

FAQ on 10-Year notional coupon-bearing Government of India (GoI) Security Futures

Q1. What is Interest Rate Futures?

A. Interest Rate Futures means a standardised interest rate derivative contract traded on a recognized stock exchange to buy and sell a notional security or any other interest bearing instrument or an index of such instruments or interest rates at a specified future date, at a price determined at the time of the contract.

Q2. What is the need for Interest Rate Futures?

A. Interest rate risk affects not only the financial sector, but also the corporate and household sectors. Banks, insurance companies, primary dealers and provident funds bear a major portion of the interest rate risk on account of their exposure to government securities. These entities need a credible institutional hedging mechanism. Interest rate derivative products are the primary instruments available to hedge interest rate risk. Firms that may suffer losses due to fluctuations in interest rates (such as banks, brokerage houses, insurance companies) use these contracts to hedge (reduce risk). Speculators use these contracts to bet on lower or higher market interest rates in the future. The value the contract rises and falls in an inverse proportion to the rise and fall in market interest rates.

Q3. What are the benefits of Interest Rate Futures?

A. Interest rate futures, a derivative instrument with linear pay-offs, provides benefits typical to any Exchange-traded product, such as:

- a. Standardization – through standardization, the Exchanges offer market participants a mechanism for gauging the utility and effectiveness of different positions and strategies.
- b. Transparency – transparency, efficiency and accessibility is accentuated through online real time dissemination of prices available for all to see and daily mark-to-market.
- c. Counter-party Risk – the credit guarantee of the Clearing Corporation eliminates counter-party risk thereby increasing the capital efficiency of the market participants.

Q4. What is the underlying for 10-Year notional coupon-bearing Government of India (GoI) Security Futures (10-Year Security Futures)?

A. Underlying is the 10-year notional coupon-bearing GoI security.

Q5. What is the coupon for 10-Year Security Futures?

A. The notional coupon is 7% with semi-annual compounding.

Q6. What is the trading hours for 10-Year Security 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 Rs. 2 lakh.

Q7. What is the quotation of 10-Year Security Futures?

A. The quotation is similar to the quoted price of the GoI security. The day count convention for interest payments is on the basis of a 360-day year, consisting of 12 months of 30 days each

and half yearly coupon payment.

Q8. What is the maximum maturity for 10-Year Futures contracts?

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

Q9. What is the contract cycle for 10-Year Security Futures?

A. The 'Contract Cycle' consists of four fixed quarterly contracts for entire year, expiring in March, June, September and December.

Q10. What is the delivery month for 10-Year Security Futures contracts?

A. The 'delivery month' is the last month of the expiring contract, i.e., March, June, September and December.

Q11. What are the deliverable grade securities for 10-Year Security Futures?

A. Exchanges to select their own basket of securities from the eligible 'deliverable grade securities'. The deliverable grade securities are the GoI securities maturing at least 7.5 years but not more than 15 years from the first day of the delivery month, with a minimum total outstanding stock of Rs. 10,000 crore.

Q12. What is the conversion factor for deliverable grade securities in 10-Year Security Futures?

A. The 'conversion factor' for deliverable grade security is equal to the price of the deliverable security (per rupee of the principal), on the first day (calendar day) of the delivery month, to yield 7% with semiannual compounding.

For deliveries into 10-Year Notional Coupon-bearing GoI security futures, the deliverable security's remaining term to maturity is calculated in complete three-month quarters, always rounded down to the nearest quarter. If, after rounding, the deliverable security lasts for an exact number of 6-month periods, the first coupon is assumed to be paid after 6 months. If, after rounding, the deliverable security does not last for an exact number of 6-month periods (i.e. there are an extra 3 months), the first coupon is assumed to be paid after 3 months and accrued interest would be subtracted.

Q13. How the invoice price of 10-Year Security Futures contract is arrived at?

A. 'Invoice price' of the respective deliverable grade security is the futures settlement price times a conversion factor plus accrued interest.

Q14. Which is the last trading day of 10-Year Security Futures contract?

A. Last trading day is the seventh business day prior to the last business day of the delivery month.

Q15. Which is the last delivery day of 10-Year Security Futures contract?

A. Last delivery day is the last business day of the delivery month.

Q16. How daily settlement price is determined?

A. The Daily Settlement Price is the closing price of the 10-year Notional Coupon-bearing Gol security futures contract on the trading day. (Closing price = Weighted Average price of the futures for last half an hour). In the absence of last half an hour trading, the theoretical price would be considered as the daily settlement price (DSP) and is determined in the following manner:

Step 1: The DSP is the volume weighted average price (VWAP) of the trades in the last 30 minute of trading, provided there are at least 5 trades for a minimum aggregate notional value of Rs. 10 crore. Failing which, trades during the last 60 minutes are used for the calculation of VWAP, subject to at least 5 trades for Rs.10 crore. Failing which trades during the last 120 minutes are used for the calculation of VWAP, subject to at least 5 trades for Rs.10 crore.

Step 2: If the DSP cannot be calculated as above, a theoretical price is used. This theoretical price is the minimum of the theoretical futures prices of all the securities in the delivery basket chosen by the Exchange. The theoretical futures price of each security is the weighted average cash price of outright trades of that security during the day on the NDS Order Matching platform, adjusted for cost of carry, subject to at least 5 trades for Rs.10 crore. If there are not enough trades as required above or there is a material market event during the trading hours, the theoretical futures price of each security is the FIMMDA / PDAI / Bloomberg revaluation price(s) (published on the FIMMDA website on a daily basis: URL <http://www.fimmda.org/default.asp?access=na>), adjusted for cost of carry. The cost of carry is computed for the period upto the last business day of the delivery month.

If, however, the near quarter contract is liquid (5 trades for Rs. 10 crore during the last 30 minutes, 60 minutes or 120 minutes, as the case may be), the VWAP of the near quarter contract is adjusted for cost of carry to arrive at the theoretical price for subsequent quarterly contracts. Further, if near quarter contract is illiquid while the next quarter contract is liquid, then the VWAP of the nearest liquid quarter contract is used to derive the prices of the illiquid previous as well as the subsequent quarter contracts.

The cost of carry for the above purpose includes the financing cost @ 91-day treasury bill rate and the coupon of the particular security.

Q17. What is the Delivery Schedule for 10-Year Security Futures?

A. The delivery schedule is as follows:

T +0 day

Delivery Notice: It is the day when the selling clearing member (CM) sends a notice to the Clearing Corporation (CC) expressing his intention to deliver along with details of the security to be delivered. The CM sends the notice before 6:00 pm IST on the second business day prior to the day he wishes to deliver. For example, if he wishes to deliver on 4th September 2009 and 2nd and 3rd are business days, he gives notice before 6 PM on 2nd September 2009. He can deliver on any business day during the delivery month of the contract. Along with the notice, he provides the notional face value (equal to its short position in the expiring contract), security ISIN, coupon, maturity date, issuance date, coupon convention, and other details as may be sought by the CC. Based on these details, the CC calculates the invoice price.

Q18. How is the Delivery allocated to buyers?

A. **Allocation:** The CC identifies the eligible long positions for allocation and assigns the

deliveries to long position holders at client level starting with the highest vintage till the allocation is over. Vintage data is computed and maintained at client level for every contract and is tracked by the CC on end of day basis. For a given vintage, if the contracts to be allocated (Short) are less than the total long positions, the allocation to such long position holders is done on a 'random' basis.

Based on the client level allocations as above, CC computes CM level deliverable/receivable obligations using multilateral netting. It intimates the identified long position holders, by 8 pm IST on the date of receipt of notice, the details of the securities that they would be receiving and the invoice price.

The seller CM is not permitted to fulfill an individual futures contract by delivering a mixed portfolio of deliverable security (for example, Rs.1,20,000 face value of one issue and Rs. 80,000 face value of another issue is not permissible). However, a selling CM making delivery for more than one futures contract, say two contracts, may deliver two deliverable securities for two different contracts (Rs.2,00,000 face value of one issue for one contract and Rs.2,00,000 face value of another issue for the other contract).

T + 2 day

On the second business day following the receipt of the delivery notice, the CM discharges its obligations and the CC completes the settlement accordingly.

Q19. What is the Initial Margin levied in 10-Year Security 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 2.33% of the notional value of the futures contract on the first day of trading in 10-year Notional Coupon-bearing Gov security futures and 1.6% of the value of the futures contract thereafter. The initial margin is deducted from the liquid net worth of the clearing member on an online, real time basis.

Q20. What is the Extreme Loss Margin levied in 10-Year Security Futures?

A. Extreme loss margin of 0.3% 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.

Q21. What is the Calendar Spread Margin levied in 10-Year Security Futures?

A. Interest rate futures position of one maturity (say, long March 2010) hedged by an offsetting position at a different maturity (say, short December 2009) is treated as a calendar spread. The calendar spread margin is at a value of Rs.2000/- per month of spread. The benefit for a calendar spread continues till expiry of the near month contract.

Q22. 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. During the first time-period on the first day of trading in 10-year Notional Coupon-bearing Gov security futures, the sigma is equal to 0.8%. The estimate at the end of time period t (σ_{yt}) 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_{yt-1}), and the return (r_{yt}) observed in the futures market during the time period t. The formula is as under:

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

where,

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

- i. σ_{yt} (sigma) is the standard deviation of daily logarithmic returns of yield of 10-year Notional Coupon-bearing Gol security futures at time t.
- ii. The "return" is defined as the logarithmic return: $r_t = \ln(Y_t / Y_{t-1})$ where Y_t is the yield of 10-year Notional Coupon-bearing Gol security futures at time t.
- 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.

Q23. What is the methodology to compute margin?

A. The formula for computing margin (Methodology A as specified in the Report) is as under:

$$\sigma_{pt} = D \cdot \sigma_{yt} \cdot Y_t$$

where,

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

D is Modified Duration;

Y_t is the yield of 10-year Notional Coupon-bearing Gol security futures at time t; and

σ_{yt} (sigma) is the standard deviation of daily logarithmic returns of yield of 10-year Notional Coupon-bearing Gol security futures at time t.

The percentage margin on long position would be equal to $100 (D \cdot 3.5 \sigma_{yt} \cdot Y_t)$ and the percentage margin on short position would be equal to $100 (D \cdot (-3.5 \sigma_{yt}) \cdot Y_t)$. The Modified Duration for 10-Year Notional Coupon-bearing Gol security futures is 10.

For this purpose, the yield for 10-Year benchmark Gol security, as published by FIMMDA, is used. In respect of FII, margin is to be collected either in cash or sovereign securities rated 'AAA'. For the purpose of intra-day updation of VaR, the Exchanges use the yield of the benchmark 10-Year bond, from the NDS Order Matching platform.

Q24. What is the process of collection and enforcement of margin?

A. The client margins (initial margin, extreme loss margin, calendar spread margin and mark to market settlements) are compulsorily collected and reported to the Exchange by the members. The Exchange imposes stringent penalty on members who do not collect margins from their clients. The Exchange also conducts regular inspections to ensure margin collection from clients.

Q25. How client's money is safeguarded?

A. The Clearing Corporation should segregate the margins deposited by the Clearing Members for trades on their own account from the margins deposited with it on client account. The margin deposited on client account is not utilized for fulfilling the dues which a Clearing Member may owe the Clearing Corporation in respect of trades on the member's own account. The client's money is to be held in trust for client purpose only. The following process is to be adopted for segregating the client's money vis-à-vis the clearing member's money:

- i. At the time of opening a position, the member should indicate whether it is a client or proprietary position.
- ii. margins across the various clients of a member should be collected on a gross basis and should not be netted off.
- iii. When a position is closed, the member should indicate whether it was a client or his own position which is being closed.
- iv. In the case of default, the margin paid on the proprietary position only is used by the Clearing Corporation for realizing its dues from the member.

Q26. What action to be followed if Clearing Member (CM) fails to honour the settlement obligation?

A. In case there is a failure to honour the settlement obligation by the CM, the following action is taken:

Selling CM fails to deliver the securities

- a. **T +0 day:** Selling CM gives intention to deliver the securities
- b. **T+2 day:** Buying CM pays-in funds and the selling CM fails to deliver the securities
- c. **T+2 or T+3 day:** CC conducts buy-in auction of the securities.
- d. In case of successful auction, the defaulting CM is debited by:
 - i. the actual auction price,
 - ii. difference in invoice price and auction price, if the auction price is less than the invoice price, and
 - iii. a penalty of 2% of the face value of security short delivered.

In case of unsuccessful auction, transaction is closed out wherein the defaulting CM is debited by:

- i. invoice price, and
- ii. a penalty of 5% of the face value of security short delivered.

In respect of the seller in an auction failing to honour the auction obligations, he is debited by:

- i. invoice price, and
- ii. a penalty of 3% of the face value of security short delivered

These penalties are passed on to the buying CM, who passes it on to the buying client.

Buying CM fails to pay-in funds

- a. **T +0 day:** Selling CM gives intention to deliver the securities
- b. **T+2 day:** Selling CM delivers securities and the buying CM fails to pay-in funds.

- c. The CC pays out funds to the selling CM on T+2 day

Further,

- a. In case of a settlement shortage of Rs. 5 lakh or more, the trading facility of all trading members clearing through the buying CM is withdrawn in the Currency Derivatives Segment and the securities pay-out to the buying CM is withheld.
- b. If the buying CM is short for an amount of Rs. 2 lakh or more on six or more occasions in the preceding three months, the trading facility of all the trading members clearing through the buying CM is withdrawn in the Currency Derivatives Segment and the securities pay-out to the buying CM is withheld.
- c. A penalty of 0.07% per day is to be levied on the amount of the shortage.

The trading facility is restored and securities withheld are released on the buying CM making good the shortage amount in all the above cases.

Regulatory Penalty: In case a selling CM defaults in delivering securities 5 times during a period of preceding 6 months, the trading facility of all the trading members clearing through the CM are to be withdrawn for 7 days.

Q27. What is the margin and action on deliverable positions?

A. Margins on physical delivery positions: For positions marked for delivery, a margin equal to VaR of the futures on the invoice price plus 5% of face value along with mark to market adjustments are charged both to the buying client and selling client. The margins are levied from the intention day and are released on the completion of the settlement.

Margins from last trading day to last intention day: For positions from last trading date till date of intention in cases where no intention is provided, a margin amount equal to VaR of the futures on the invoice price of the costliest security from the deliverable basket plus 5% of face value along with mark-to-market adjustments based on the underlying closing prices of the costliest security from the deliverable basket is charged on both buying client and selling client. The margins are levied from the last trading day till the day of receipt of intention to deliver.

Action in case no intent to deliver is provided: In case no intent is provided by the selling CM till two business days prior to the last delivery date, it is presumed that selling CM has failed to deliver the security and the auction mechanism, as specified for security shortages, is activated. The auction takes place one business day prior to the last delivery date.

Q28. 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 Rs 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.

Q29. 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 Rs. 1000 crore whichever is higher.

Q30. What is the Position Limit at Clearing Member level?

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

Q31. 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.

Q32. What is the eligibility criteria for the exchanges, Clearing Corporations / Clearing Houses and members?

A. The Interest Rate Derivative contracts are traded on the Currency Derivative Segment of a recognized Stock Exchange. The Clearing Corporation / Clearing House of Interest Rate Futures is same as for currency derivatives segment. The members registered by SEBI for trading in Currency/Equity Derivative Segment are eligible to trade in Interest Rate Derivatives also, subject to meeting the Balance Sheet networth requirement of Rs 1 crore for a trading member and Rs 10 crores for a clearing member.

Q33. What is the provision for revision of the basket of deliverable grade securities?

A. Exchanges disclose, upfront to the market participants, the composition of the basket of deliverable grade securities and the associated conversion factors for each of the quarterly contracts. To the basket of deliverable grade securities disclosed upfront by the Exchange for each of the quarterly contracts, additions, if any, shall be made not later than 10 business days before the first business day of the delivery month.

Q34. What is the delivery mechanism of 10-year Security Futures contract?

A. Buyer and seller in Interest rate Futures on 10-year Notional Coupon bearing Gol security to take and give securities respectively in the demat mode through the depository system.