

# 13th Meeting of the Working Group on Alternative Reference Rates in Mexico (GTTR)

## April 28th, 2025

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# Topics

**1** Introduction

**2** Derivatives market

**3** Issuance of debt securities

**4** Banking products

**5** Valuation curves

**6** Final remarks

# Introduction

✓ The near-risk free interest rate transition in Mexico has practically reached its end:

- 🗨️ **On November 22, 2024**, one of the most important steps in this transition took place: the conversion of derivative contracts linked to TIIE 28 to contracts linked to the Funding TIIE (ON TIIE) in the main clearinghouses (MexDer, CME and LCH).<sup>1/</sup> The process went smoothly.
- 🚫 **On January 1 of this year, the use of the 28-day TIIE was prohibited in new contracts**, and the methodology of this rate was changed to be used in legacy contracts.<sup>2/</sup>

💡 Although the transition has concluded, it is important to continue monitoring operations with financial instruments linked to the new benchmark rate in order to identify any frictions that might require intervention by the authorities.

📈 This GTTR session will provide an overview of the adoption of the Funding TIIE in the main markets, and will mention some frictions that have been identified with the aim of addressing them to further consolidate the new benchmark as the main reference rate in Mexico.

<sup>1/</sup> The ON TIIE follows the recommendations, made by the FSB and IOSCO, about the reference rates characteristics. The rate is determined as the volume-weighted median of the interest rate paid in wholesale funding transactions in pesos carried out by banks and brokerage firms through repos for a term of one bank business day with securities issued by the Federal Government, the Bank Savings Protection Institute (IPAB) and Banco de México. To see the methodology refer to: [7B3F620274-54CA-0261-E055-775AFEDB0A0F%7D.pdf](https://www.banxico.org.mx/7B3F620274-54CA-0261-E055-775AFEDB0A0F%7D.pdf).pdf ([banxico.org.mx](https://www.banxico.org.mx)).

<sup>2/</sup> To see the new methodology refer to Annex 1.

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# Derivatives market

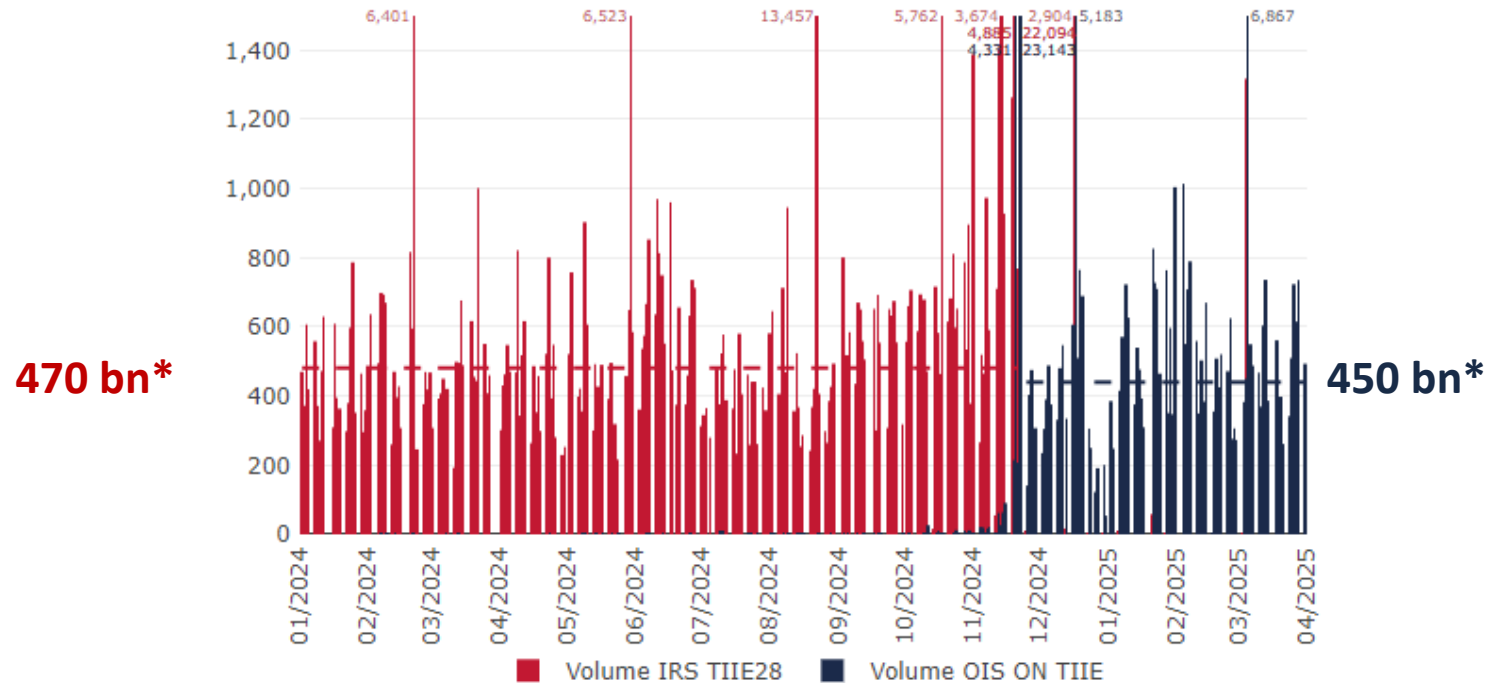


The conversion of contracts by the clearinghouses involved operations for approximately 50 trillion pesos (see Annex 2 for the OIS conversion).



The operation volume of OIS increased notably after the conversion, reaching similar levels to the daily operation of IRS TIIE 28 during the last year.

**Volume of OIS ON TIIE and IRS TIIE 28 traded on CME and MexDer**  
Billions of pesos



Source: MexDer and CME.

\* Represents the median of the volume of each instrument in the respective period.

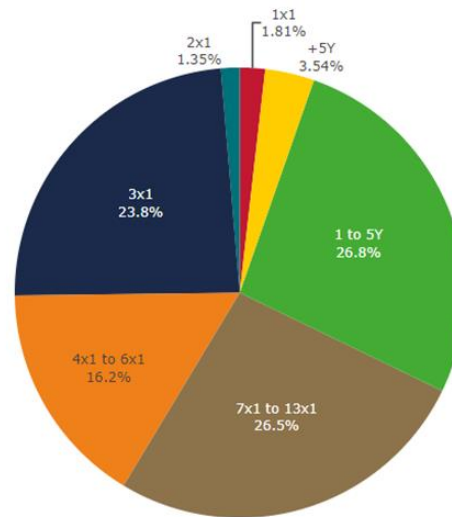
# Derivatives market

The operation of the short-term nodes of the OIS ON TIE, particularly the 1x1 node, is very limited. Therefore, **the conditions for calculating a robust 28-day prospective TIE Funding rate (Term TIE) do not currently exist.**<sup>1/</sup>

Question: How useful do you consider analyzing the possibility of calculating a 91-day prospective TIE?  
Does your institution use that coupon payment tenor?

## Distribution by tenor of OIS ON TIE contracts

Average daily percentage



Note: The period from November 25, 2024, to April 14, 2025, is considered. The approximate daily average volume is 548 billion MXN.

Source: Banco de México with data from CME and MexDer.

<sup>1/</sup> IOSCO's Principle 7 indicates that "the data used to construct a Benchmark should be based on prices, rates, indices or values that have been formed by the competitive forces of supply and demand (i.e., in an active market) and be anchored by observable transactions entered into at arm's length between buyers and sellers in the market for the Interest the Benchmark measures", adding that "[this principle] does not preclude Benchmark Administrators from using executable bids or offers as a means to construct Benchmarks where anchored in an observable market consisting of Bona Fide, Arms-length transactions. For example, this approach might be appropriate in a market **where overall transaction volume is high over sustained periods**, though on any given day there might be more firm bids and offers than posted transactions taking place".

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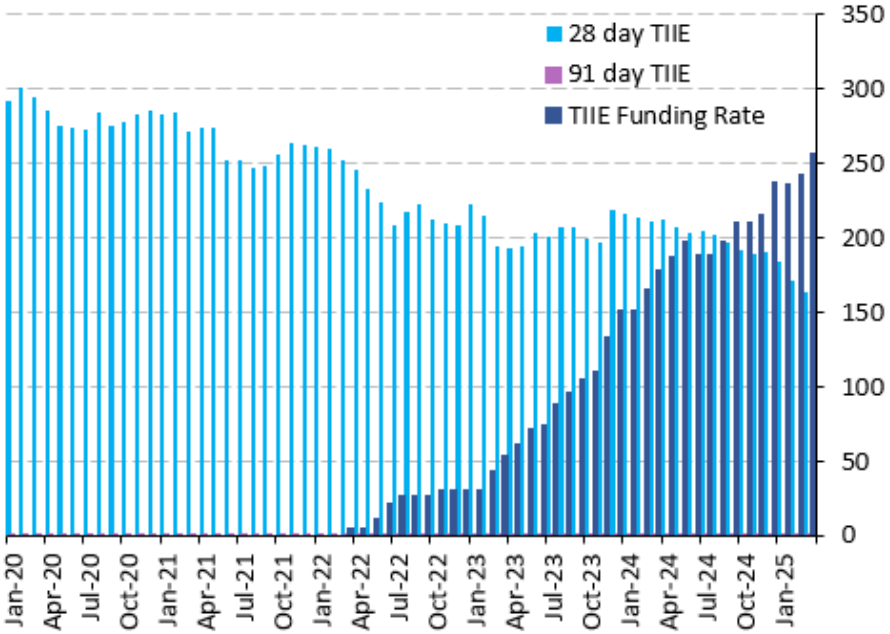
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# Debt market



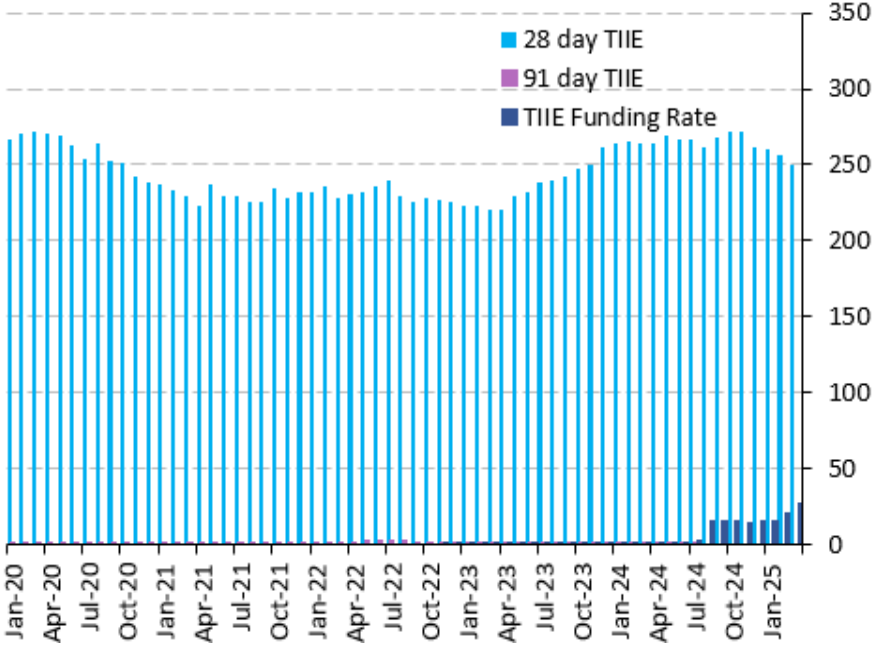
Currently all new placement program issuances in the market are linked to the Funding TIE.

Monthly outstanding amount of non-governmental debt with original maturity greater than one year, by reference rate of bank issuers\*  
Billions of pesos



\*FEFA is included.  
Source: Banco de México.

Monthly outstanding amount of non-governmental debt, with original maturity greater than one year, issued at variable rates, by reference rate of non-bank financial issuers  
Billions of pesos



Source: Banco de México.

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# Banking Products



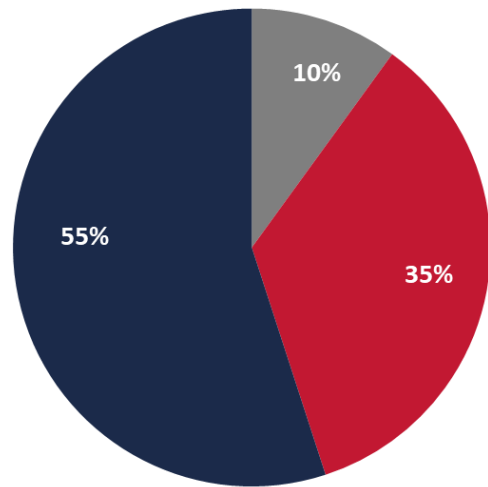
The adoption of the Funding TIE in banking products has been slower than in other markets.



In this regard, the credit card sector stands out, where more than 35% of these loans are referenced to Funding TIE.

## Composition of credit cards by interest rate type

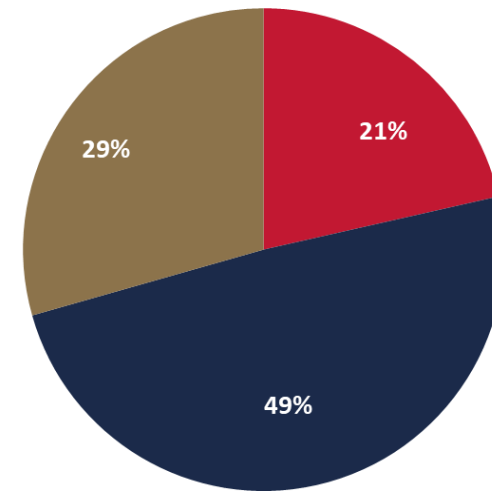
Percentage as of December 2024



■ Fixed rate ■ ON TIE ■ 28, 91 & 182 TIEs

## Composition of term deposits by national variable interest rate type

Percentage as of December 2024



■ ON TIE ■ 28, 91 & 182 TIEs ■ Other Mexican rates

Source: CNBV, INDEVAL, and Banco de México.

# Credit lines to States



Currently, **there is a divergence in the interest rates used in the credit lines that the States of the Republic agree upon with the banks.** Particularly, it has been identified that some contracts use a single observation of the Funding TIE.



**In this regard, it is important to consider the financial risk involved in using a single observation of the Funding TIE as the reference,** given its volatility. If the coupon payment coincides with a day when the Funding TIE is above the target, this would generate an additional cost.



**In this particular market, the Compounded in advance Overnight Funding TIE can be very useful.<sup>1/</sup>** Therefore, the Ministry of Finance is working with the Federal Entities to standardize the use of these references. In this context, the following wording has been proposed as the foundation for defining the rate in the respective contracts.

<b>Compounded in advance Overnight Funding TIE for 28 days:</b>	Refers to the Funding Interbank Equilibrium Interest Rate (TIE, for its Spanish acronym) Compounded in Advance for a 28 (twenty-eight) days tenor, determined and published every banking business day by Banco de México on its website ( <a href="http://www.banxico.org.mx/indexen.html">www.banxico.org.mx/indexen.html</a> ).  The Compounded in Advance Overnight Funding TIE for 28 days that will be used for calculating interest will be the one published by Banco de México on the Business Day immediately preceding the start date of each Interest Period, understanding that, for non-business days on which said rate is not made known, the one published on the immediately preceding Business Day will be applied.
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<sup>1/</sup> The Compounded in advance Overnight Funding TIE for 28 days considers the composition of the F-TIE published by Banco de México during the 28 calendar days prior to its calculation. Banco de México adjusts the compounded F-TIE from the previous 28 calendar days to equivalent 91- and 182-day periods in order to calculate the compounded Funding TIE for those tenors (see Annex 6). Available at: [Economic Information System \(SIE, Banco de México\)](#)

# Banking products



For all other banking products, we are aware there is also a divergence between the rates used by different banking institutions, so it is suggested that **a convention exist in this market.**



In general, banking products **require rates that are known at the beginning of the interest payment period, so *in arrears*** methodologies may not be the most appropriate.



On the other hand, as previously stated, there are currently no conditions in place for the publication of a prospective Funding TIE with information from the derivatives market.



Thus, it is worth clarifying that the **Compounded in advance Overnight Funding TIE can be very useful in banking products and are suggested to be the main reference in these instruments, while the derivatives market linked to Funding TIE continues to develop.**



**Question: Do you agree that the Compounded in advance Overnight Funding TIE should be used as the main convention for banking products?** Understanding that each institution its free to use the F-TIE in some other way to adapt to the needs of its clients.

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# Valuation curves

 At the beginning of the year, some market participants warned Banco de México about the considerable differences between the TIE 28 valuation curves from different price providers. The main reason was that some providers were still considering IRS TIE 28 transactions, which is now a very illiquid market.

 **In response, these price providers adjusted their calculation methodologies in recent weeks to avoid using IRS TIE 28 transactions.** This helped to significantly reduce the problem by making the methodologies more similar across price providers.

 **Question: Do you believe these valuation differences are no longer significant? Or do the authorities need to continue analyzing the issue?**

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# Final remarks

- ✓ Banco de México continues to **urge all financial market participants to use the Funding TIE as a reference for new operations with the aim of consolidating it as the benchmark in pesos.**
- ✓ **Currently, the necessary conditions for the publication of a robust prospective TIE do not exist.** Once the market begins actively trading the 1x1 tenor of the OIS ON TIE, the analysis within the GTTR regarding the publication of a prospective Funding TIE (or *Term TIE*) may resume.
- ✓ **Question: Do you have any doubts or difficulties in adopting the conventions for operating instruments linked to F-TIE (e.g. derivatives, loans, debt securities, etc.)?**
- ✓ **Question: Are there any further comments on the transition?**

# Survey

- **How useful do you consider analyzing the possibility of calculating a 91-day prospective TIE? Does your institution use that coupon payment tenor?**
- **Do you agree that the Compounded in advance Overnight Funding TIE should be used as the main convention for banking products?** Understanding that each institution its free to use the F-TIE in some other way to adapt to the needs of its clients.
- **Do you believe these valuation differences (TIE 28 curves) are no longer significant? Or do the authorities need to continue analyzing the issue?**
- **Do you have any doubts or difficulties in adopting the conventions for operating instruments linked to F-TIE (e.g. derivatives, loans, debt securities, etc.)?**
- **Are there any further comments on the transition?**



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# Annex 1: New methodology of 28-, 91- & 182-day TIEs (outstanding contracts)

The new methodology is based on the F-TIE of the business day prior to the reference day, compounded by the number of days in the corresponding term, plus a historical spread adjustment. In other words:

$$Term\ TIE\ n_t = \left[ \left( 1 + \frac{TF_{t-1} + A}{36000} \right)^n - 1 \right] \times \frac{36000}{n} + Spread\ Adjustment$$

Where:

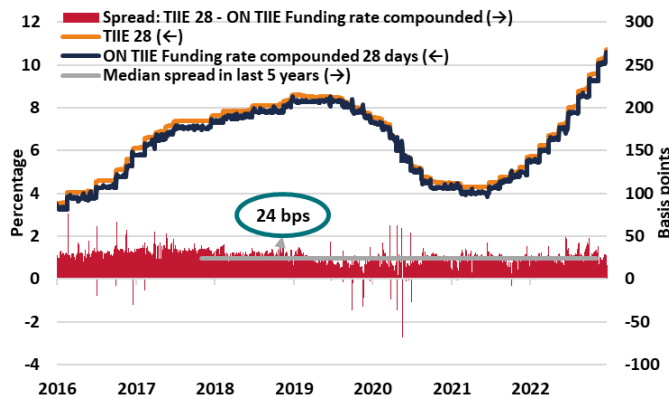
$n$  = number of days in the corresponding term (28, 91 or 182).

$TF_{t-1}$  = The F-TIE from the previous business day expressed in percentage points.

$A$  = If there is a change in the target rate of Banco de México applicable in  $t$ , an adjustment  $A$  is added to the F-TIE Funding rate in the same amount of percentage points that the target rate has changed. This should only be observed on the first applicable day of the new target rate determined by the board of Governors.

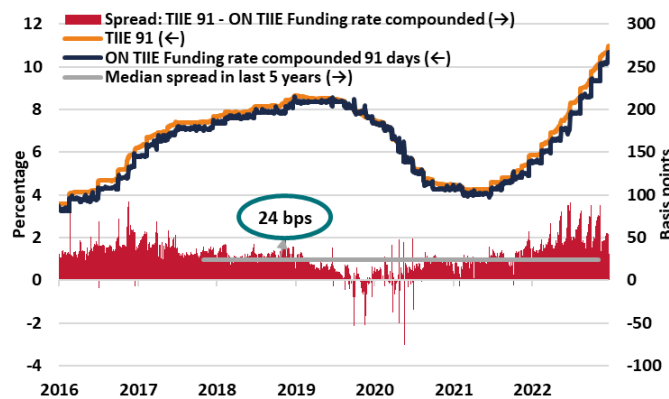
**Spread adjustment** = The historical spread adjustment will remain fixed during the time in which TIE rates with tenors greater than one business day are published. The spread is defined as the **historical median of the last five years** (November 2017 - October 2022) of the daily spreads between TIE with tenors greater than one business day and the F-TIE compounded by the number of days of the corresponding term (28, 91 or 182 days), which would imply a **24 bps adjustment**, in all terms.<sup>1/</sup>

28 days tenor

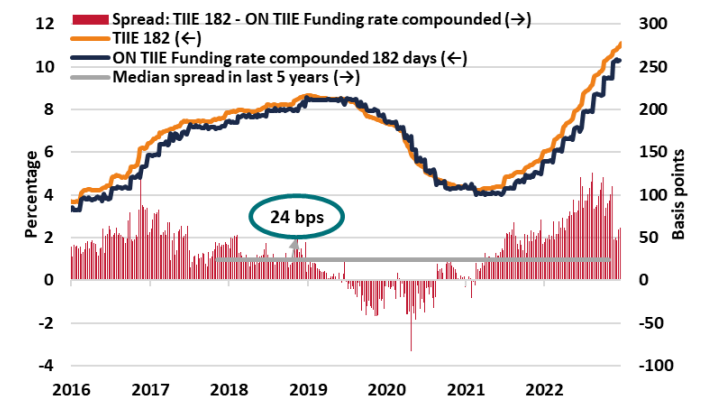


Source: Banco de México.

91 days tenor



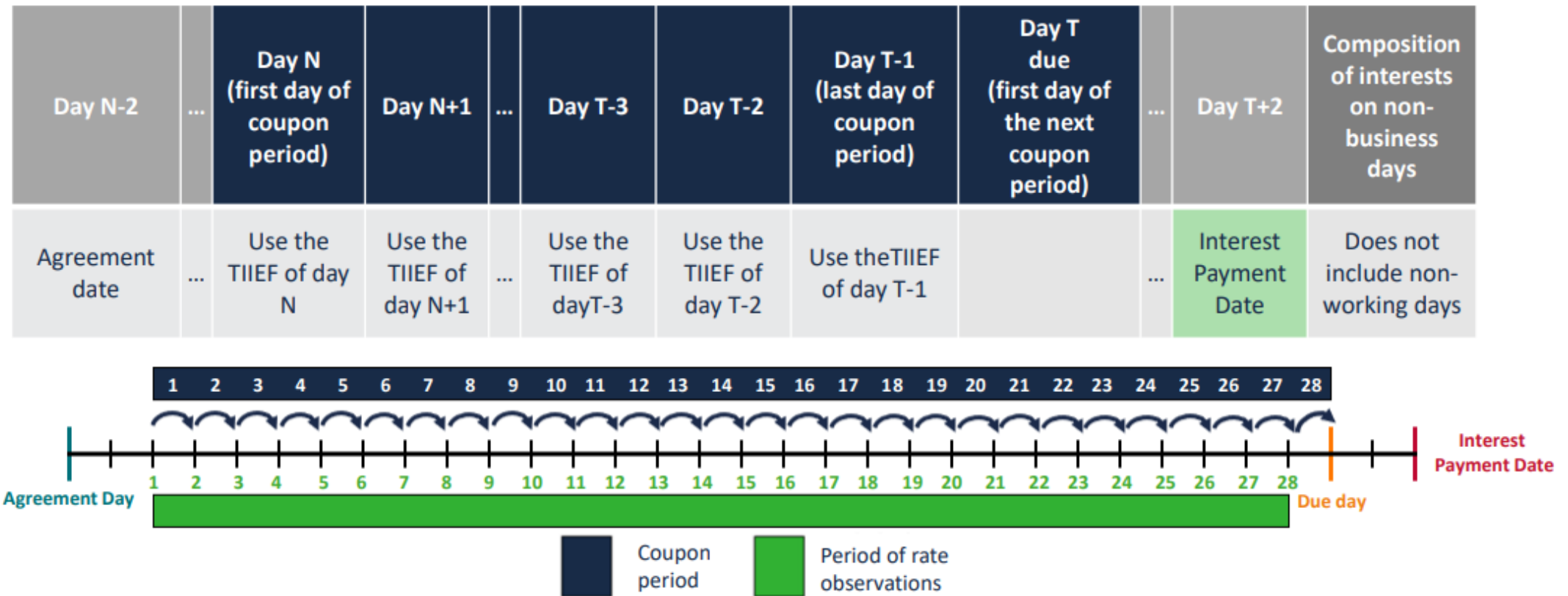
182 days tenor



<sup>1/</sup> The definition of this spread adjustment is based on international experience (i.e. ISDA's methodology for fallback rates). Furthermore, the adjustment considers both restrictive and accommodative monetary policy cycles.

## Annex 2: Convention for OIS products linked to Funding TIE

The interest for the period of OIS products linked to Funding TIE is calculated using an in arrears methodology without capitalizing non-business days. Under this convention, accrued interest is paid 2 days after the coupon expiration date. Additionally, it was agreed that the coupon periods would be 28 days.

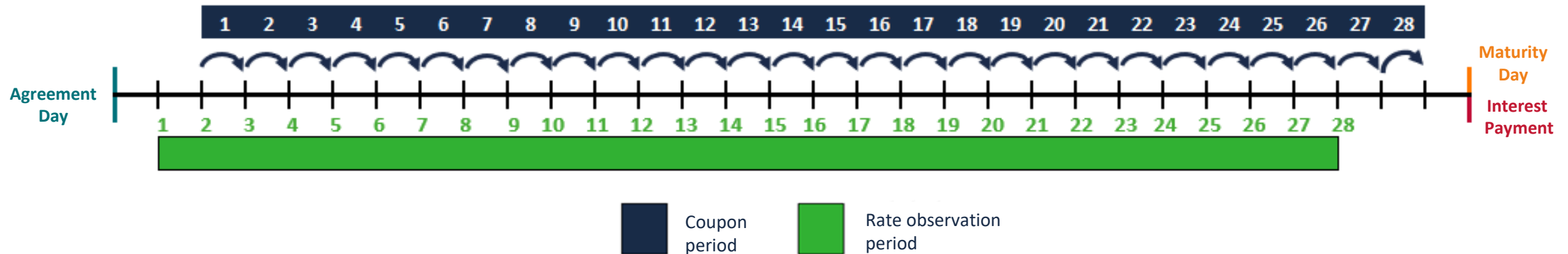


## Annex 3: Conventions for debt issuances linked to Funding TIE



Within the GTTR, the following convention was reached for debt issuances linked to the Funding TIE:

- Said methodology is calculated with composition in arrears of 28-day coupons. Where for each day of the coupon period, the Funding TIE published the previous day is used (Lookback of one day in the Funding TIE). Finally, coupons are settled on the business day following the last day of the coupon period.



This convention is also known as “FIRA Bond Type”, as this institution was the first to use it for its debt issuances linked to Funding TIE.

## Annex 4: Overnight Funding TIE Index (compounded on calendar days)



To further promote the adoption of the Funding TIE, an Overnight Funding TIE Index is published. This index measures the cumulative impact of compounding the F-TIE over time from January 2, 2006.



The calculation of the Overnight Funding TIE Index for the calendar day  $D$  is as follows:

$$ON \text{ Funding TIE Index}_D = \begin{cases} 100,000, & \text{if } D = \text{January 2, 2006} \\ 100,000 \times \left[ \prod_{i=\text{January 2, 2006}}^{D-1_n} \left( 1 + \frac{TIEF_i}{36000} \right) \right], & \text{if } D \geq \text{January 3, 2006} \end{cases}$$

Where:

$D$  = The date corresponding to the business day for which the ON Funding TIE Index is applicable.<sup>1/</sup>

$D - 1_n$  = The date corresponding to the immediately preceding calendar day to  $D$ .

$TIEF_i$  = Overnight Funding TIE rate published on day  $i$  by Banco de México, expressed in percentage points. If day  $i$  is a non-business day, the Overnight Funding TIE rate published on the immediately preceding business day will be used.



This Overnight Funding TIE Index will enable the calculation of compounded interest rate for any period between two dates for which the Index has been published. The formula is as follows:

$$ON \text{ Funding TIE compounded between } D_1 \text{ and } D_2 = \left( \frac{ON \text{ Funding TIE Index}_{D_2}}{ON \text{ Funding TIE Index}_{D_1}} - 1 \right) \times \frac{36000}{\delta}$$

Where:

$D_1$  = Starting date of the period to calculate.

$D_2$  = The immediately following calendar day to the final date of the period to calculate the accrued interest.

$\delta$  = The difference in days between  $D_2$  and  $D_1$ .

<sup>1/</sup> The Overnight Funding TIE Index compounded on calendar days applicable on day  $D$  will be available on Banco de México's website from the immediately preceding business day to  $D$ , shortly after the publication of the last Overnight Funding TIE rate considered for its calculation.

## Annex 5: Overnight Funding TIE Index (compounded on business days, similar to SOFR Index)



This index, also, measures the cumulative impact of compounding the F-TIE over time from January 2, 2006; but it only **compounds interest on business days**.



The formula for calculating this index, for the business day of publication  $D$ , is as follows:

$$ON \text{ Funding TIE Index}_D = \begin{cases} 100,000, & \text{if } D = \text{January 2, 2006} \\ 100,000 \times \left[ \prod_{j=\text{January 2, 2006}}^{D-1} \left( 1 + \frac{TIEF_j \times n_j}{36000} \right) \right], & \text{if } D \geq \text{January 3, 2006} \end{cases}$$

Where:

$D$  = The date corresponding to the business day for which the ON Funding TIE Index is applicable.

$D - 1_h$  = The date corresponding to the immediately preceding business day to  $D$ .

$TIEF_j$  = Overnight Funding TIE rate published on day  $i$  by Banco de México, expressed in percentage points.

$n_i$  = Number of days for which the Overnight Funding TIE rate published on business day  $i$  is applicable; that is, the result of adding the number of days between the publication day of  $TIEF_i$ , including that day, and the immediately following business day, excluding the latter. For example, for the Overnight Funding TIE rate published on a Friday, assuming that the next Monday after its publication is a business day, the number of applicable days would be equal to 3.

This **Overnight Funding TIE Index can also be published for non-business days** using the following formula:

$$ON \text{ Funding TIE Index}_I = ON \text{ Funding TIE Index}_D \times \left( 1 + \frac{TIEF_D \times \Delta}{36000} \right).$$

Where:

$I$  = The date of the non-business day for which the ON Funding TIE Index compounded on business days is calculated.

$D$  = The date corresponding to the immediately preceding business day to the non-business day  $I$ .

$\Delta$  = The difference in calendar days between  $I$  and  $D$ .




This **Overnight Funding TIE Index also allows for the calculation of compounded interest rates for any period between two publication dates of the index**, using the same formula as for the previous index.

## Annex 6: Compounded in advance Overnight Funding TIE

 The Compounded in advance Overnight Funding TIE is calculated using the Overnight Funding TIE Index compounded on business days (Annex 5).

 To avoid a significant lag in the information contained in the compounded in advance Overnight Funding TIE, all tenors (28, 91, and 182 days) rely on the F-TIE observed in the last 28 calendar days preceding the publication of this rate.

 In general, for each business day of determination of this rate, expressed in percentage points and rounded to four decimals, it is calculated through the Overnight Funding TIE Index according to the following formula:

$$\text{Compounded in advance ON Funding TIE for } T \text{ days}_{D} = \left[ \left( \frac{\text{ON Funding TIE Index}_{D}}{\text{ON Funding TIE Index}_{D-28_n}} \right)^{\frac{T}{28}} - 1 \right] \times \frac{36000}{T}.$$

Where:

$D$  = The date corresponding to the business day for which the Compounded in advance ON Funding TIE is applicable.

$D - 28_n$  = The date corresponding to the result of subtracting 28 days to  $D$ , it could be either a business or non-business day.

$T$  = The tenor of the compounded in advance ON Funding TIE; in other words, 28, 91 or 182 days.