

# CME Conversion for Cleared MXN 28D TIE Swaps

Conversion Pricing Using Bank of Mexico Modification Formula

March 2024

# Introduction: MXN TIE de Fondo (F-TIE) Rate

- MXN F-TIE (MXN Overnight TIE funding rate) is calculated with wholesale overnight repurchase agreement (repo) transactions denominated in Mexican pesos, settled by banks and brokerage firms. These repo transactions are secured by debt instruments issued by the Federal Government, the Mexican Bank Savings Protection Institute (IPAB) and the Central Bank. At publication, the volume-weighted median is expressed in annual terms and rounded to two decimal places
- F-TIE is published daily approximately at 5:00 p.m. Mexico time for the same MXMC business day
- In January 2025, the Bank of Mexico will modify the methodology for calculating TIE greater than 1 banking day so that current agreements that use such reference rates will not require to be adjusted via amending agreements. The modification formula will use F-TIE in the calculation as described in the below:

$$nD TIE_t = \left[ \left( 1 + \frac{TF_{t-1} + A}{360} \right)^n - 1 \right] * \frac{360}{n} + \textit{Adjustment Differential}$$

Where:

$TF_{t-1}$  represents F-TIE fixing for previous day ( $t-1$ )

$A$  represents the change in target rate for monetary policy purposes, applicable as of Banking Business Day corresponding to  $t$  and made known by the Bank of Mexico

*Adjustment Differential* represents the constant spread adjustment of 24 basis points calculated by the Bank of Mexico

$n$  represents the tenor in number of days for term TIE rate

# Product Scope: MXN F-TIIE Overnight Index Swaps (OIS)

- CME began clearing MXN F-TIIE OIS out to 31 years of maturity (11,333 calendar days) on February 5, 2024
- The floating coupon references “MXN-TIIE ON-OIS Compound” as published in the ISDA 2021 Definitions
- CME will continue to use the CME-calculated MXN overnight rate for Price Alignment Amount (PAA) and the implied discounting curve for Variation Margin and Initial Margin computations

Product Attribute	28D TIIE IRS <i>(for reference)</i>	F-TIIE OIS
Maximum Maturity	31 Years	31 Years
Floating Rate Index	MXN-TIIE-Banxico	MXN-TIIE ON-OIS Compound
Floating Index Tenor	28D	1D
Price Alignment Rate	MXN PAA (USD SOFR adjusted by FX Overnight and tomorrow next rates)	MXN PAA (USD SOFR adjusted by FX Overnight and tomorrow next rates)
Settlement Currency & Convention	MXN (T+1)	MXN (T+1)
Variation Margin, Coupons and Fees	MXN	MXN
Holiday Calendars	Mexico City Calendar (MXMC)	Mexico City Calendar (MXMC)
Business Day Convention	ACT/360	ACT/360
Leg Fixing Offset	-1D	0D
Payment Frequency	28D	28D, 1T
Payment Lag	0D on both Legs	2D for Float 0D or 2D for Fixed

## Coupon Calculation: MXN F-TIIE OIS

$$\text{Coupon Rate} = \left[ \prod_{i=1}^N \left( 1 + FTIIE_i \times \frac{d_i}{360} \right) - 1 \right] * \left( \frac{360}{\sum d_i} \right)$$

Where:

$N$ , is the number of applicable business days in the relevant calculation period, except if the first calendar day of the Calculation Period is not an applicable business Day, then it is the number of Applicable Business days in the calculation period plus 1

$i$ , is a series of whole numbers from one to  $N$ , each representing the relevant business days in chronological order, where one can represent a non-business day when the calculation period starts on a holiday

$d_i$ , is the number of calendar days from, and including, the day  $i$  to, but excluding, the earlier of (a) the next applicable business Day and (b) the Period End Date for the Calculation Period

$FTIIE_i$ , is the value of  $F - TIIE$  index for day  $i$  in the relevant calculation period. If day  $i$  is not an applicable Business day, the rate determined in respect of the immediately preceding applicable business day will be used

# Conversion Pricing Approach for Cleared MXN 28D TIE Swaps

*This mechanism will be used for computing the projected 28D TIE forward rate on conversion date, including for daily conversions that will run through the end of 2025.*

In December 2023, the Bank of Mexico issued a waiver that permits an additional one-year period for trading 28D TIE contracts that expire by the end of 2025. This implies that any swaps with fixings including and after December 3, 2025, will not be covered by the waiver due to the T+1 market convention for 28D TIE fixings. To account for this, CME will define the **Index Waiver Expiration Date (IWED) as December 3, 2025.**

The conversion proxy rate (CR), with respect to 28D TIE and Fixing Date  $t$ , where  $t$  is including and after IWED is computed as:

$$CR_t = CDR_t + SA$$

Where  $C1DR_t$  is the compounded 1d FTIE Rate,  $SA$  is the spread calculated by Bank of Mexico (24BPS) for 28D TIE:

$$C1DR_t = \left[ \left( 1 + \frac{FTIE_{t-1}}{360} \right)^n - 1 \right] * \frac{360}{n}$$

Where:

$t$  is the applicable business date which refers to fixing date of 28D TIE

$t - 1$  is the business date preceding the business day  $t$  in MXMC calendar

$n$  is 28 representing the tenor of 28D TIE

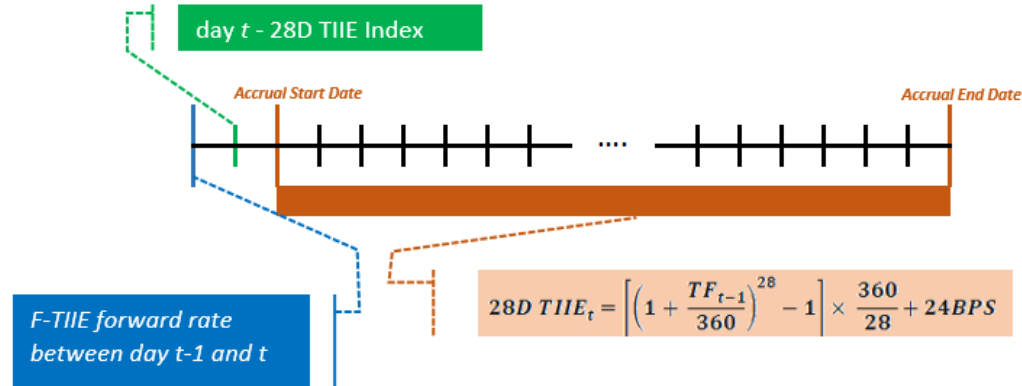
$FTIE_{t-1}$  is the forward rate for  $F$ -TIE index corresponding to date  $t-1$  and  $t$

$SA$  is 24 Basis points as calculated by Bank of Mexico

*Given IWED (12/3/2025) is one year after conversion date, undefined nature of Bank of Mexico monetary policy dates after that and the subsequent smooth curve profile, Term A described in the Bank of Mexico modification ([Rule 4/2023 Annex 11](#)) formula will not be applied*

# Conversion Pricing Approach for Cleared MXN 28D TIE Swaps

This mechanism will be used for computing the projected 28D TIE forward rate on conversion date, including for daily conversions that will run through the end of 2025.



# Conversion Pricing Approach for Cleared MXN 28D TIE Swaps

**Case 1:** When a day before fixing day  $t$  is a business day in MXMC calendar

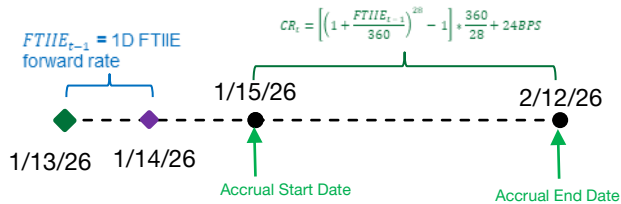
$FTIIE_{t-1}$  is the 1-day forward rate corresponding to day  $t - 1$  and  $t$ , where  $t - 1$  and  $t$  are business day

Example:

Fixing date  $t$  : 1/14/2026

Previous Business day : 1/13/2026

$FTIIE_{t-1}$  = 1D FTIIE forward rate between 1/13/2026 to 1/14/2026



**Case 2:** When calendar day before fixing date  $t$  is a holiday in MXMC calendar

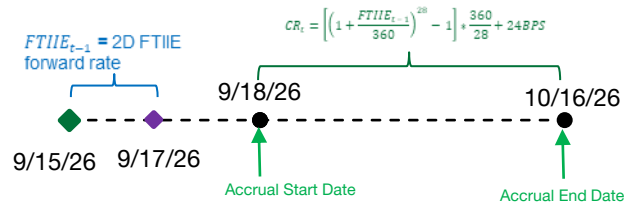
$FTIIE_{t-1}$  is the 2-day forward rate corresponding to  $t$  and previous business day

Example:

Fixing date  $t$  : 9/17/2026

Previous Business day : 9/15/2026

$FTIIE_{t-1}$  = 2D FTIIE forward rate between 9/15/2026 to 9/17/2026



# Conversion Pricing Approach for Cleared MXN 28D TIE Swaps

**Case 3:** When fixing day  $t$  is Monday and business day in MXMC

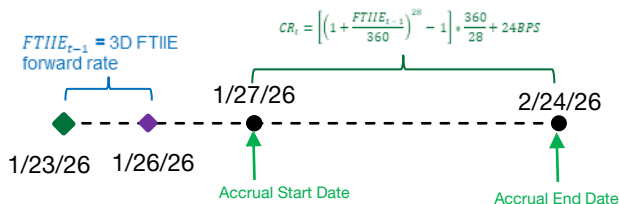
$FTIIE_{t-1}$  is the 3-day forward rate corresponding to day  $t$  and previous business day

Example:

Fixing date  $t$  : 1/26/2026

Previous Business day : 1/23/2026

$FTIIE_{t-1} = 3D$  FTIIE forward rate between 1/23/2026 to 1/26/2026



**Case 4:** When calendar day before fixing date  $t$  is a holiday preceded by weekend in MXMC calendar

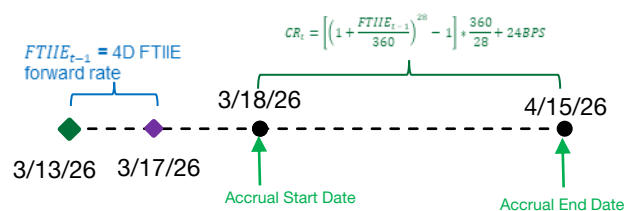
$FTIIE_{t-1}$  is the 4-day forward rate corresponding to day  $t$  and previous business day

Example:

Fixing date  $t$  : 3/17/2026

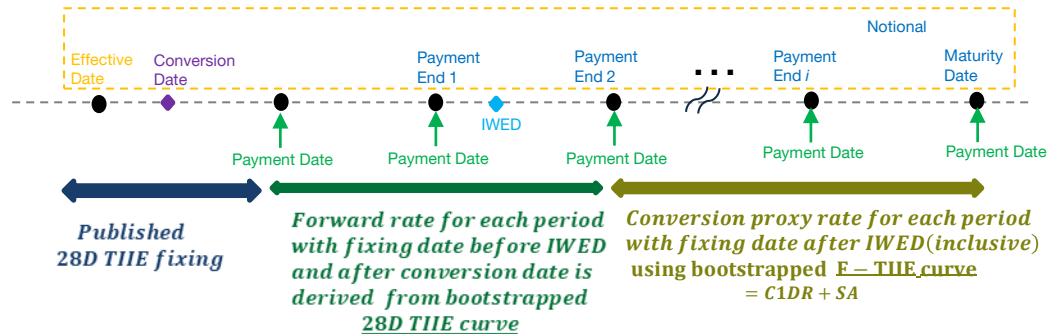
Previous Business day : 3/13/2026

$FTIIE_{t-1} = 4D$  FTIIE forward rate between 3/13/2026 to 3/17/2026



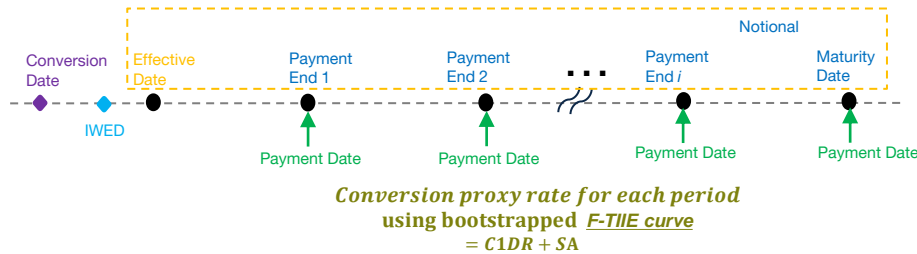


# Conversion Pricing: 28D TIE Swaps with Effective Date that is pre-Conversion



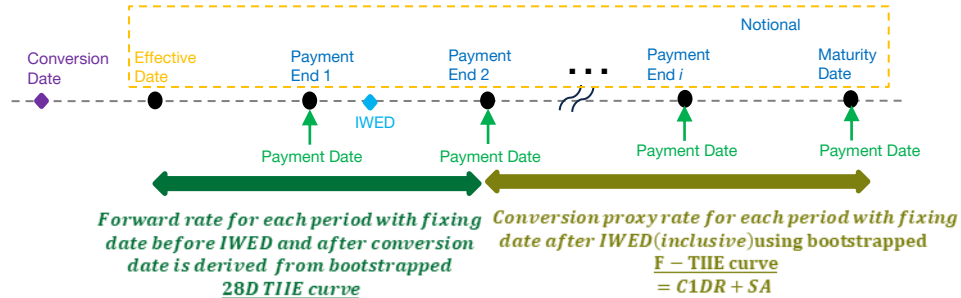
- ✓ Fixing published by Bank of Mexico, in combination with Bootstrapped 28D TIE and F-TIE curve will be used for calculation of cashflow of the swap on conversion date
- ✓ No pricing change for any calculation period with pre-IWED fixing date, i.e. use published fixing or bootstrapped 28D TIE curve for cashflow calculation of these calculation period(s)
- ✓ Apply conversion pricing to each of the fixing dates (see slides 5 and 6) on or after IWED. Imply the 1D FTIE forward rate used in conversion calculation from the bootstrapped F-TIE curve
- ✓ No pricing change to fixed leg of the swap
- ✓ No change is discounting curve used for pricing, i.e., use implied discounting curve

# Conversion Pricing: 28D TIIE swap with Effective Date that is post-IWED



- ✓ Bootstrapped F-TIIE curve is the only curve used for pricing this swap on conversion date
- ✓ Apply CME's conversion pricing to each of the fixing dates (see slides 5 and 6). Imply the F-TIIE forward rate used in conversion calculation from the bootstrapped F-TIIE curve
- ✓ No pricing change to fixed leg of the swap
- ✓ No change is discounting curve used for pricing, i.e., use implied discounting curve

## Conversion Pricing: 28D TIE swap with Effective Date that is post-Conversion and pre-IWED

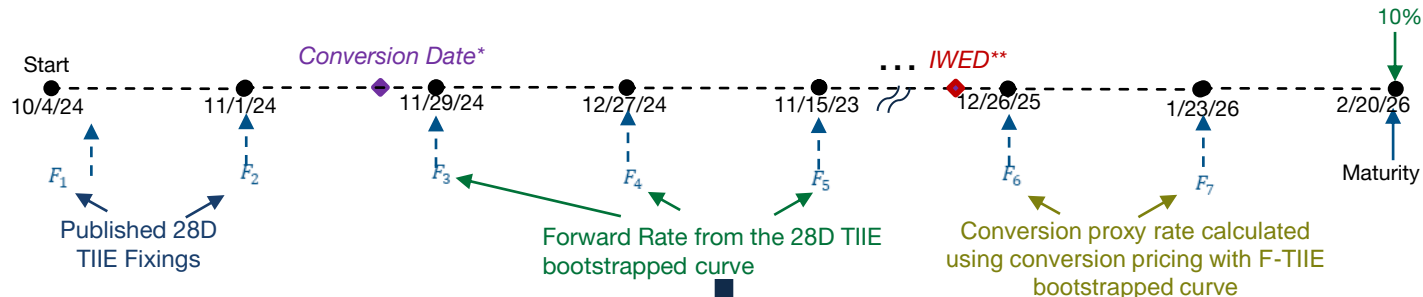


- ✓ Bootstrapped 28D TIE and F-TIE curve will be used for calculation of cashflow of this swap on conversion date
- ✓ No pricing change for any calculation period with pre-IWED fixing date, i.e. use bootstrapped 28D TIE curve for cashflow calculation of these calculation period
- ✓ Apply conversion pricing to each of the fixing date (see slides 5 and 6) on or after IWED. Imply the F-TIE forward rate used in conversion calculation from the bootstrapped F-TIE curve
- ✓ No pricing change to fixed leg of the swap
- ✓ No change in discounting curve used for pricing, i.e., use implied discounting curve

# Pricing Illustration During Conversion Event for Cleared MXN 28D TIE Swaps

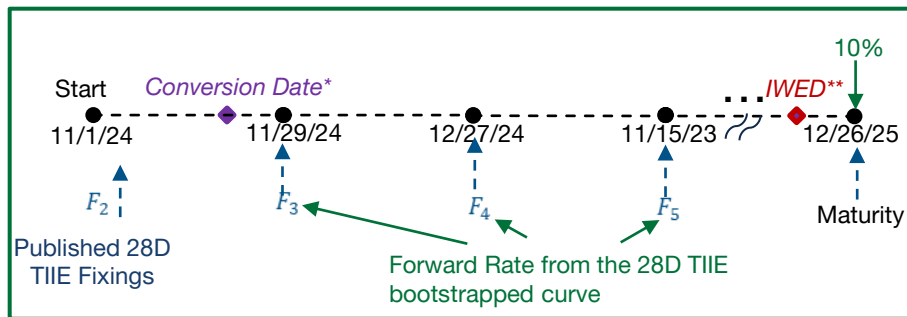
## Original 28D TIE Swap:

28D TIE vs 10% fixed IRS  
 Start= 10/4/24; Maturity = 2/20/26  
 Fixed Pays 28D, Float Receives 28D



## Replacement Swap 1:

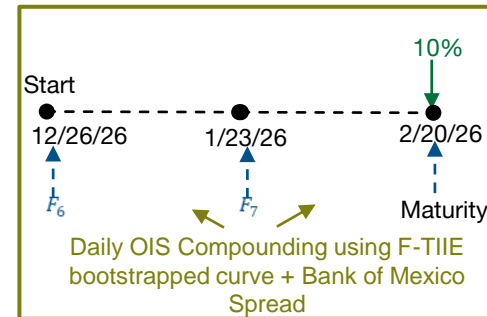
28D TIE vs 10% fixed IRS  
 Start= 10/4/24; Maturity = 12/26/25  
 Fixed Pays 28D, Float Receives 28D



Replacement Swap 1:  
28D TIE Swap

## Replacement Swap 2:

F-TIE vs 10% fixed OIS  
 Floating leg Spread = 24BPS  
 Start= 12/26/25; Maturity = 2/20/26  
 Fixed Pays 28D, Float Receives 28D



Replacement Swap 2:  
F-TIE OIS with Bank of Mexico Spread

Conversion Date\*: 11/22/2024  
 IWED\*\*: 12/3/2025

## Contact Information and Additional Resources

- Please contact [ClearedSwapConversion@CMEGroup.com](mailto:ClearedSwapConversion@CMEGroup.com) if you would like to raise any questions, provide feedback, and/or discuss the cleared MXN 28D TIIE swap conversion in further detail.
- Additional conversion material and resources can be found on CME Group's [TIIE Transition webpage](#).

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