Interest Rate Futuress

Futures Introduction

- An interest rate Futures is a contract between the buyer and seller to deliver an interest rate asset at a specified rate on a specified date.
- The Futures allows the buyer and seller to lock in the price of the interest rate asset at a Futures date.
- Interest rate Futures are usually traded in an exchange.
- It is used to hedge against adverse changes in interest rates.
- Interest rate Futures are mainly listed for 3-month Eurodollar, 1-month LIBOR, 1-month banker’s acceptance Futures and 3-month banker’s acceptance Futures.

Futures Introduction (Cont.)

- Interest rate Futures are used to hedge against interest rate risk.
- Investors can use interest rate Futures to secure an interest rate for money it plans to borrow or lend in the Futures.
- Futures markets tend to be more liquid than underlying cash markets.
- Other benefits
  - Price transparency and liquidity
  - Immediate execution and confirmation
  - Reduction of counterparty risk
  - Centralized clearing.

Valuation

- The price of an interest rate Futures is quoted by the exchange.
- A model is mainly used for calculating sensitivities and managing market risk.
- The present value of an interest rate Futures is given by

$$PV(t) = n\tau(F_t - F) + C$$

where

- t – the valuation date,
- n – the contract size,
- τ – day count fraction for period $[T, T_E]$; in particular, $\tau = 90/360$ for 30-month Eurodollar Futures.

Interest Rate Futures

Valuation (Cont.)

- T - the maturity of the Futures contract and also the start date of forward period
- T_E - the end date of the forward period
- F - the quoted Futures contract price at the trading date.
- $F_t = 100 - Y(t;T,T_E) + C$ - the Futures contract price at valuation date t.
- $Y(t;T,T_E)$ - the annually compounded forward yield for the forward period $[T,T_E]$.
- C - a constant used to match the market price.

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Example

Interest rate Futures specification	
Buy Sell	Buy
Currency	USD
Contract Size	10000
First Delivery Date	5/30/2018
Last Delivery Date	6/29/2018
Futures Maturity Date	6/18/2018
Tenor	3M
Futures Ticker	EDM18
Futures Ticker Size	100
Futures Ticker Value	25
Number of Contract	100
Quote Price	98.405
Trade Date	12/2/2016

Reference:

https://finpricing.com/lib/EqConvertible.html