

# Three-month TONA Futures

## What is TONA

Tokyo Overnight Average rate (TONA) is JPY interest rate for uncollateralized transactions settled on the same day as the trade date and maturing the following business day between financial institutions at the interbank call money market.

## Listing of Three-month TONA Futures

TONA is the designated risk-free rate (RFR) administered and published by the Bank of Japan. As JPY LIBOR publication was ceased at the end of December 2021, it has become essentially necessary to establish a RFR based market. TFX has listed Three-month TONA futures in order to provide market participants with price discovery, which is the basic functionality of futures, and to improve its recognition of RFR as a benchmark of JPY interest rate.

Three-month TONA futures designates, as underlying asset, an interest rate per annum that is calculated by compounding daily TONA during the Three months' "Reference Quarter".

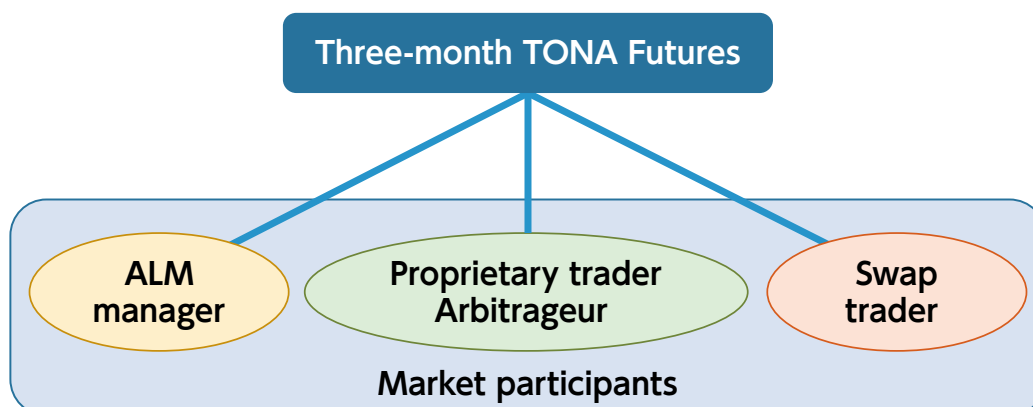
### ◆ Hedging tool for over-the-counter JPY IRS transactions

After the cessation of LIBOR publication, most of JPY interest rate swaps (IRS) have traded by compounding daily TONA basis in the OTC market.

Incorporating quarterly interest exchange convention into the product specification, Three-month TONA futures will make an ideal substitution or hedging tool for IRS.

### ◆ Making risk management and trading operation further efficient

As it is well aligned with IRS, exchange-traded Three-month TONA futures will enable more calibrated market risk management, mitigating counterparty credit risk and reducing burdensome operations associated with IRS.



## Product outline

Item	Outline
Underlying	Compounded daily TONA during the three-months' Reference Quarter
Quote	100 minus the figure of an interest rate per annum as compounded daily TONA during the Reference Quarter
Tick Value	1 Tick Value = JPY2,500
Tick Size	0.001 (0.001% = JPY250)
Contract Month	20 quarterly months(March, June, September and December) (5years)
Final Trading Day	The third Wednesday in three months of the start of the contract (ex) In the case of June 2023 contract, September 20 2023 Wednesday is the final trading day
Settlement Day	The following business day of the last trading day
Settlement Method	Cash settlement
Trading Hours	8:45 ~ 11:30 (Day session 1) 12:30 ~ 15:30 (Day session 2) 15:30 ~ 20:00 (Night session) ※Day session on final trading day will be 8:45 ~ 9:30
Matching Method	Auction method (Price/Time Priority)
Ticker Code	Refinitiv <0#JO3:> Bloomberg <YPOA Comdty> QUICK <030>

## Calculation method of TONA's daily compounded rate and final settlement price

[Prerequisite]

Reference Quarter: Suppose the number of calendar days during the Reference Quarter (From the third Wednesday of the Contract Month to the third Tuesday in three months ahead) is 90.

Business days	Day of the week	TONA[Average] (Final Results)	Applicable days	Interest rate calculation
1st day	Wed	0.019	1	} Total 90 days $1 + (0.019/100) \times (1/365)$ $1 + (0.015/100) \times (1/365)$ $1 + (0.018/100) \times (3/365)$ $1 + (0.017/100) \times (1/365)$
2nd day	Thu	0.015	1	
3rd day	Fri	0.018	3	
n day	Tue	0.017	1	

[Step 1]

Obtain the TONA (Final Results of Average) for respective day during the Reference Quarter.

[Step 2]

Multiply interest rate for each day (or days) to which the same daily TONA is applied during the Reference Quarter together and making the compounded rate of the Reference Quarter (90 days).

$$\{1 + (0.019/100) \times (1/365)\} \times \{1 + (0.015/100) \times (1/365)\} \times \{1 + (0.018/100) \times (3/365)\} \cdots \\ \times \{1 + (0.017/100) \times (1/365)\} - 1 = 0.00004625$$

[Step3]

To annualize the compounded rate of the 90 days at Step 2 above, multiply the rate by 365/90.

$$0.004625 \times 365/90 = 0.000187\dots$$

[Step4]

To make it expressed in percentage figure, multiply by 100 and round off at the fourth decimal point, making the rate (R). 100 – R will be the final settlement price.

$$100 - (0.000187\dots \times 100) = 100 - 0.019\dots = 99.981$$

## Practical use of Three-month TONA Futures

A Three-month TONA futures is an agreement to buy or sell a certain volume of the predetermined compounded daily TONA during specific three months' Reference Quarter.

For example, a price of the contract month of September 202X is indicative of the compounded daily rate during three months from the third Wednesday of September 202X to the third Tuesday of December 202X, which is then annualized.

Like quotation of bond price, its price quotation is displayed as 100 – Interest rate (%). Therefore, the following correlation is found between an interest rate and a futures price.



(Example) When the annualized compounded daily TONA rate for a certain Contract Month is 1.2%, the futures will be displayed as  $100 - 1.200 = 98.800$ .

### ◆ Utilizing Three-month TONA Futures as an indicator of a future interest rate

Price of Contract Month December 2023 at 99.980 →  $100 - 99.980 = 0.020\%$

Price of Contract Month March 2024 at 100.000 →  $100 - 100.000 = 0.000\%$

Price of Contract Month June 2024 at 100.020 →  $100 - 100.020 = \blacktriangle 0.020\%$

When prices of contract months in the distant terms are higher than those of nearer-term contract months like the case above, it is expected that JPY short-term interest rate will gradually fall for the next few months.

Interest rate futures, etc. financial futures transactions that involve an amount larger than the amount of margins that a customer is required to deposit for the transactions may cause a loss larger than the amount of margins, due to factors such as the fluctuation of interest rates. In commencing interest rate futures, etc. financial futures transactions, you should read a guide to financial futures transactions thoroughly and understand what is explained in it.