

# Pricing Interest Rate Futures

FinPricing Product

# Interest Rate Futures

## Futures Overview

- ◆ An interest rate future is a contract between the buyer and seller to deliver an interest rate asset at a specified rate on a specified date.
- ◆ The future allows the buyer and seller to lock in the price of the interest rate asset at a future date.
- ◆ 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.
- ◆ It is used to hedge against adverse changes in interest rates.

## Futures Overview (Cont.)

- ◆ Investors can use interest rate futures to secure an interest rate for money it plans to borrow or lend in the future.
- ◆ 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.

# Interest Rate Future

## Pricing

- ◆ The present value of an interest rate future is given by

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

where

- $t$  - the valuation date,
- $n$  - the contract size,
- $\tau$  - day count fraction for period  $[T, T_E]$ ; in particular,  $\tau = 90/360$  for 30-month Eurodollar future.
- $T$  - the maturity of the future contract and also the start date of forward period

# Interest Rate Future

## Pricing (Cont.)

- $T_E$  - the end date of the forward period
- $F$  - the quoted future contract price at the trading date.
- $F_t = 100 - Y(t; T, T_E) + C$  - the future 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.

# Interest Rate Future

## A Trade Example

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



# Thanks!



Reference:

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