

FAQ on 91-day Government of India Treasury-Bill (T-Bill) Futures

Q1. What is the underlying for Futures on 91-day Government of India Treasury-Bill (T-Bill)?

A. Underlying is the 91 - day Government of India Treasury-bill (T-Bill).

Q2. What are the trading hours for T-Bill Futures?

A. The Trading Hours are from 9 a.m. to 5.00 p.m. on all working days from Monday to Friday and the contract Size is ₹ 2 lakh.

Q3. What is the quotation of T-Bill Futures?

A. The quotation is similar to the quoted price of the GoI T-Bill 100 minus futures discount yield (i.e. for a yield of 5% the quote would be $100 - 5 = 95$). The value of 1 basis point change in the futures discount yield would be ₹ 5

Q4. What is the maximum maturity for T-Bill Futures contracts?

A. The maximum maturity of the contract is for 12 months.

Q5. What is the contract cycle for T-Bill Futures?

A. The 'Contract Cycle' consists of three serial monthly contracts followed by three quarterly contracts expiring in March, June, September and December.

Q6. Which is the Expiry/last trading day/Final settlement day of T-Bill Futures contract?

A. The expiry / last trading day / final settlement day for the contract would be the last Wednesday of the expiry month. If any expiry day is a trading holiday, then the expiry/ last trading day/ final settlement day would be the previous trading day.

Q7. How is the contract value of a T-Bill futures contract determined?

A. ₹ 2000 * (100 – 0.25 * y)

where y is the futures discount yield.

For example, for a futures discount yield of 5%, the contract value would be – $2000 * (100 - 0.25 * 5) = ₹ 197,500$.

Q8. How is daily contract settlement value determined?

A. The ₹ 2000 * (100 – 0.25 * y_w)

(Here y_w is weighted average futures yield of last half an hour).

In the absence of last half an hour trading, theoretical futures yield would be considered for computation of Daily Contract Settlement Value.

Q9. What is the settlement mechanism of T-Bill Futures contract?

A. The 91-day T-Bill future would be settled in cash in Indian Rupees.

Q10. How is the Final Contract Settlement value 0 determined?

A. ₹ 2000 * (100 – 0.25 * y_f)
(Here y_f is weighted average discount yield obtained from weekly auction of 91-day T-Bill on the day of expiry).
The methodology of computation and dissemination of the weighted average discount yield would be publicly disclosed by RBI.

Q11. What is the Initial Margin levied in T-Bill Futures?

A. The Initial Margin requirement is based on a worst-case loss of a portfolio of an individual client across various scenarios of price changes. The various scenarios of price changes are so computed so as to cover a 99% VaR over a one day horizon. In order to achieve this, the price scan range is initially fixed at 3.5 standard deviation. The initial margin so computed is subject to a minimum of 0.1% of the notional value of the futures contract on the first day of trading in 91-day T-bill futures and 0.05% of the notional value of the futures contract thereafter (the notional value of the contract shall be ₹ 200,000). The initial margin is deducted from the liquid net worth of the clearing member on an online, real time basis.

Q12. What is the Extreme Loss Margin levied in T-Bill Futures?

A. Extreme loss margin of 0.03% of the value of the gross open positions of the futures contract is deducted from the liquid assets of the clearing member on an on-line, real-time basis.

Q13. What is the Calendar Spread Margin levied in T-Bill Futures?

A. Interest rate futures position at one maturity hedged by an offsetting position at a different maturity would be treated as a calendar spread. The calendar spread margin shall be at a value of ₹ 100/- for spread of one month, ₹ 150 for spread of two month, ₹ 200/- for spread of three month and ₹ 250/- for spread of four month and beyond. The benefit for a calendar spread would continue till expiry of the near month contract. For a calendar spread position, the extreme loss margin shall be 0.01% of the notional value of the far month contract.

Q14. How is the volatility in the Interest Rate Futures contract estimated?

A. The EWMA method is used to obtain the volatility estimate every day fixing the price scan range at 3.5 standard deviation. The estimate at the end of time period t (σ_{ydt}) is arrived at using the volatility estimate at the end of the previous time period, i.e., as at the end of $(t-1)$ time period

(σ_{ydt-1}) , and the return (r_{ydt}) observed in the futures market during the time period t . The formula is as under:

$$(\sigma_{ydt})^2 = \lambda (\sigma_{ydt-1})^2 + (1 - \lambda) (r_{ydt})^2$$

where,

λ (lambda) is a parameter which determines how rapidly volatility estimates changes. The value of λ is fixed at 0.94.

- i. σ_{ydt} (sigma) is the standard deviation of daily logarithmic returns of discount yield of 91-day T-Bill futures at time t .
- ii. The "return" is defined as the logarithmic return: $r_{ydt} = \ln(Y_{dt}/Y_{dt-1})$ where Y_{dt} is the discount yield of 91-day T-Bill futures at time t . The plus/minus 3.5 sigma limits for a 99% VAR based on logarithmic returns on discount yield of 91-day T-Bill futures would have to be converted into price changes through the following formula :

$$\sigma_{pt} = D * \sigma_{ydt} * Y_{dt}$$

where

σ_{pt} means the standard deviation of percentage change in price at time t

D means Modified Duration

Y_{dt} = Discount Yield for 91-day T-Bill futures at time t

σ_{ydt} (sigma) means the standard deviation of daily logarithmic returns of discount yield at time t

The margin on long position would be equal to $100 * (D * 3.5 \sigma_{ydt} * Y_{dt})$ percentage of the notional value of the futures contract and the margin on short

position would be equal to $100 (D^* - 3.5\sigma_{ydt} * Y_{dt})$ percentage of the notional value of the futures contract. The Modified Duration for 91 day T-Bill Futures shall be -0.25.

- iii. The volatility estimation and margin fixation methodology is to be clearly made known to all market participants so that they can compute the margin for any given closing level of the interest rate futures price. Further, the trading software itself should provide this information on a real time basis on the trading workstation screen.
- iv. During the first time-period on the first day of trading in 91-day T-bill futures, the sigma would be equal to 2.7 %.

Q15. What is the Position Limit at Client level?

- A. The gross open positions of the client across all contracts not to exceed 6% of the total open interest or ₹ 300 crore whichever is higher. The Exchange disseminates alerts whenever the gross open position of the client exceeds 3% of the total open interest at the end of the previous day's trade.

Q16. What is the Position Limit at Trading Member level?

- A. The gross open positions of the trading member across all contracts not to exceed 15% of the total open interest or ₹ 1000 crore whichever is higher.

Q17. What is the Position Limit at Clearing Member level?

- A. No separate position limit is prescribed at the level of clearing member.

Q18. What is the Position Limit for FIIs?

- A. In case of Foreign Institutional Investors registered with Securities and Exchange Board of India the total gross long (bought) position in cash and Interest Rate Futures markets taken together should not exceed their individual permissible limit for investment in government securities and the total gross short (sold) position, for the purpose of hedging only, should not exceed their long position in the government securities and in Interest Rate Futures, at any point in time.