

**P R I S T I N E**

# **Fixed Income Securities - I**

## Interest rate risk of a Floating rate security

- Floating rate security is one whose coupon rate is reset at each coupon date so that it matched the current market yield. It is typically a reference rate (say, LIBOR) + additional margin.
- This implies that a floating rate security will always sell at par.
- However, it is possible for a floating rate security to quote below or above par if there is a change in the market yield in between the reset dates.

Ex: If a floating rate security which pays interest every six months, is reset in the month of April and the interest rates fall, it will trade at a premium till the next reset date in October.

### Duration of a Bond

- Duration of a bond is the sensitivity of the price of the bond in response to a change in the interest rates/yield.

$$\text{Duration} = - (\text{Percentage change in bond price} / \text{Percentage change in Yield})$$

- We use a negative sign because of the inverse relation between yield and bond prices. A increase in the yield results in a fall in the bond price.

## Yield curve risk

- The Yield Curve shows the relationship between Yield and Maturity.
- Yield curve risk refers to the change in the Yield curve.
- With reference to a **Portfolio of bonds**: A non parallel shift in the yield curve will result in varying impact on short maturity and long maturity bonds. This makes duration a poor measure for Portfolio of bonds.

### Prepayable Security

- A prepayable security has the following disadvantages:
  - Uncertainty of cash flows
  - Higher reinvestment risk
  - Cap on price appreciation – Negative Convexity

### Reinvestment Risk

- A security which is amortising, with higher coupon; a call feature; a prepayment option; will have a higher reinvestment risk.
- Prepayable securities have a higher reinvestment risk because a reduction in the interest rates results in an increase in prepayments which will have to be reinvested at the lower rate.

## Credit Risk

- A security issued by the government is considered risk free as it has no credit risk.
- Other securities carry a coupon which equals the risk free rate plus a return for bearing the credit risk of the security. This excess is called default risk premium.
- Credit spread risk refers to the increase in this default risk premium when there has been no change in the yield on Treasury securities of similar maturity. This increase the total yield and decreases the price of the bond.
- Downgrade risk is the risk that a bond's rating maybe downgraded by the credit rating agency. This results in an increase the return demanded by the investors for bearing the increased credit risk.

### Liquidity Risk

- The bid-ask spread of a security indicates the liquidity of a security. Higher the spread, lower the liquidity. Such securities have a high liquidity risk.

### Exchange Rate Risk

- This is the risk that the returns realized in the domestic currency maybe lower than the actual return due to a depreciation in the domestic currency.

## Inflation Risk

- Inflation risk: refers to the risk of erosion of the purchasing power of the returns from the security as a result of unexpected rise in inflation.

### Yield Volatility and Option Bonds

**Value of a callable bond = Value of an option-free bond – Value of call option**

**Value of a puttable bond = Value of an option-free bond + Value of put option**

- An increase in the Yield volatility increases the value of the option and subsequently increases/decreases the value of a puttable/callable bond respectively.

### Event Risk

- This can relate to:
  - Disasters
  - Corporate restructuring
  - Regulatory Issues