

## CME Group Latin American IRS Clearing

- Mexican Peso TIE Swaps
- Brazilian Real CDI Swaps

**The Broadest Global IRS Product Scope with 24 Currencies**



# Mexican Peso Swap Details

CME will clear MXN IRS with the following details:



<b>Product Type</b>	Interest Rate Swap
<b>Maximum Maturity</b>	31 Years
<b>Floating Rate Index</b>	MXN-TIIE-Banxico
<b>Settlement Currency</b>	MXN
<b>Price Alignment Rate</b>	Fed funds overnight rate adjusted by the FX overnight and tomorrow next rates
<b>Variation Margin</b>	MXN
<b>Coupons and Fees</b>	MXN
<b>Holiday Calendar</b>	Mexico City
<b>Settlement &amp; Business Day Convention</b>	MXN will be settled on a next day (T+1) basis Default will be ACT/365.FIXED

# Brazilian CDI Swap Details



CME will clear BRL with the following details:

<b>Product Type</b>	Zero Coupon Swap
<b>Maximum Maturity</b>	10 Years
<b>Floating Rate Index</b>	BRL-CDI*
<b>Settlement Currency</b>	USD
<b>Price Alignment Rate</b>	Fed Funds Overnight Rate
<b>Variation Margin</b>	USD
<b>Coupons and Fees</b>	USD
<b>Holiday Calendar</b>	Brazil Business Day**
<b>Settlement &amp; Business Day Convention</b>	USD will be settled on a next day (T+1) basis Default will be Bus/252
<b>FX Rate</b>	The below FX rate will be used to convert BRL coupon payments to USD: “ask” price reported on Bloomberg Page BZFXPTAX at approximately 1:15 p.m. Sao Paulo time, on the relevant date

\* Refers to the Overnight Brazilian Interbank Deposit Rate Annualized as the average of the DI-OVER-EXTRA Grupo as published by CETIP

\*\* A business day in any of San Paulo, Rio de Janeiro or Brasilia not otherwise declared as a financial market holiday by the BM&F

# MXN and BRL IRS Overview

## Mexican Regulatory Status

- On March 30, 2016, Banco de México granted CME Clearing recognition as a foreign central counterparty in Mexico, clearing the way for Mexican market participants subject to the local MXN TIIE swap clearing mandate to fulfill their obligations at CME

## MXN Collateral

- April 1, CME Clearing began accepting Mexican sovereign debt (Cetes and Bonos) for Mexican peso-denominated performance bond requirements

## Brazilian Market Overview

- Largest financial market in Latin America and one of the most developed in emerging markets
- Non-Deliverable Currency
  - Tax on foreign capital flow
  - On/off spread
- Interbank Deposit (ID) Futures
  - Listed on the BM&F exchange – the most liquid interest rate instrument in the Brazilian market
  - Underlying Index: ID rate, the average one-day interbank deposit rate
  - Regarded as fixed-date zero coupon swap

# MXN and BRL IRS Clearing Cycles

Time	Event
6:00 p.m. New York	Sunday evening market open
8:30 a.m. New York	Settlement banks confirm USD VM and Initial Margin call (portfolio) from previous day's clearing cycle – USD, EUR, GBP and CAD cash moves at the settlement bank shortly thereafter (JPY, CHF and AUD are confirmed at this time, but cash moves on T+2).
1:15 p.m. São Paulo	FX Rate to convert BRL coupon payments to USD: “ask” price reported on Bloomberg Page BZFXPTAX
2:00 p.m. Mexico City	Capture quotes for MXN (BANXICO)
5:00 p.m. São Paulo	Capture quotes for BRL
7:00 p.m. New York	Same day trade submission/acceptance deadline for all currencies
8:00 p.m. New York	Calculate Initial Margin for entire portfolio and generate combined end-of-day Clearing reports for all currencies including Trade Register.
10:00 p.m. New York	Settlement instructions for all currencies are sent to settlement banks.
11:59:59 p.m. New York	Friday night Clearing closed until the following Sunday

# 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

$$MXN\ PAI\ Rate = FedFund \cdot \frac{FX_1}{FX_0} + \frac{\frac{FX_1}{FX_0} - 1}{\frac{n}{360}}$$

$FX_0$  = FX Overnight Rate

$FX_1$  = tom next rate

- Once the above rate is calculated, it is plugged into the below formula

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

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

# BRL Curve Bootstrapping Procedure

BRL is treated as an offshore dual-curve currency

## BRL offshore discount curve

- Input: USD/BRL FX offshore NDF
- To accommodate offshore funding cost, a USD Fed-Funds curve is the prerequisite and treated as the foreign discount curve

## BRL offshore forecast curve

- Input: BM&F DI future + DI on/offshore spread
- DI Contract Months: First four consecutive months, then quarterly contracts
- Bootstrap offshore future prices to generate the forecast curve

# BRL 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</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><p><i>Bus</i> = number of business days from effective to valuation date</p></li></ul>
<b>Holiday Calendars</b>	<ul style="list-style-type: none"><li>Brazil 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>Coupons</b>	<ul style="list-style-type: none"><li>Coupons are settled in USD</li><li>FX conversion uses the BRL-PTAX spot rate</li></ul>



# BRL IRS Coupon Payment

Net Cash Flow = VM + PA + Upfront Fee + Coupons

VM = (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.

Product	BRL ZCS	Fixed Rate	12.00000%
Start Date	6/20/2013	Party	Pay Fixed
End Date	4/1/2015	Cleared Date	6/20/2013
PV Notional	\$ 244,926,975.10	Coupon Date	4/2/2015
FV Notional	\$ 300,000,000.00	Valuation Date	3/31/2015

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		
Mon Mar 30	Tue Mar 31	\$2,703.65	-	-	(\$6.00)	\$2,709.66	2,815,705.33	2,787,548.28	-	-	3.2223	
Tue Mar 31	Wed Apr 01	\$35,572.29			(\$6.55)	\$35,578.84	2,899,886.21	2,815,705.33	-	-	3.1888	3.186
Wed Apr 01	Thu Apr 02	\$1,703.48	(\$17,251,366.07)	\$18,162,473.73	(\$6.85)	(\$909,397.33)	0.00	2,899,886.21	(54,962,852.30)	57,865,641.30	3.1572	-
Thu Apr 02	Fri Apr 03	\$0.00			\$0.00	\$0.00	0.00	0.00			3.0827	

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.

Calculation Date

- 3/30/2015: VM = (2,815,705.33 / 3.2223) – (2,787,548.28 / 3.2) = **\$2,709.66**
- 3/31/2015: VM = (2,899,886.21 / 3.1888) – (2,815,705.33 / 3.2223) = **\$35,578.84**
- 4/1/2015: VM = (0 / 3.1572) - (2,899,886.21 / 3.1888) = **(\$909,397.33)**  
 Fixed Coupon = (54,962,852.30) / 3.186 = **(\$17,251,366.07)**  
 Float Coupon = 57,865,641.30 / 3.186 = **\$18,162,473.73**

# 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

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