

# Interest-rate Futures in India – Interesting Future?

**A** report by the RBI and SEBI, together in May 2008 recommended for starting physically settled Interest Rate Future (IRF) contracts on a 10 year GoI coupon bearing security. IRFs will be useful to those who have interest on the future interest rates and would like to benefit from interest rate movements. The author here outlines the pitfalls and positive aspects of IRF. He hopes that Indian markets are moving from developing-to-developed system and there is a scope for IRF to play a role in Indian market.



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## Introduction

1. Interest rate is the most crucial element while doing financial planning, whether it is corporate, retail or individuals. It affects everyone. Debt markets in India comprise of sovereign and corporate which are primary and secondary markets.

Banks, insurance companies, primary dealers and provident funds bear the maximum risk on interest rate fluctuations due to exposure to the Government securities. Savings by households and housing loans both bear the maximum hit on interest rate fluctuations within the household sector which actually drives growth for many corporates. Hence, it is imperative that a hedging mechanism is derived since betting on outlook of the interest rates provides the maximum savings to all sections of the society especially during rising inflation which invariably leads to rise in interest rates. This is possible through trading in derivatives which are listed on stock exchanges and, hence, tradable to provide liquidity for easy buy-sell, called as Exchange-Traded Interest-Rate Derivatives.

## Interest Rate Futures : As recommended by RBI

2. A report by RBI and SEBI, together in May 2008 recommended starting physically settled Interest Rate Future (IRF) contracts on a 10-year GoI coupon bearing security.

Volumes on IRF started off with Rs. 267 crores turnover on NSE which is notional 10-year GoI bond bearing a notional 7 per cent interest rate coupon payable half-yearly and is tradable in lot size of Rs. 2 lakh. Nearly 638 members are registered for this product with 21 being banks. Banks contributed 33 per cent of the total volume with most active being Union Bank of India. Central Bank of India executed the single largest trade.

## Usefulness and advantages

3. IRFs will be useful to those who have a view on the future interest rates and would like to benefit from interest rate movements. It is also expected to help those who have a large portfolio of GoI securities and would like to hedge against losses from interest rate movements. The volatility of interest rates has increased over last couple of years. The annualised volatility of yield of

10-year benchmark Government of India securities for the calendar year 2008 has been 17 per cent as compared to 9 per cent in 2007.

### Eligible parties

4. Banks, primary dealers, mutual funds, insurance companies, corporate houses, financial institutions and member-brokers are eligible to participate in IRF trading on the exchange. The members registered with the SEBI for trading in currency/equity derivatives segments are eligible to trade in interest rate derivatives, subject to the trading/clearing member having a net worth of Rs. 1 crore and Rs. 10 crore, respectively. The product will have four fixed-quarterly contracts for the entire year ending March, June, September and December.

### Key features of IRF

5. The key feature of the instrument is that the participant who has sold IRFs contract in an expiring contract holds the right to decide when to initiate delivery. This means that the holder who has bought futures contract and has not squared off or carried forward his outstanding positions to the next contract cycle, will have to take delivery as intimated by the exchange during any day of the delivery month.

### Pitfalls

6. IRF volumes on NSE, the only exchange that hosts trading, have recorded a significant fall since the launch on August 31, 2009. The average daily turnover has declined from over Rs. 267 crore on August 31 to Rs. 13 crore towards the end of 2009. The number of contracts fell from over 14,500 to 327. Main reason was the poor response from foreign banks and insurance companies who prefer Over-the-Counter markets (OTC) as rates there are based on overnight borrowings, or Mibor, and it is more liquid. OTC for IRF's generates about Rs. 10 bn volumes daily. IRDA rules for insurance companies needs to change to allow insurance companies to trade IRF.

Dry volumes on NSE have led to rates not being visible to dealers to trade on NSE. SEBI and RBI have stipulated that only bonds with maturities

of 7 and half years to 15 years can be used as underlying assets. As of now, only 19 Government securities fit the bill with delivery being a constraint.

The future lot size is small with Rs. 2 lakhs while the minimum value per contract in cash segment is Rs. 5 crores. Hence, for every one transaction in the cash market, 250 contracts have to be purchased on NSE while in the OTC market for IRFs, the minimum value of each contract is Rs. 25 crore.

### Global scenario

7. Globally, IRFs account for 25-30 per cent of derivative transactions. The most popular global contract is the Eurodollar futures contract which exchange traded on 3 months Eurodollar deposits rates. Most global market futures trade on long-term (10 years and above) and short-term (maturity upto one year) of the yield curve.

Futures on long-term are called Long Bond Futures and short-term are called T-Bill futures and reference rate futures. Some markets do trade futures with multiple maturities with poor volumes. Hence, volumes are only pertinent to either long or short maturities.

In global markets, underlying for the long bond futures is a notional coupon bearing bond which is generally physically settled though some markets do cash settlements. Chicago Board of Trade (CBOT) trades futures on the 10 year Municipal Bond Index, which is cash settled.

Broadly, there are concepts like conversion factors, basket of deliverable bonds, delivery month. Price quote for long bond futures is the clean price of the notional bond, across markets. On short maturities bit, T-Bill futures are essentially the futures on notional T-Bills which are physically settled. But, reference rate futures are futures on reference rates like London Inter-Bank Offer Rates (LIBOR) and are cash settled.

Over a period of time, these reference rate futures have rendered T-Bill futures out of fashion. Global majors such Japan, Singapore and Hong Kong trade futures on each country's inter-bank offer rate like Japan Inter-Bank Offer Rates (JIBOR) and Singapore Inter-Bank Offer Rates (SIBOR) etc.

## Indian Structure

8. Products launched are long-term maturity oriented, *i.e.*, 10 year notional G-secs. This is in line with the international practice on interest rate derivatives. Short-term maturity products such as (Mumbai Inter-bank Offer Rate) MIBOR and (Mumbai Implicit Forward Offer Rate) MIFOR would be launched later.

Unlike the OTC interest rate swap market (OIS), which is an inter-bank market, exchange-traded IRFs are seen as more transparent and result in better price discovery.

The first initial launch of IRF's in 2003 was withdrawn since banks were not allowed to take positions despite the fact that they hold one of the largest GoI securities. Banks, non-resident Indians, com-

panies, primary dealers and foreigners can trade now. Foreign investors can trade too if they have the underlying security, but not for speculative purposes. The main reason of lower lot size on future contract was to involve individuals to hedge their interest rate risks.

## Conclusion

9. Indian markets are moving from developing-to-developed system and current criticism would fade away as benefits are understood just like the F&C section in equity markets. 70 per cent of turnover in exchanges are coming from F&O. Hence, while issues exist just like any other new product, it does not write-off the value while going through the innovative learning curve cycle.

## ANNEX - I : INTRICACIES OF THE INSTRUMENT

### PRODUCT DESIGN, MARGINS AND POSITION LIMITS FOR 10-YEAR NOTIONAL COUPON BEARING GOVERNMENT OF INDIA (GOI) SECURITY FUTURES

#### Underlying

10-Year Notional Coupon-bearing GoI security

#### Coupon

The notional coupon would be 7% with semi-annual compounding.

#### Trading Hours

The Trading Hours would be from 9 a.m. to 5.00 p.m. on all working days from Monday to Friday.

#### Size of the Contract

The Contract Size would be Rs. 2 lakh.

#### Quotation

The Quotation would be similar to the quoted price of the GoI security. The day count convention for interest payments would be on the basis of a 360-day year, consisting of 12 months of 30 days each and half-yearly coupon payment.

#### Tenor of the Contract

The maximum maturity of the contract would be 12 months.

#### Available Contracts

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

#### Daily Settlement Price

The Daily Settlement Price would be the closing price of the 10-year Notional Coupon-bearing GoI 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, to be determined by the exchanges, would be considered as Daily Settlement Price. The exchanges will be required to disclose the model/methodology used for arriving at the theoretical price.

#### Settlement Mechanism

The contract would be settled by physical delivery of deliverable grade securities using the electronic book entry system of the existing Depositories (NSDL and CDSL) and Public Debt Office (PDO) of the RBI. The delivery of the deliverable grade securities shall take place from the first business day of the delivery month till the last business day of the delivery month. The owner of a short position in an expiring futures contract shall hold the right to decide when to initiate

delivery. However, the short position holder shall have to give intimation, to the Clearing Corporation, of his intention to deliver two business days prior to the actual delivery date.

#### **Deliverable Grade Securities**

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.

#### **Conversion Factor**

The Conversion Factor for deliverable grade security would be 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 shall be 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 shall be 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 would be assumed to be paid after 3 months and accrued interest would be subtracted.

#### **Invoice Price**

Invoice Price of the respective deliverable grade security would be the futures settlement price times a conversion factor *plus* accrued interest.

#### **Last Trading Day**

Seventh business day preceding the last business day of the delivery month.

#### **Last Delivery Day**

Last business day of the delivery month.

#### **Initial Margin**

Initial Margin requirement shall be 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 would be so computed so as to cover a more than 99% VaR over a one day horizon. In order to achieve this,

the price scan range may initially be fixed at 3.5 standard deviations. The initial margin so computed would be subject to a minimum of 2.33% of the value of the futures contract on the first day of trading in 10-year Notional Coupon-bearing GoI security futures and 1.6% of the value of the futures contract thereafter. The initial margin shall be deducted from the liquid net worth of the clearing member on an online, real time basis.

#### **Extreme Loss Margin**

Extreme loss margin of 0.3% of the value of the gross open positions of the futures contract shall be deducted from the liquid assets of the clearing member on an on line, real time basis.

#### **Calendar Spread Margin**

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 Rs. 2,000 per month of spread. The benefit for a calendar spread would continue till expiry of the near month contract.

#### **Position Limits**

- (i) Client level: The gross open positions of the client across all contracts should not exceed 6% of the total open interest or Rs. 300 crores whichever is higher. The Exchange will disseminate 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
- (ii) Trading Member level: The gross open positions of the trading member across all contracts should not exceed 15% of the total open interest or Rs. 1,000 crores whichever is higher.
- (iii) Clearing Member level: No separate position limit is prescribed at the level of clearing member. However, the clearing member shall ensure that his own trading position and the positions of each trading member clearing through him is within the limits specified above.
- (iv) FII and NRIs: Total gross long position in the debt market and the Interest Rate Futures would not exceed the maximum per-

missible debt market limit prescribed from time to time. Short position in Interest Rate Futures would not exceed long position in the debt market and in Interest Rate Futures.

### Risk Management Measures

- (a) **Portfolio Based Margining:** The Standard Portfolio Analysis of Risk (SPAN) methodology shall be adopted to take an integrated view of the risk involved in the portfolio of each individual client comprising his positions in futures contracts across different maturities. The client-wise margins would be grossed across various clients at the Trading/ Clearing Member level. The proprietary positions of the Trading/Clearing Member would be treated as that of a client.
- (b) **Real-Time Computation:** The computation of worst scenario loss would have two components. The first is the valuation of the portfolio under the various scenarios of price changes. At the second stage, these scenario contract values would be applied to the actual portfolio positions to compute the portfolio values and the initial margin. The exchanges shall update the scenario contract values at least 6 times in the day, which may be carried out by taking the closing price of the previous day at the start of trading and the prices at 11:00 a.m., 12:30 p.m., 2:00 p.m., 3:30 p.m. and at the end of the trading session. The latest available scenario contract values would be applied to member/client portfolios on a real time basis.
- (c) **Liquid Networth:** The initial margin and the extreme loss margin shall be deducted from the liquid assets of the clearing member. The clearing member's liquid net worth after adjusting for the initial margin and extreme loss margin requirements must be at least Rs. 50 lakhs at all points in time. The minimum liquid networth shall be treated as a capital cushion for days of unforeseen market volatility.
- (d) **Liquid Assets -** The liquid assets for trading in Interest Rate Futures would have to be

provided separately and maintained with the Clearing Corporation. However, the permissible liquid assets, the applicable haircuts and minimum cash equivalent norms would be *mutatis mutandis* applicable from the equity/ currency derivatives segment.

- (e) **Mark-to-Market (MTM) Settlement:** The MTM gains and losses shall be settled in cash before the start of trading on T+1 day. If MTM obligations are not collected before start of the next day's trading, the Clearing Corporation shall collect correspondingly higher initial margin to cover the potential for losses over the time elapsed in the collection of margins. The daily closing price of interest rate futures contract for mark-to-market settlement would be calculated on the basis of the last half an hour weighted average price of the futures contract. In the absence of trading in the last half an hour the theoretical price would be taken. The eligible exchanges shall define the methodology for calculating the 'theoretical price' at the time of making an application for approval of the interest rate futures contract to SEBI. The methodology for calculating the 'theoretical price' would also be disclosed to the market.
- (f) **Safeguarding Client's Money :** 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 margins deposited on client account shall not be 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.

**Regulatory and Legal aspects:** The Interest Rate Derivative contracts shall be traded on the Currency Derivative Segment of a recognized Stock Exchange. The members registered by SEBI for trading in Currency/Equity Derivative Segment shall be eligible to trade in Interest Rate Derivatives also, subject to meeting the Balance Sheet net-worth requirement of Rs. 1 crore for a trading member and Rs. 10 crores for a clearing member.

