

# PREFACE



This summary notes doesn't guarantee passing the exam.  
***IT IS ONLY MEANT TO CONDENSE THE HUGE CONTENT OF ICMAI.***

One needs to have a visualisation of connected questions with every concept studied here.

***THE VISUALS COME ONLY WHEN YOU HAVE PRACTICED THE CONNECTED SUMS AT LEAST 3 TIMES AFTER UNDERSTANDING THE LOGIC BEHIND THE CONCEPTS.***

For effortless understanding of logic and practice of sums once, Join full classes of SFM with Satish Sir.

Exclusively taught as per **CMA Final Course.**  
**ICMAI Material Covered with all practicals and theories.**

***YOU WILL FALL IN LOVE FOR FINANCE, FOR SURE***

"I believe in - showing students how to cook rather than to give the food. Specially, I have also given sessions for preparing summary notes, where I am showing the process of how to summarise the big chapters. This would help you in all other subjects." - **Satish Sir**



## Reviews of our regular classes of SFM

The books were great with regards to the content and coverage that has been provided. I really liked the numerous variation of sums that were provided to us in the entire course. I really loved the flow of the classes and the content was very well covered.

Thanking You.  
Dipti Saraf

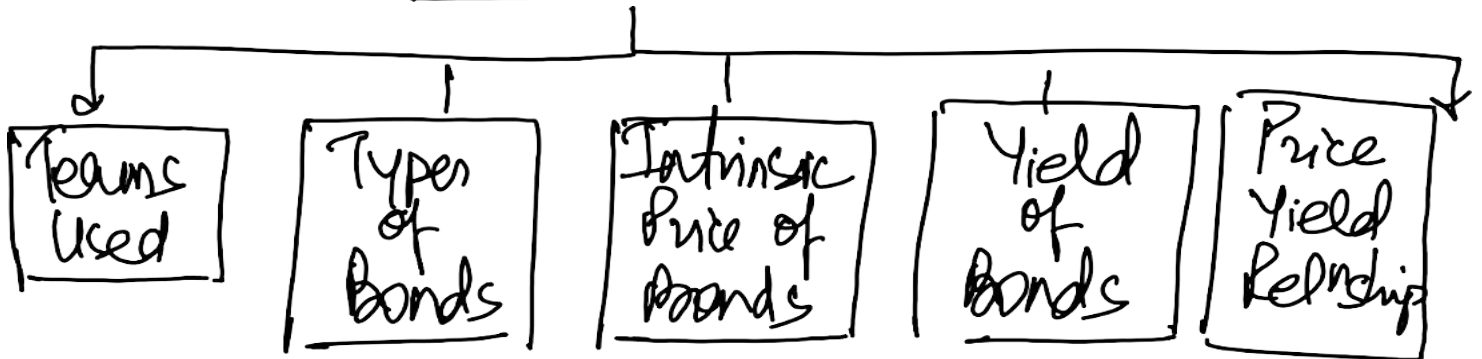
The content in the book is very good and well organized, there is extra space for page numbers and what is new is very useful and saves time for study, also the quality of the book is very good including the quality of paper and binding of the book.

Anjali Kumari Shaw

# Bond Valuation- Prices & Yields



## Bond Valuation

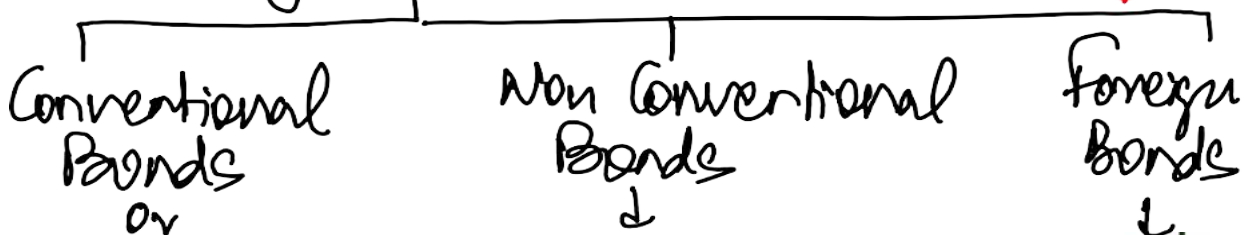


### 1) Terms Used

- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>1. Par value - FV</li> <li>2. Coupon - Interest</li> <li>3. Maturity - Tenure/Term</li> <li>4. Yield - Rate of return by the investor</li> <li>5. Intrinsic/Th Price/Exp Price/ Equilibrium Price / Fair Price = PV of future CF @ Yield rate</li> </ol> | <ol style="list-style-type: none"> <li>6. Under Priced = <math>AP &lt; IP</math><br/>Buy = long</li> <li>7. Over Priced <math>AP &gt; IP</math><br/>Sell = short</li> <li>8. Bullet Redemption<br/>Redemption at once<br/>At the end of Tenure</li> </ol> |
|---|---|

### 2) Types of Bonds

(Int F. Mgmt chapter)



Plain Vanilla Bonds

Cond<sup>n</sup> 1: Int rate fixed  
payable at intervals

Cond<sup>n</sup> 2: Bullet Redemption

(Both should be satisfied)

Sweetening Bonds

↓  
To attract investors

↓  
1. Deep Discount Bonds

2. Zero Coupon Bonds

3. Perpetual Bonds

4. Convertible Bonds

5. Option Embedded Bonds

Callable - Co. can refund before maturity

Puttable - Investor can ask repayment before maturity

Extendable - Co. can extend after maturity

6. Inflation Bond

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Floating Rate Bond

To attract foreign investors

1. Yankee  
US\$

2. Euro Bond  
Non US\$

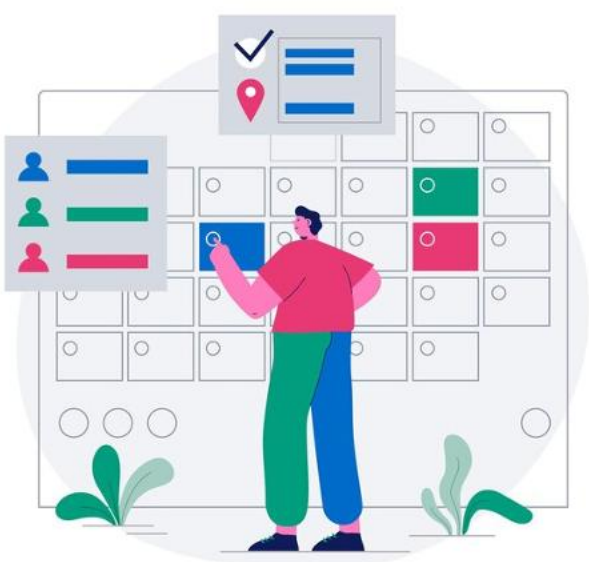
3. Samurai Bond  
¥ (Highly Regulated)

4. Shibori  
¥ (Relaxed)

5. Pony dog  
₹

6. Masala  
or  
Rupee

₹





## 8. Double Option Bond

- FV Bond
  - Coupon Bond
- } Both are listed separately.

## 9. Green Bond

- Green Projects



## 3. Intrinsic Price of Bonds

$$P_0 = I_p = P_v \text{ of future CF @ Ytm of similar bond}$$

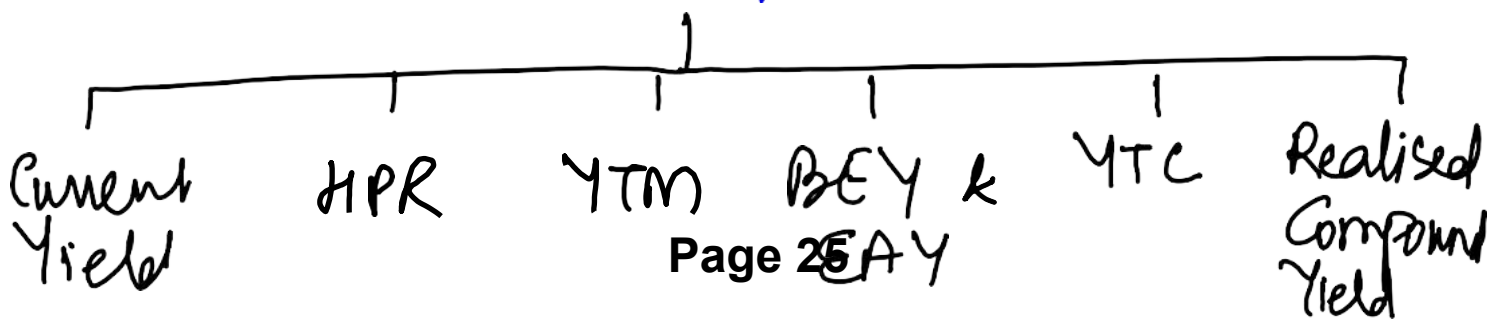
Ytm: Yield to maturity rate  
= use CAPM to compute if reqd

$AP < IP \Rightarrow$  Underpriced = Buy

$AP > IP \Rightarrow$  Overpriced = Sell

## 4. Yield of Bonds

$$\text{Yield} = \text{Int} + \text{Cap Gain.}$$



$$(a) \text{ Current Yield} = \frac{\text{Coupon Amt } (1-t)}{\text{Current MP}}$$

Limit: 1. Time value not considered  
2. Rp & Ip not considered

preferred! Perpetual bonds

$$(b) \text{ HPR} = \left[ \frac{\$V - PC + \text{Int} \times \frac{1}{n}}{PC} \right]$$

Limit: Time value not considered

(c) YTM = 2 assumptions - 1. Bond is held till maturity  
2. Coupons are reinvested @ Ytm.

Ytm = IRR  $\Rightarrow$  rate where

$$\boxed{\text{PV of Cash Fl} = \text{PV of CF}}$$

Vanilla Bonds

$$I_p = \frac{I(1-t)}{1+Ytm} + \frac{I(1-t)}{(1+Ytm)^2} + \dots + \frac{P + I(1-t)}{(1+Ytm)^n}$$

$$R_p = R_p - \text{CG tax if any}$$

$$\text{CG tax} = (R_p - I_p) \times \text{CG tax rate.}$$

OR

Shortcut:

$$Y_{tm\ p.a} = \frac{I(1-t) + \frac{R_p - I_p}{n}}{\left(\frac{R_p + I_p}{2}\right) \text{ or } (0.4R_p + 0.6I_p)}$$

# Semiannual coupon payment

$$Y_{tm\ p.a} = (\text{Ytm using above formula}) \times 2$$

$$\frac{I(1-t) \text{ per 6m} + \frac{R_p - I_p}{n \times 2}}{\frac{R_p + I_p}{2} \text{ or } (0.4R_p + 0.6I_p)}$$

Semiannual Ytm > Annual Ytm  
P.a



(d) BEY

$$= \left[ \text{Periodic Yield} \times \frac{12}{n} \right]$$

EAY

$$= (1+r)^n - 1$$

$r =$  periodic int rate

(e) Yield to Call

• Callable bond

$R_p =$  Conversion value

$n =$  Call period

working like YTM only.



(f) Realised Compound Yield

$$Eg \text{ sh } \left[ P_0 = \frac{D_1}{(1+r)^1} + \frac{D_2}{(1+r)^2} + \frac{D_3 + P_3}{(1+r)^3} \right]$$

$r =$  RCY = IRR

Bonds  $\Rightarrow$  when an investor sells the bond before the maturity.

Calculate Like IRR

If reinvest rate is given, then  
Modified IRR

1. Future Value  
of all coupons  
at  $T_n$  using  
reinvest rate

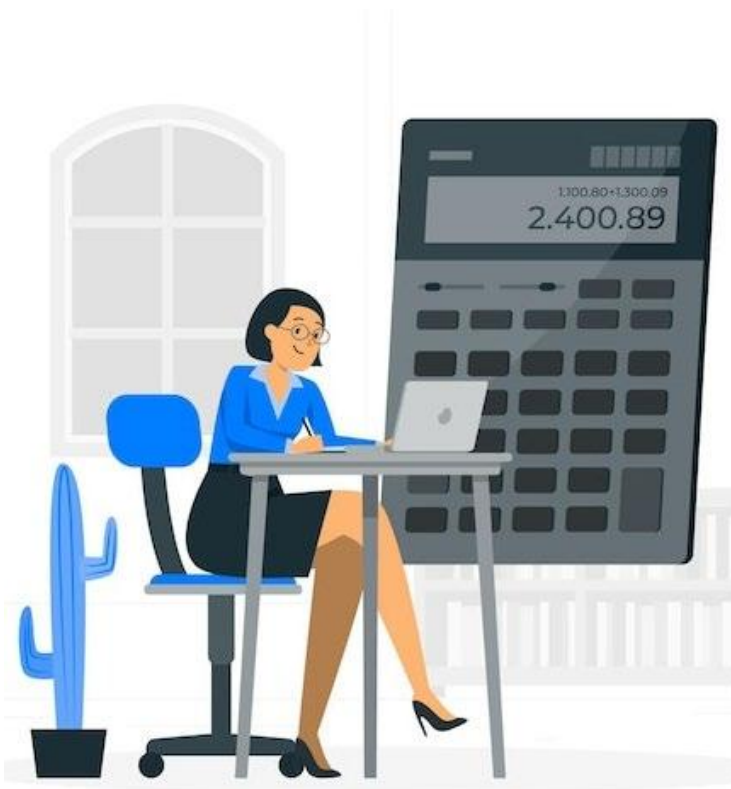
2. Realised  
Compound Yield

$$FV_n = PV_0 (1 + R_y)^n$$

$$R_y = ? \text{ (IRR)}$$

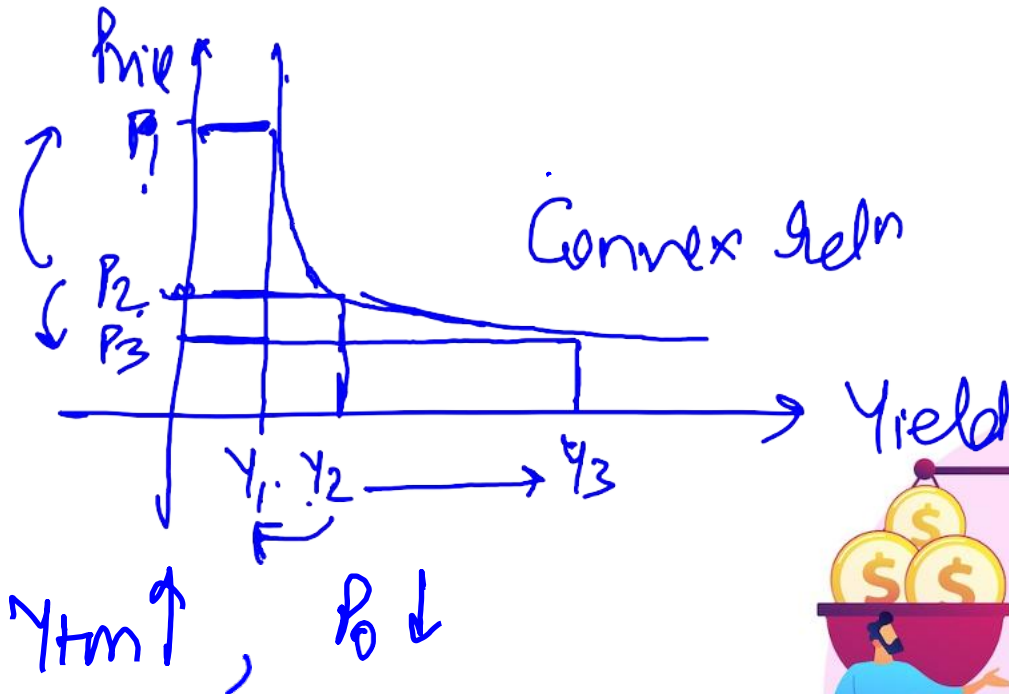
$$PV_0 = I_p$$

[221]



5.

# Price - Yield Relationship



1. Relationship is convex
2. Yield falls from  $Y_2$  to  $Y_1$ , price rises from  $P_2$  to  $P_1$  at a faster rate
3. Yield rises from  $Y_2$  to  $Y_3$ , price falls at a slower rate from  $P_2$  to  $P_3$
4. This feature of price - yield relationship is favourable to investors — due to convexity

- At maturity, Bond price approaches its par.
- As life of bond passes, bond price will reduce, because future cash flows will reduce, even if there is no change in YTM.

### Between Bond price & Maturity

- Price of a longer term bond is more volatile than the price of shorter period bond.
- All bond approaches par value towards maturity.



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your REFERENCE.**

**Please refer your friends or family to  
take all classes of CA/CMA only from  
SJC Institute.**

**Thank You.**