margin	USD
Coupons and Fees	USD
Holiday Calendar	Santiago (CLSA) and New York (USNY)
Business Day Convention	ACT/360
Payment Frequency	Up to 18 month tenor = Zero Coupon (1T) 2Y+ = Semiannual (6M)
Payment Lag	0D
FX Fixing to Convert Coupon to USD	CLP.DOLAR.OBS/CLP10
FX Fixing Offset	-2D

# Colombian IBR Swap Product Scope

Settled in USD (Non-Deliverable)



## COP IBR Overnight Indexed Swap

Maximum Maturity	20 years
Floating Rate Index	COP-IBR-OIS-COMPOUND
Settlement Currency & Convention	USD (T+1)
Price Alignment Rate	Fed Funds Overnight Rate
Variation Margin	USD
Coupons and Fees	USD
Holiday Calendar	Bogotá (COBO) and New York (USNY)
Business Day Convention	ACT/360
Payment Frequency	Up to 18 month tenor = Zero Coupon (1T) 2Y+ = Quarterly (3M)
Payment Lag	0D
FX Fixing to Convert Coupon to USD	COP.TRM/COP02
FX Fixing Offset	-2D

# Mexican TIE IRS Product Scope

Settled in MXN (Deliverable)



<b>MXN TIE Fixed/Float Interest Rate Swaps</b>	
Maximum Maturity	31 Years
Floating Rate Index	MXN-TIE-Banxico
Floating Index Tenor	28D
Price Alignment Interest	Fed Funds Overnight Rate adjusted by FX Overnight and tomorrow next rates
Variation Margin, Coupons, and Fees	MXN
Holiday Calendar	Mexico City (MXMC) and New York (USNY)
Settlement Convention	Settled on a next day (T+1) basis
Business Day Convention	Default will be ACT/365.FIXED
Curve Snap Times*	2:00 pm Chicago / 2:00 pm Mexico City

# MXN Price Alignment (PA) Rate

- CME will calculate the MXN PA rate based on the Fed Funds rate, the same rate used for USD PA calculations

$$\text{MXN PAA Rate} = \text{Fed Funds} \times \frac{FX_1}{FX_0} + \frac{\frac{FX_1}{FX_0} - 1}{\frac{n}{360}}$$

$FX_0$  = USD/MXN FX Overnight Rate

$FX_1$  = USD/MXN Tom Next Rate

- The USD/MXN ON, TN rates are calculated based on the blended FX rates captured at 8am, 9am & 10am ET and Fed Funds Fixing
- Once the above rate is calculated, it is plugged into the below formula

$$PA = -MXN \text{ Adj. NPV (previous bus. day)} \times MXN \text{ PA Rate} \times (\text{days}/360)^*$$

\* Days = Number of days from current day to the next business day (in the Calendar of the currency)

# Non-Deliverable Swap Curve Bootstrapping Procedure

BRL, CLP and COP are treated as an offshore dual-curve currency

## Offshore discount curve

- **BRL:** To accommodate offshore USD funding cost, the BRL discount curve is an implied curve generated from USD Fed-Funds curve and USD/BRL FX NDF instruments
- **CLP:** To accommodate offshore USD funding cost, the CLP discount curve is an implied curve generated from USD Fed-Funds curve and USD/CLP NDF & NDS instruments
- **COP:** To accommodate offshore USD funding cost, the COP discount curve is an implied curve generated from USD Fed-Funds curve and USD/COP NDF & NDS instruments

## Offshore forecast curve

- **BRL:** BRL forecast curve is constructed using first three consecutive months, quarterly contracts to 5 years, semi annual contracts to 7 years and annual contracts to 10 years. BM&F DI future + DI on/offshore spreads form the input quotes for this futures instruments.
- **CLP:** Bootstrap offshore NDIRS instruments to generate the forecast curve
- **COP:** Bootstrap offshore NDOIS instruments to generate the forecast curve

# Non-Deliverable IRS Cash Flows

<b>Upfront Fees</b>	<ul style="list-style-type: none"><li>• Fees must be USD-denominated<ul style="list-style-type: none"><li>- Fee settlement can occur any business day from T+1 through maturity date</li></ul></li></ul>
<b>Future Value Notional (applicable for BRL CDI swaps only)</b>	<ul style="list-style-type: none"><li>• Required on all trade submissions</li><li>• Calculated by the equation: <math display="block">FVN = Notional \times (1 + Fixed\ Rate)^{Bus/252}</math> <i>Bus</i> = number of business days from effective to valuation date</li></ul>
<b>Holiday Calendars</b>	<ul style="list-style-type: none"><li>• Local Business Days and US New York calendars are required for all payments</li><li>• Fixed leg accruals will not be adjusted for unscheduled holidays</li><li>• Float leg accruals will be adjusted for unscheduled holidays</li></ul>
<b>Variation Margin</b>	<ul style="list-style-type: none"><li>• VM is settled in USD</li><li>• FX conversion uses CME overnight FX rate</li></ul>
<b>Coupons</b>	<ul style="list-style-type: none"><li>• Coupons are settled in USD</li><li>• FX conversion uses the FX rate from trade</li></ul>



# Non-Deliverable IRS Cash Flows Example - Brazil CDI

Currency	Effective Date	Maturity Date	Notional	FV Notional	Fixed Rate	Floating Index	SETTLE_CCY
BRL	1/2/2019	2/1/2019	576,860,234.21	580,000,000.00	6.415	1D CDI	USD

Calculation Date	Banking Date	USD					BRL				ON FX Rate (VM)	PTAX FX Rate (Coupons only)
		Net Cashflow	Fixed Coupon	Float Coupon	PAI	VM	Adjusted NPV	Prev Adj NPV	Fixed Coupon	Float Coupon		
Wed Jan 30	Thu Jan 31	(\$353.72)	-	-	(\$0.13)	(\$353.59)	7,273.35	7,457.32	-	-	3.6793126	
Thu Jan 31	Fri Feb 01	(\$19.65)			(\$0.13)	(\$19.52)	7,134.09	7,273.35	-	-	3.6448565	3.6519
Fri Feb 01	Mon Feb 04	(\$3.13)	\$859,762.26	(\$857,807.70)	(\$0.39)	(\$1,957.30)	0.00	7,134.09	3,139,765.80	(3,132,627.94)	3.6559438	-
Mon Feb 04	Tue Feb 05	\$0.00			\$0.00	\$0.00	0.00	0.00			3.6659623	

Valuation Date

Maturity

Coupon Date

Coupon is shown on EOD reports the previous business day and the net coupon amount is banked on the coupon date. Coupon is converted using the PTAX FX rate.

FX rate used for VM and PAI

FX rate used for coupons.

**Net Cash Flow** = Variation Margin ("VM") + Price Alignment ("PA") + Upfront Fee + Coupons

**Variation Margin** = (Adj NPV / ON FX Rate) – (Prev Adj NPV / Prev ON FX Rate)

- VM and PA are settled on T+1, converted to USD amounts using the overnight FX rate.
- Coupons are known on the Maturity Date and paid the following business day. They are converted to USD using the PTAX spot FX rate, captured on Valuation Date.
- The VM and PA calculated on the Maturity Date will net with the coupon payment. The net amount is paid on the Coupon Date resulting in a smooth final cash flow.

## Calculation Summary

- 30 Jan 2019 Variation Margin =  $(7,273.35 / 3.6793126) - (7,457.32 / 3.2) = (\$353.59)$
- 31 Jan 2019 Variation Margin =  $(7,134.09 / 3.6448565) - (7,273.35 / 3.6793126) = (\$19.52)$
- 1 Feb 2019 Variation Margin =  $(0 / 3.6559438) - (7,273.35 / 3.6448565) = (\$1,957.30)$
- Fixed Coupon =  $3,139,765.80 / 3.6519 = \$859,762.26$
- Float Coupon =  $3,132,627.94 / 3.6519 = (\$857,807.70)$

# Reports Available & CME CORE

CME Group provides direct access to daily reports through a secure FTP site, which enables customers to fully integrate key OTC data into their internal systems

## Trade Register

- End of day mark to market values for all cleared IRS and FX trades across all clearing members, including existing trades and any new trades cleared top day available at 8pm ET
- Intraday trade register reports available at 4:45 ET

## IRS Curve Data

- CME offers full transparency into IRS valuation, including a detailed white paper on curve construction, enabling customers to replicate our IRS valuation curve and calculate the value of their IRS positions
- The secure FTP site provides daily IRS curve data across all currencies, including curve inputs that are used to construct both the forecasting and discounting curves, and the curve outputs like daily forward rates and discount factors

## Margin Files

- Access to the exact margin requirements given to the FCMs for each account

To set up a secure FTP site for your firm, please contact: CME Onboarding Group at [onboarding@cmegroup.com](mailto:onboarding@cmegroup.com) or (312) 338-7112

## CME CORE: Clearing Online Risk Engine

- Ideal business user solution for Portfolio Margin Savings analysis
- Allows firms to calculate their margin for their portfolios
  - Can upload exact portfolio via a portfolio upload or enter trades manually
- Reports breakdown position transfers in PDF and CSV file format

# Key LatAm Contacts

## Products & Services

Jenna Goldberg +1 212-299-2138  
Steve Hurst +1 312-930-1298

[jenna.goldberg@cmegroup.com](mailto:jenna.goldberg@cmegroup.com)  
[stephen.hurst@cmegroup.com](mailto:stephen.hurst@cmegroup.com)

## Clearing House

Fateen Sharaby +1 212-299-2828  
Jorge Alegria +1 312-307-8167

[fateen.sharaby@cmegroup.com](mailto:fateen.sharaby@cmegroup.com)  
[jorge.alegria@cmegroup.com](mailto:jorge.alegria@cmegroup.com)

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