

3. **Hedging using Interest rate futures**

You have Rs.10 lakhs worth Govt. Bonds with maturity period of around 10 years. You expect interest rates to go up and as a result the prices of the bonds to fall. In such case you can hedge by selling Interest rate futures.

Nominal Hedge :  $\frac{\text{Nominal value of cash position}}{\text{Nominal value of futures contract}}$

Sell 5 NSE10Y06 futures contracts (nominal value Rs. 10 Lakhs). The outcome of the strategy is given below :

Date		Cash market position	NSE10Y06 position
Aug 01, 200X	Nominal value	1000000	1000000
	Price	110.6	99.3
	Market Value	1106000	993000
	Action	Hold	Sell 5 Contracts
Aug 27, 200X	Nominal value	1000000	1000000
	Price	107.35	96.05
	Market Value	1073500	960500
	Action	Hold	Buy 5 contracts
	Loss/profit	-32500	32500

● **Frequently asked questions : FAQ's**

1. **Accrued Interest** : The interest accrued from the last interest payment date to the valuation date.
2. **Basis** : The difference between the price of the underlying instrument and the corresponding futures price
3. **Bond** : Borrowing in the market which is certificated in the form of securities vesting creditor's claim.
4. **Cash and Carry arbitrage** : Creating a risk free or a neutral position by exploiting a mispricing on the cash or the derivatives market , by simultaneous buying of bond and selling of the corresponding futures contract
5. **Cash Settlement** : Settling of a contract where the cash differential is paid or received instead of physically delivering a underlying.
6. **Clean Price** : Present value of a bond less the accrued interest.
7. **Close out** : Liquidating a short or a long futures position by taking a counter position in the same contract.
8. **Cost of carry** : Net financing costs
9. **Coupon** : Nominal interest rate of a bond and part of the bond certificate vesting the right to receive interest.
10. **Daily settlement price** : The daily valuation price of the futures contract as determined by NSE.
11. **Discounting** : Calculating the present value of the future cash flows of a financial instrument

12. **Expiration Date** : The date on which the futures contract expires. In case of NSE, the last Thursday of a contract month.
13. **Final settlement price** : The price on the last trading day, which is determined by NSE according to specified guidelines.
14. **Hedging** : Using a strategy to cover or protect an existing portfolio against unfavourable price fluctuations.
15. **Long Position** : An open buyers position in the futures contract
16. **Margin** : Collateral, which must be pledged to cover for contract fulfillment.
17. **Mark-to-market** : The daily revaluation of the futures positions after close of trading to calculate daily profits or losses on positions.
18. **Maturity date** : Same as Expiry Date
19. **Present Value** : The value of a security, as determined by its aggregated discounted repayments.
20. **Short Positions** : An open Sellers position in the futures contract.
21. **Spread positions** : In the case of futures contract, the simultaneous sale and purchase of futures with the same underlying but with different maturity dates (Time spread) or of different futures( inter-product spread)
22. **Underlying Instrument** : The financial instrument on which a futures contract is based.
23. **Yield** : The percentage return on an investors money in terms of current prices(Annual dividend/interest on bonds etc.)
24. **Yield Curve** : The graphic description of the relation of interest rates to remaining lifetime
25. **Yield to Maturity** : The calculation of an average rate of return on a bond (with a maturity over one year) if it is held to its maturity date and if all cash flows are reinvested at the same rate of interest.
26. **Zero Coupon Bond** : A debt security that offers no payments of interest – only payment of full face value at maturity.

● **Disclaimer:**

Market conditions can lead to substantial profit or loss. Investors are advised to seek adequate product and market knowledge as well as proper investment advice before trading futures.

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**Interest Rate Futures**

**NATIONAL STOCK EXCHANGE OF INDIA LIMITED**

◆ **INTEREST RATE FUTURES**

National Stock Exchange of India (NSE) has launched Interest rate futures in June, 2003. The current interest rate futures products are:

- 1. Notional 10 Year Zero Coupon Bond - Symbol : NSE10YZC
- 2. Notional 10 Year Coupon Bearing Bond (6%) - Symbol : NSE10Y06
- 3. Notional 91 Day Treasury Bill - Symbol : NSETB91D

Investors can buy and sell the interest rate futures contracts from different locations in the country through registered NSE brokers in the same manner as they buy and sell equities and derivatives today. The financial settlement of all trades is guaranteed by National securities and clearing corporation Ltd. (NSCCL).

● **Pricing:**

The pricing of the futures contract will be based on the Zero Coupon Yield Curve of NSE.

● **Zero Coupon Yield Curve (ZCYC):**

The 'zero coupon yield curve' (ZCYC for short) starts from the basic premise of 'time value of money' – that a given amount of money due today has a value different from the same amount due at a future point of time. At any point of time therefore, different spot rates of interest are associated with different terms to maturity. The term structure of interest rates, or ZCYC, is the set of such spot interest rates. The present exercise estimates the ZCYC using the 'Nelson-Siegel' (NS) functional form [Nelson & Siegel (1987)] using data on secondary market trades in Government securities reported on the Wholesale Debt Market segment of the National Stock Exchange (NSE-WDM). Further details in this regard are available on the NSE website at the following path [www.nseindia.com/content/debt/debt\\_zcyc.htm](http://www.nseindia.com/content/debt/debt_zcyc.htm)

What are "Interest rate derivatives" ?

A derivative is a financial instrument, which derives its value from the underlying. In respect of Interest rate derivatives, the underlying factor is the interest rate. Interest rate derivatives enable the various users to deal with the volatility associated with interest rate movement effectively.

What is a futures contract?

A futures contract is a forward contract, which trades on an exchange. Interest rate futures, entail notional purchase and sale of a bond at the traded price and a notional delivery of the underlying on the specified expiry date.

How do Futures Trade?

In the cash market, issuers issue Bonds, T-Bills, securities etc. and investors trade in those bonds and securities. However, with futures, there is no issuer entity, and hence there is no fixed issue size. Buyers and sellers determine the quantity of futures contracts available in the market. A contract (trade) takes place when a buy order and sell order matches on the screen. The total number of net open contracts that exist at a point is called open interest.

Why should I trade in Interest rate Futures?

Futures trading in Interest rate can be generally used for the following purposes :

- 1. **Taking a view on Interest rates :**  
Trading involves entering into positions in the Futures market for the

purpose of making a profit, assuming that market developments are forecast properly.

- 2. **Hedging:**  
People holding a portfolio of bonds or investments subject to interest rate risk can reduce losses arising out of interest rate volatility by hedging.
- 3. **Arbitrage:**  
Strategies which take into account the price difference between the futures price and the underlying price.
- 4. **Spreading:**  
Spread trading is a trading method for trader who observes mispricing in the relative value of two different contracts. The same can be in two contracts on same underlying, with different expiries or between two contracts on two different underlying.

How should I start trading Interest rate Futures?

Interest rate futures can be bought and sold through the trading members of the National Stock Exchange.

You may contact NSE members before deciding on the member through whom you would like to commence trading. To open an account with the trading member you will be required to complete the formalities which include signing of the member – constituent agreement, constituent registration form and a risk disclosure document. The trading member will allot you a unique client identification number.

To begin trading, you must deposit requisite amount of cash or collateral, with the trading member.

What is Initial / up front margin?

Futures trading involves the payment of initial margins. At the time of starting your trading activities through the NSE, you would be required to pay an initial / upfront margin to your broker. The initial margin serves as a security deposit, which in turn the broker has to pay to the exchange.

What is daily mark to market settlement?

Your positions in the interest rate futures market will be revalued or 'marked to market' everyday. This is done by the exchange to assess the value of your positions on a daily basis. If the market value of your position shows a loss, then you would be required to pay the difference. Similarly, in case your position has gained in value, you will be paid the profit amount.

The Daily Mark to Market of all Interest rate futures contract is on the T+1 basis. The Daily Mark to Market settlement price is the closing price of the contract. In case the contract is illiquid, the theoretical futures price of the contract is used as the settlement price.

How can my trades be cleared and settled ?

All open positions in the Interest rate futures are cash settled on the expiry / settlement day through the clearing members with whom the trading members are associated.

For a RBI regulated entity, they can get their trades cleared through a Professional clearing member or they can become participant clearing members themselves for clearing trades for self.

What happens on the expiry of a contract?

Upon expiry, the futures contract will be cash settled by a cash amount equal to the difference between the previous days settlement price of the contract and the final settlement price as on the last trading day. There is no physical settlement of the Interest rate derivatives. The final settlement is done on a T+1 basis. The final settlement price of the contract is the underlying close price arrived at using the NSE ZCYC

● **Contract Specifications :**

Contract Value	Rs.2,00,000
Lot size	2000
Tick size	Re.0.01
Quotation Basis	Notional 10 Y Bonds : Price Based Notional 91 Day T-bill : Yield Based (100-yield)
Expiry date	Last Thursday of the month
Settlement Basis	Cash
Settlement period	T + 1
Trading hours	9.55A.M. to 3.30 P.M.
Contract months	Three near months and fixed quarterly months of March cycle with upto 12 months coverage
Price limits	Not applicable
Initial margins	Notional 10 Y Bonds : Higher of 3.5 standard deviations or 2% Notional 91 Day T-bill : Higher of 3.5 standard deviations or 0.2%
Exposure margins ( II line of defense)	Notional 10 Y Bonds : 1% Notional 91 Day T-bill : 0.1%
Position Limits	Only client level limits (Higher of Rs. 100 Cr. Or 15 % of open interest in the near month contract)

● **Some Basic Strategies:**

- 1. **Have a view that the Interest rates will Fall**  
Current Implied Interest rate : 5.95%  
Buy one NSE10YZC Future contract @ Rs. 55.40  
1 Contract = 2000 units  
After a few Days:  
Implied Interest rate : 5.00%  
Sell one NSE10YZC @ Rs. 60.80  
Gain Rs. 10,800/- [2000\*(60.80-55.40)]
- 2. **Have a view that the Interest rates will rise**  
Current Implied Interest rate : 5.00%  
Sell one NSE10YZC Future contract @ Rs. 60.80  
1 Contract = 2000 units  
After a few Days:  
Implied Interest rate : 5.32%  
Buy one NSE10YZC @ Rs. 59.00  
Gain Rs. 3600/- [2000\*(60.80-59.00)]