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9th Meeting of the Working Group on Alternative Reference Rates in Mexico (GTTR) August 15, 2023



Publicada-Usu General

Información que ha sido publicada por el Banco de México

Transition of TIIE rates with tenors



During the May 9th meeting of the Working Group on Reference Rates in Mexico (GTTR), four fundamental topics were discussed regarding the transition of TIIE rates with tenors greater than one business day (term TIIE). These topics were:

1. Standardization of Overnight Index Swap (OIS) products linked to the ON TIIE Funding rate (Funding TIIE).
2. Publication of a Funding TIIE Index and its composition method.
3. Conventions for debt securities issuances linked to the Funding TIIE.
4. Conventions for the reference rate of banking products.



Regarding the first topic, the GTTR leaned towards adopting the international convention for OIS^{1/} in the Mexican market.



In this way, Banco de México submitted for consultation the modification project to its Circular 4/2012, which includes the changes agreed upon in the GTTR.

1/ Under the international convention, the interest for the period is calculated using an "*in arrears*" methodology without capitalizing non-business days. Additionally, accrued interests are paid 2 days after the coupon's maturity date. In the specific case of Mexico, it was agreed that **the coupon periods will be 28 days.**

Outline

1 Public Consultation of Circular 4/2012


2 Funding TIE Index

3 Conventions for Debt Issuances

4 References for Banking Products

5 Additional Topics in the Transition

Modification project of Circular 4/2012

 On June 2nd, a public consultation was opened regarding **the modification project of Circular 4/2012**, which includes the following:

1. **Prohibition of the use of the 91-day and 182-day term TIE** for new derivative transactions as of January 1, 2024.
2. **Prohibition of the use of the 28-day term TIE** for new derivative transactions as of January 1, 2025.
3. Recognition of the use of the Funding TIE within **standardized derivative transactions** as of January 1, 2025.

Main comments on the modification project of Circular 4/2012

 The public consultation period ended on June 29, and comments regarding the following topics stood out:

Comment on the public consultation	Response from Banxico (Banco de México)
<p><i>Clarification on Derivative Transactions that will be considered Standardized over time</i></p>	<p>As outlined in the modification project of Circular 4/2012, until December 31, 2024, only derivative transactions referenced to the 28-day term TIIE and with a minimum term for the swap transaction equal to or greater than 56 days and a maximum term equal to or less than 30 years, will be considered as standardized derivative transactions.</p> <p>Starting from January 1, 2025, only derivative transactions referenced to the Funding TIIE will be considered as standardized. These transactions will have coupon payments in periods of 28 natural days, or the periods that replace them in case of non-business days, and with a minimum term for the swap transaction equal to or greater than 28 natural days, and the maximum term equal to or less than 30 years.</p>
<p><i>Publication of the Funding TIIE at an earlier time</i></p>	<p>This comment is not related to the subject matter of the public consultation. Currently, we do not have timely information needed for the daily publication of the Funding TIIE before 5:00 PM. This is because credit institutions do not promptly report their funding operations to the Institute for the Deposit of Securities (Indeval).</p>
<p><i>Confirmation of the date from which operations linked to the Funding TIIE must be cleared through clearing houses</i></p>	<p>Derivative transactions linked to the Funding TIIE considered as standardized in accordance with Annex 2 of Circular 4/2012 must be cleared and settled, as a mandatory requirement, through clearing houses starting from January 1, 2025.</p>

Publicada-Usu General

Main comments on the modification project of Circular 4/2012

Comment on the public consultation	Response from Banxico
<p><i>What reference rate should be used in forward operations?</i></p>	<p>The use of the 91-day and 182-day term TIEE as underlying will be prohibited in contracts formalizing new operations that are entered into as of January 1, 2024. Additionally, the use of the 28-day term TIEE as underlying will be restricted in new operations entered into as of January 1, 2025. However, previously executed operations that are still active on the mentioned dates may continue to use the corresponding term TIEE as underlying.</p> <p>New contracts entered into after the dates of restriction for using term TIEE must use a different rate as underlying, as specified in subsection e) of section 2.1. of Circular 4/2012.^{1/}</p>
<p><i>Communication with the National Banking and Securities Commission (CNBV).</i></p>	<p>Collaboration with other authorities within the Mexican financial system is a crucial aspect of the reference rate transition project. Therefore, this Central Bank will continue to work in conjunction with the CNBV to explain and clarify any doubts regarding the scope of these modifications.^{2/} This is aimed at fostering the sound and continuous development of the Mexican financial system and achieving an orderly transition towards the Funding TIEE.</p>
<p><i>What ON TIEE Funding rate should be used for calculating TIEEF_i in the formula of Annex 2?</i></p>	<p>The TIEEF_i referred to in the formula of Annex 2 of the Circular is defined as the Funding TIEE published on Banco de México's website on business day i of the interest calculation period. In other words, the Funding TIEE published on that same day is employed.^{3/}</p>

1/ In subsection e) of section 2.1. of Circular 4/2012, it is established that entities can conduct derivative transactions using as underlying: nominal interest rates, real interest rates, spreads, rates related to any debt security, and indices based on such rates.

2/ Currently, the following topics are under review with CNBV: a) Establishing that the change from term TIEE to Funding TIEE does not imply contract restructuring assumptions; b) Clarifying that the conversion of derivative contracts linked to the 28-day TIEE to derivatives linked to Funding TIEE in clearing houses should not be interpreted as a new transaction for accounting and tax purposes; c) Recommending to issuers that new debt issuances be linked to the Funding TIEE; and d) Standardizing valuation methodologies for risk-free rate curves among providers.

3/ See Annex 5 of this presentation.

Outline

1 Public Consultation of Circular 4/2012

2 **Funding TIE Index**

3 Conventions for Debt Issuances

4 References for Banking Products

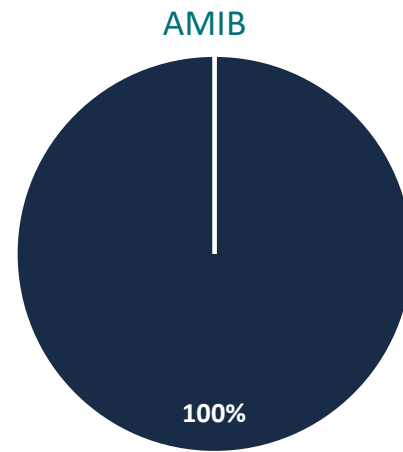
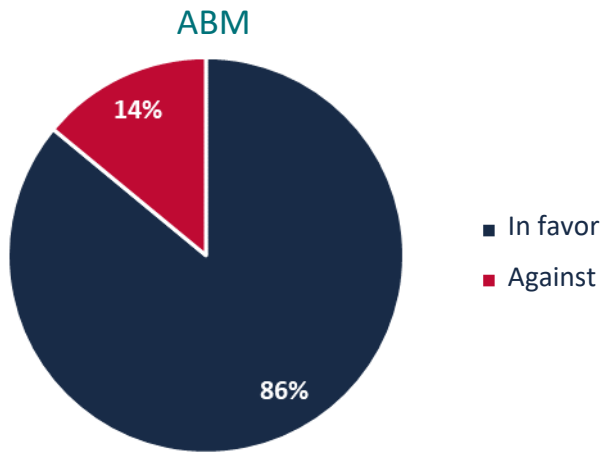
5 Additional Topics in the Transition

Publication of a Funding TIE Index

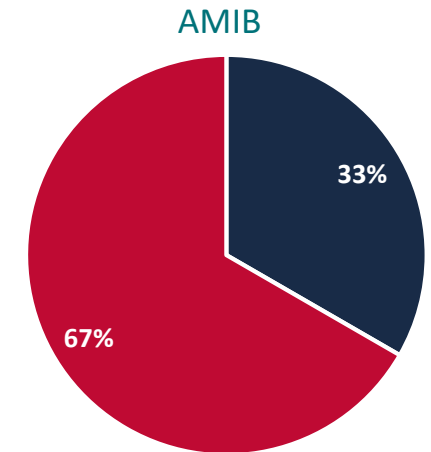
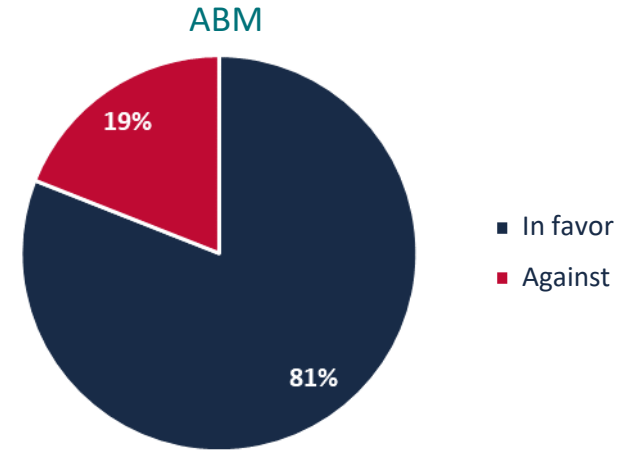
In the previous GTTR meeting, the possibility of publishing two representative indices for the two interest compounding conventions (including or excluding non-business days, see Annexes 2 and 3) was evaluated.

In this regard, a survey was conducted by the ABM and the AMIB, yielding the following results:

In order to standardize interest calculations, would it be advisable to publish a Funding TIE index that shows the cumulative impact of compounding the Funding TIE over time?



If such an index is needed, should two indices be published to cover the two interest compounding conventions (with and without compounding over the weekend)?



Source: ABM and AMIB.

Note: The ABM consultation had the participation of 36 institutions, while the AMIB received responses from 6 of its members.

Publication of a Funding TIE Index



Recommendation/Action by Banxico:

- ✓ It is evident that the market requires such indices to calculate compound interest.
- ✓ While the results vary between the ABM and the AMIB's surveys, it seems that the market is leaning towards the general publication of two Funding TIE Indices covering different conventions for interest compounding.
- ✓ Therefore, **Banco de México will soon publish both indices.**
- ✓ These indices can be used by market participants on a voluntary basis to calculate accumulated interest for various products (e.g., debt securities, loans, etc.).

Outline

1 Public Consultation of Circular 4/2012

2 Funding TIE Index

3 Conventions for Debt Issuances

4 References for Banking Products

5 Additional Topics in the Transition

Conventions for debt issuances linked to the Funding TIE

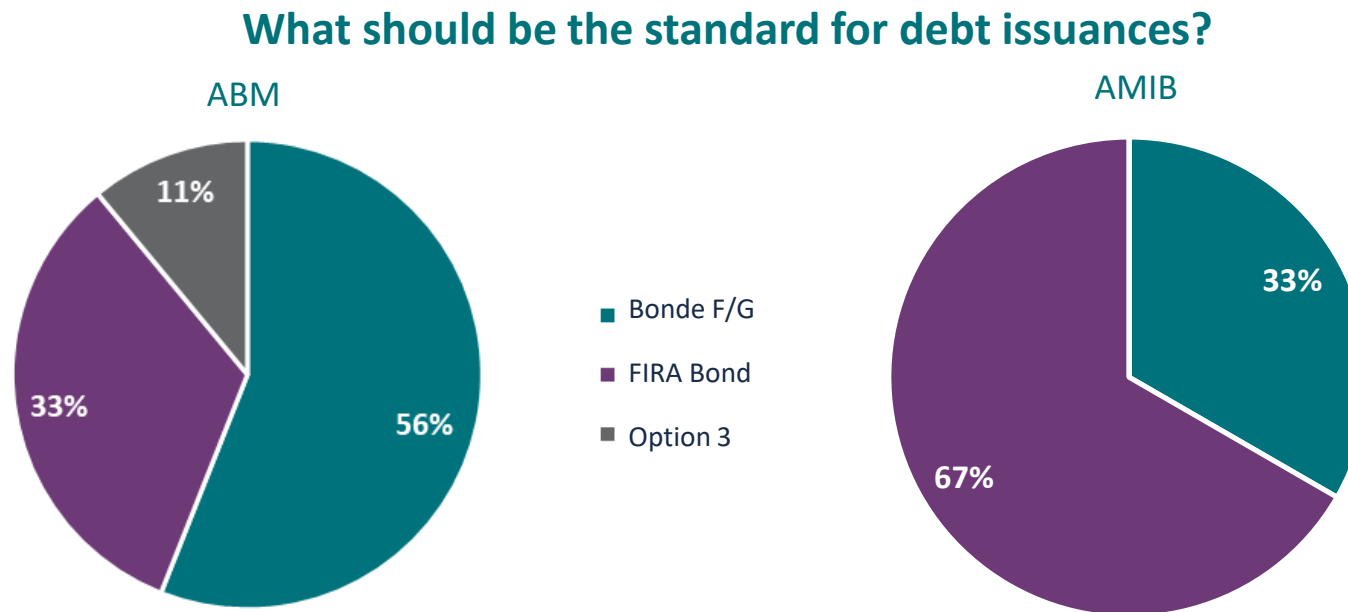


To standardize the market of debt securities linked to the Funding TIE, it is necessary to **define a convention**:

- Three possibilities were proposed: **1)** Bonde F/G type, **2)** FIRA Bond type (one-day lookback on the Funding TIE), and **3)** using the Funding TIE with a 2-day lookback.



Surveys were conducted among market participants, yielding the following results:



Source: ABM and AMIB. Note: The ABM consultation had the participation of 36 institutions, while the AMIB received responses from 6 of its members.

Conventions for debt issuances linked to the Funding TIE



Recommendation/Action by Banxico:

- ✓ There is some division in the market regarding adopting the Bonde F/G convention or the FIRA Bond convention.
- ✓ After conducting meetings with various active members of the debt issuance market (such as underwriters and common agents), it has been concluded that the Bonde F/G convention could be operationally challenging for a significant portion of common agents.
- ✓ Therefore, it is suggested to adopt the FIRA Bond convention.

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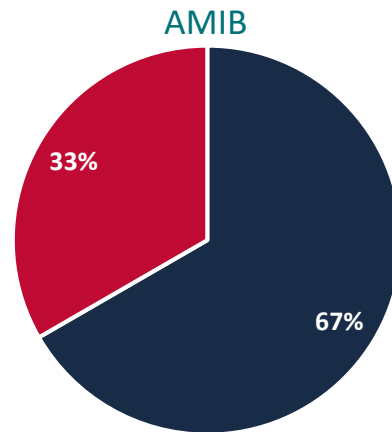
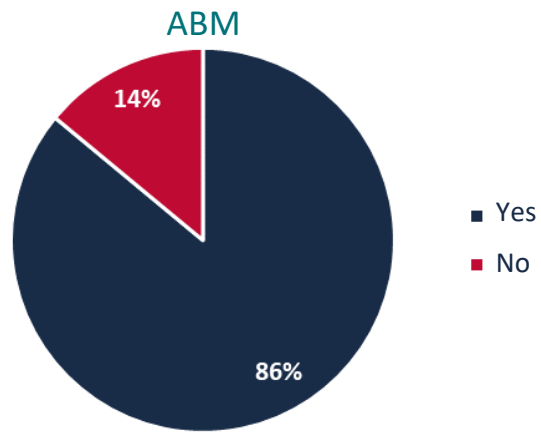
5 Additional Topics in the Transition

Conventions for the reference rate for Banking Products



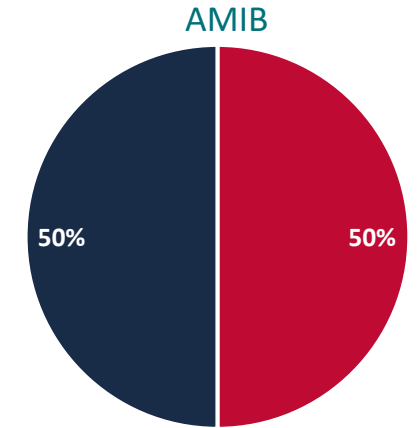
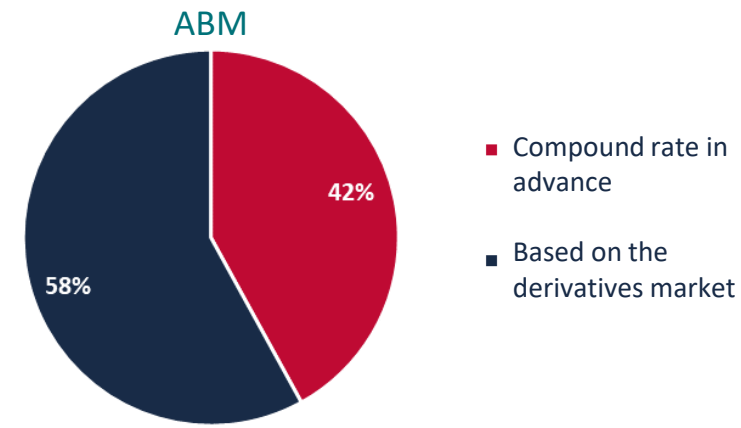
To analyze the option of publishing term reference rates based on the Funding TIEE, a survey was also conducted in the ABM and the AMIB regarding the features that these rates should have.

Is it necessary to know the interest rate from the beginning of the period?



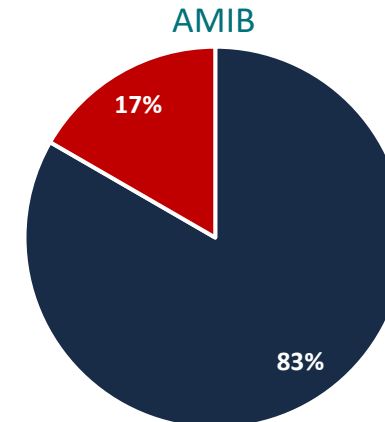
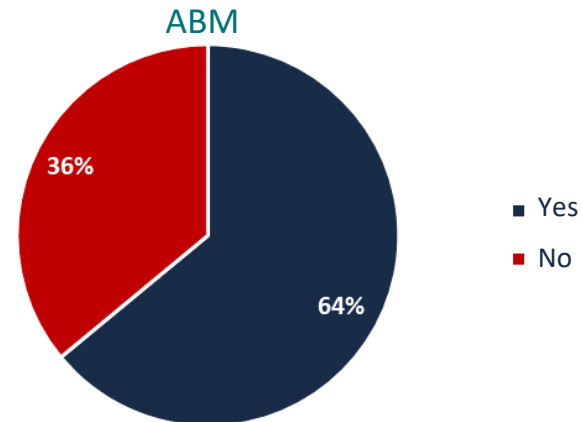
- Yes
- No

What type of rate would be the most suitable?



- Compound rate in advance
- Based on the derivatives market

Would all three terms (28, 91, and 182 days) for the term Funding TIEE (term F-TIEE) be necessary?



- Yes
- No

Source: ABM and AMIB. Note: The ABM consultation had the participation of 36 institutions, while the AMIB received responses from 6 of its members.

Conventions for the reference rate for Banking Products



Recommendation/Action by Banxico:

- ✓ The market consensus indicates that knowing the reference rate in banking products at the beginning of the interest calculation period is required for the terms of 28, 91, and 182 days.
- ✓ There is no clear consensus regarding which rate to use (Compound in Advance TIE or Term F-TIE based on the derivatives market information).
- ✓ It is urgent to have term rates since as of January 1, 2024, the 91-day and 182-day TIE cannot be used for new operations.
- ✓ **It cannot be guaranteed that the derivatives market will develop before that date.**

Conventions for the reference rate for Banking Products



Recommendation/Action by Banxico (continuation):


- ✓ Furthermore, in a statement issued on July 3rd, the International Organization of Securities Commissions (IOSCO) indicated that:^{1/}

*“IOSCO believes that the **Term SOFR rates are suitable for limited use only**, as already highlighted by the FSB and National Working Groups and Regulators. **Term SOFR rates are different from SOFR because Term SOFR rates are based on derivative market transactions, and they rely on the continued existence of a deep and liquid derivatives market based on overnight SOFR. The use of Term SOFR rates in derivatives markets should remain limited so that these rates can remain sustainably available for more limited appropriate use cases. If reference to Term SOFR rates were to become too widespread, at the expense of trading in the underlying SOFR derivatives (i.e., futures or swaps) markets, it would undermine the Term SOFR rates themselves”.***

- ✓ In this context, a Term F-TIE (based on derivatives market derivatives) would face similar challenges to Term SOFR, which suggests that its use should be recommended with certain limitations.
- ✓ Therefore, **Banco de México will soon begin to publish Compound in Advance Funding TIE for 28, 91, and 182 days.**
- ✓ Later on, when the derivatives market is more developed, the appropriateness of publishing Term F-TIE rates (based on derivatives market derivatives) will be evaluated within the GTTR.

1/ Available at: <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD738.pdf>. Additionally, the Financial Stability Board (FSB) issued a statement on July 28th highlighting the limitations of "Term rates", a document available at: <https://www.fsb.org/2023/07/final-reflections-on-the-libor-transition/>

Compound in Advance Funding TIE rate

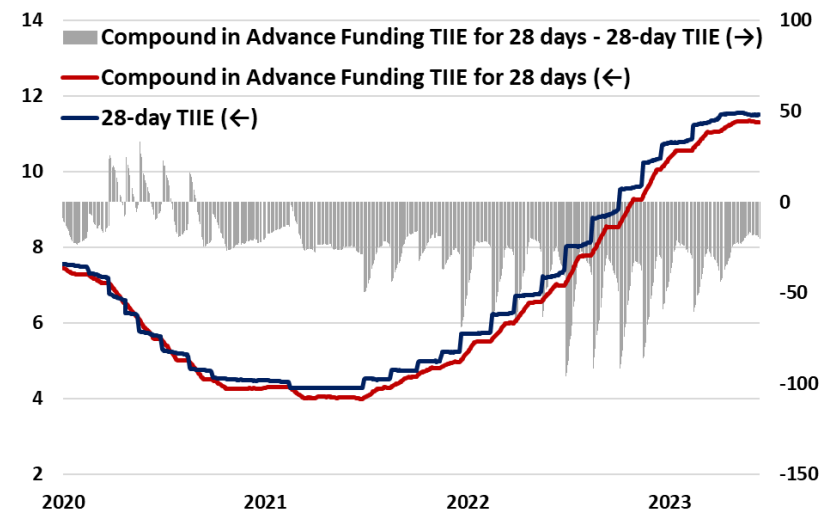
 Compound in Advance Funding TIE rates consider the compounding of the Funding TIE rates published during the previous 28, 91, or 182 natural days.

 Some market participants have mentioned that for the 91 and 182-day terms, **the lag in information could be inconvenient.**

 Therefore, a **28-day lookback could be used regardless of the term of the reference rate.** This means that for the 91 and 182-day rates, the rates of the last 28 natural days would be considered, but adjusted on curve to 91 and 182 days (see Annex 4).

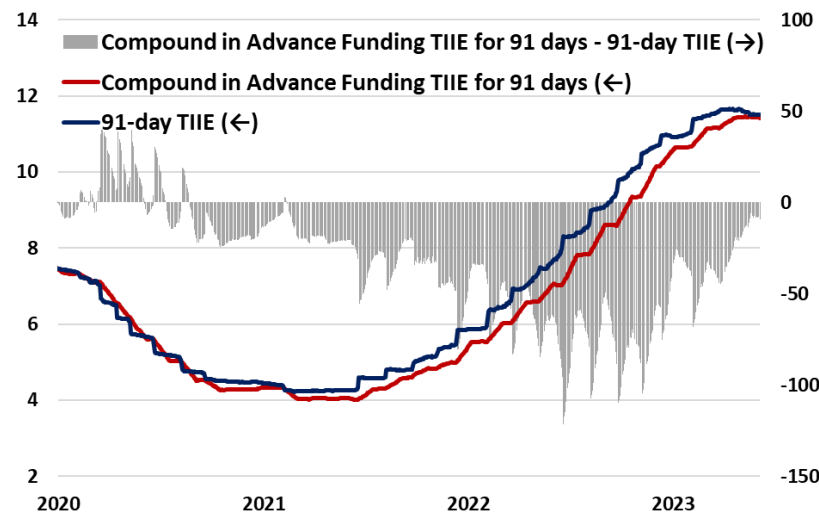
Compound in Advance Funding TIE for 28 days vs 28-day TIE

<-- % and differences in bp -->



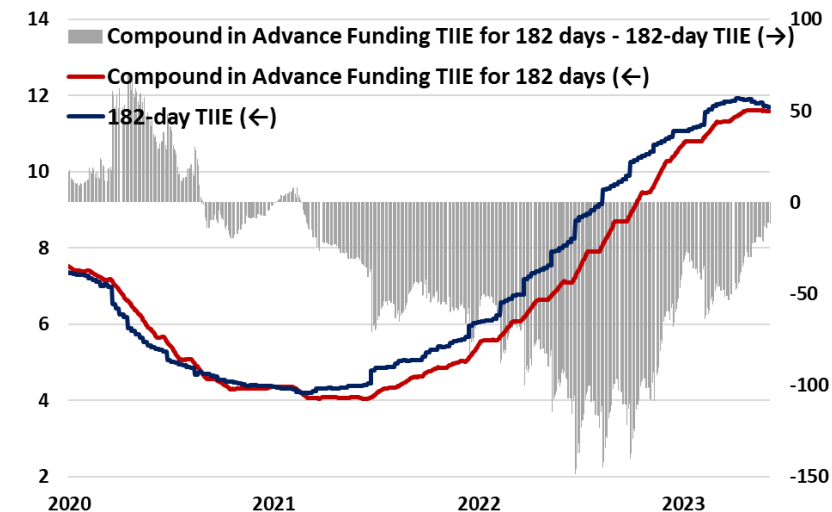
Compound in Advance Funding TIE for 91 days vs 91-day TIE

<-- % and differences in bp -->



Compound in Advance Funding TIE for 182 days vs 182-day TIE

<-- % and differences in bp -->



Note: Compound in Advance Funding TIE with a 28-day lookback in all cases and compounding on non-business days.

Source: Banco de México.

Conventions for the reference rate for Banking Products



Questions:

- ✓ Given that the market of derivatives linked to the Funding TIE is not currently developed, and considering that a forward rate based on derivatives might have some drawbacks, rates based on a 28-day lookback (**Annexes 2 and 4**) will be published. These rates will be exclusively used for banking products such as loans and not for issuing debt securities.
 - ✓ Do you agree with this proposal?
 - ✓ Is there any issue that might hinder the implementation of these new term rates as references?

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Actions to Take: Timeline



Below is the timeline with dates and steps to follow in the transition:

2023

First half-year

Public Consultation and Publication of Circulars in the Official Gazette of the Federation regarding the establishment of **deadlines for the use of term TIIE rates in new contracts and the change of methodology for these rates (amendments to Circulars 3/2012 and 14/2007)**. ✓

Second half-year

- Publication of amendments to Circular 4/2012 (use of derivatives).
- Support entities in their initiatives to increase/encourage the use of Funding TIIE Futures contracts (CME and MexDer) – Market Makers.
- Explore the possibility of developing broker screens with Funding TIIE operations.
- **Commence operations in the OIS market** with contracts referencing the Funding TIIE (Contracts by clearing houses).
- **Collaborate with the GTTR to develop the “ON TIIE Funding rate First” initiative** aimed at prioritizing new operations referencing the Funding TIIE. Actions under this initiative would include:
 - Promote derivative valuation using the Funding TIIE.
 - Encourage participants to increase liquidity in the derivatives market linked to the Funding TIIE (swaps, cross-currency swaps).
 - Encourage participants in other financial markets to migrate to the Funding TIIE.
 - Promote conventions in the standardized derivatives market for trading with Funding TIIE.
 - Promote the creation of an OIS market linked to the Funding TIIE.

Dec. 31

Last day of use for 91 and 182-day TIIE in new contracts. Change of methodology, starting from the next banking business day, for existing contracts in these tenors.

Actions to Take: Timeline

2024

Second half-year

Perform the conversion of standardized IRS contracts referenced to the 28-day TIIE to OIS contracts referenced to the Funding TIIE.

Dec. 31

Last day of use for the 28-day TIIE in new contracts. Change of methodology, starting from the next banking business day, for existing contracts in this tenor.



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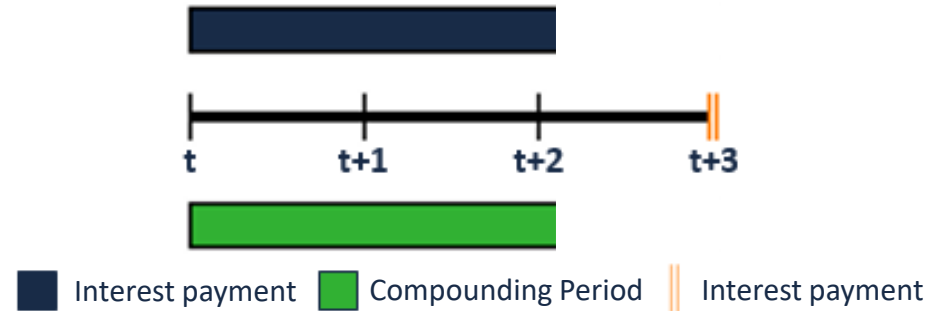
www.banxico.org.mx

Publicada Uso General

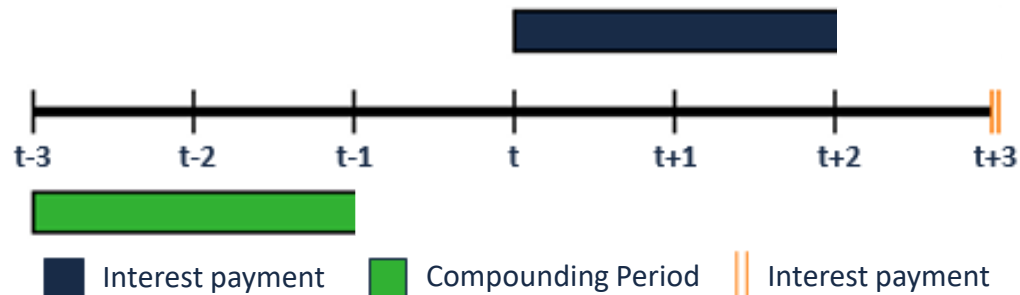
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Annex 1: Composition in Arrears vs. in Advance

- 1) The **compounded in arrears rate** methodology daily compounds the observed one-day rate over the **interest payment period**, providing information more in line with the time of calculation (such as **Bondes F, Bondes G**).



- 2) The **compounded in advance rate** methodology daily compounds the observed one-day rate over the **period preceding** the interest payment period, resulting in lagged information (similar to **SOFR Average**).



Annex 2: Funding TIE Index (compounding on non-business days)

 To further promote the adoption of the Funding TIE, it's possible to publish a Funding TIE Index for all days. This index measures the cumulative impact of compounding the Funding TIE over time from January 2, 2006.


 The formula for calculating the Funding TIE Index for the calendar day D is as follows:

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

Where:

$D - 1$ = The calendar day immediately prior to the date of the Funding TIE Index.

TF_i = Funding TIE published on day i expressed in percentage points.

 The 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 would be as follows:

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

Where:

D_1 = Initial date, corresponding to the day of the first rate considered for compounding interest.

D_2 = End date or maturity date, corresponding to the next immediate business day following the date of the last Funding TIE considered for compounding interest.

δ = the difference in the number of calendar days between the dates D_2 y D_1 .

Annex 3: Funding TIE Index that compound on business days (similar to SOFR Index)



Similarly to the previous index, a **Funding TIE Index** could be published, but with the difference that it **would not compound interest on non-business days**.



The formula for calculating the Funding TIE Index that does not compound on non-business days, for the business day of publication D , is as follows:

$$Funding\ TIE\ Index_D = \begin{cases} 100,000, & si\ D = January\ 2,\ 2006 \\ 100,000 \times \left[\prod_{j=January\ 2,\ 2006}^{D-1} \left(1 + \frac{TF_j \times d_j}{36000} \right) \right], & si\ D \geq January\ 3,\ 2006 \end{cases}$$

Where:

$D - 1$ = The business day immediately prior to the date of the Funding TIE Index.

TF_j = Funding TIE published on day i expressed in percentage points.

d_j = number of calendar days for which the Funding TIE published on day j is applicable.

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

$$Funding\ TIE\ Index_I = Funding\ TIE\ Index_D \times \left(1 + \frac{TF_D \times \Delta}{36000} \right).$$

Where:

I = the date of the non-business day for which the Funding TIE Index is being calculated.

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


Δ = the difference in calendar days between I and D .




This **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 4: Funding TIE Compounded in Advance

 The Funding TIE compounded in advance can be calculated using the Funding TIE Index that compound on business days (Annex 3).

 As mentioned, to avoid significant lag in the information contained in the Funding TIE compounded in advance, it is proposed that all tenors (28, 91, and 182 days) rely on the Funding TIE observed in the last 28 calendar days preceding the publication of the Funding TIE compounded in advance.

 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 Funding TIE Index according to the following formula:

$$\text{Funding TIE compounded in advance for } T \text{ days}_H = \left(\left(\frac{\text{Funding TIE Index}_H}{\text{Funding TIE Index}_{H-28}} \right)^{\frac{T}{28}} - 1 \right) \times \frac{36000}{T}.$$

Where:

H = business day corresponding to the date of determination of the Funding TIE compounded in advance.

T = the tenor of the Funding TIE compounded in advance (i.e., 28, 91, or 182 days).

Annex 5: Characteristics of Standardized Contracts

- Standardized derivative transactions shall be considered swaps in which one party commits to making payments in pesos in periods of 28 calendar days, or in those that replace them in the case of non-business days, derived from applying a specific fixed rate to a specific amount. On the other hand, the counterpart commits to making payments as a result of compounding the Funding TIEE during all business days of the interest period. The above considering that the minimum term of the swap is greater than or equal to 28 calendar days and the maximum term is less than or equal to 30 years. The compounding of interests will be as follows:

$$T = \left[\prod_{i=1}^{N_B} \left(1 + TIEF_i \times \frac{d_i}{36000} \right) - 1 \right] \times \frac{36000}{N_T},$$

Where:

- T** represents the interest rate for a period expressed in percentage points.
- N_T** is the number of calendar days in the interest calculation period (28 days for all periods, except in cases where non-business days other than Saturdays and Sundays occur at the beginning or end of the corresponding period).
- N_B** is the number of business days within the interest calculation period in which Banco de México has published the Funding TIEE on its website.
- $\prod_{i=1}^{N_B}(\cdot)$ is an operator that connotes performing the multiplication of the factors inside the parentheses.
- TIEF_i** is the Funding TIEE published on Banco de México's website on business day i of the interest calculation period, expressed in percentage points.
- d_i** is the number of calendar days for which the TIEF_i published on Banco de México's website on business day i is applicable; that is, one day for all cases except for business days immediately following non-business days, in which case the number of days corresponds to the sum of the business day plus the non-business day or days that immediately follow it.