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CLASSES
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FINAL CA
MAY '19
REVISION NOTES
Strategic Financial Management

Bond Management

BOND MANAGEMENT

- Q.1.** A is willing to purchase a 5 years Rs. 1000 par value bond having a coupon rate of 9%. A's required rate of return is 10%. How much A should pay to purchase the bond if it matures at par.
- Q.2.** A PSU is proposing to sell a 8 years bond of Rs. 1000 at 10% coupon rate per annum. The bond amount will be amortised equally over its life. If an investor has a minimum required rate of return of 8%, what is the bond's present value.
- Q.3.** A 6 years bond of Rs.1000 has an annual rate of interest of 14%. The interest is paid half yearly. If the required rate of return is 16% what is the value of the bond.
- Q.4.** XYZ Ltd has issued convertible debentures with interest rate of 12%. Every debenture has an option to convert to 20 equity shares at any time until the date of maturity. Debentures will be redeemed at **Rs.** 100 on maturity which is after 5 years. An investor normally requires a rate of return of 8% per annum on a 5 year security. As an investor when will you exercise the purchase option if MV of ES is (a) ₹ 4, (b) ₹ 5 or (c) ₹ 6.
- Q.5.** There is a 9% 5 year bond issue in the market. The issue price is **Rs.** 90 and the redemption price is **Rs.** 105. For an investor with marginal income tax rate of 30% and capital gains tax rate of 10% (assuming no indexation), what is the post-tax yield to maturity?
- Q.6.** An investor is considering the purchase of the following bond:
- | | |
|-------------|----------------|
| Face value | Rs. 100 |
| Coupon rate | 11% |
| Maturity | 3 years |
- i. If he wants a yield of 13% what is the maximum price he should be ready to pay for the bond?
- ii. If the bond is selling for **Rs.** 97.60 what should be his yield?
- Q.7.** Given a 2 year 8% annual coupon bond with a face value of ₹ 1000 and with annual coupon payments that is fully taxable and selling at par and an identical bond that is tax free, what would the yield and price on the tax free bond have to be for an investor in a 35% tax bracket to be indifferent between the two bonds
- Q.8.** A bond pays **Rs.** 90 interest annually into perpetuity.
- i. What is its value if the current yield is 10%
- ii. If the current yield changes to 8% and 12% then what is its value.
- Q.9.** The bonds of Texas Industries of face value ₹ 100 with 10% coupon paid semiannually is presently selling at 5% discount on the face value. These bonds will be redeemed at par by equal instalment at the end of 5th and 6th years. The effective tax rate of Texas is 40%. What is the YTM of the bond.
- Q.10.** An investor purchased at a par a bond with a face value of ₹ 1000. The bond had 5 years to maturity and a 10% coupon rate. The bond was called two years later for a price of Rs. 1200 after making its second annual interest payment. He then reinvested the proceeds in a bond selling at its face value of ₹ 1000 with three years to maturity and a 7% coupon rate. What was his actual YTM over the 5 year period.

Q.11. An investor acquired at par a bond for ₹ 1000 that offered a 15% coupon rate. At the time of purchase, the bond had 4 years to maturity. Assuming annual interest payments, calculate his actual yield to maturity if all the interest payments were reinvested in an investment earning 18% per yer. What would his actual yield to maturity be if all interest payments were spent immediately upon receipt.

Q.12. The following data are available for a bond;

Face value	₹ 1,000
Coupon rate	16%
Years to Maturity	6
Redemption value	₹1,000
Yield to maturity	17%

What are the current market price, duration and volatility of this bond? Calculate the expected market price, if we witness an increase in required yield by 75 basis points.

Q.13. Find the current market price of a bond having face value of ₹ 1,00,000 redeemable after 6 years maturity with YTM at 16% payable annually and duration of 4.3202 years. Given $1.166 = 2.4364$

- Q.14.**(a) Consider two bonds with 5 years to maturity and other with 20 years to maturity. Both the bonds have a face value of ₹ 1,00,000 and coupon rate of 8% (with annual interest payments and both are selling at par. Assume that the yields of both of bonds fall to 6%, whether the price of the bond will increase or decrease? What percentage of this increase / decrease comes from a change in the present value of bond’s principal amount and what percentage of this increase / decrease comes from a change in the present value of bond’s interest payment.
- (b) Consider a bond selling at its par value of ₹1000 with 6 years to maturity and a 7% coupon rate (with annual interest payment), what is the bond’s duration?
- (c) If the YTM of the bond in (b) above increase to 10%, how it affects the bond’s duration? And why?
- (d) Why should the duration of a coupon carrying bond always be less that the time to maturity?.

Q.15. The investment portfolio of a bank is as follows :

Government Bond	Coupon rate	Purchase rate (FV ₹ 100)	Duration (years)
GOI 2006	11.68%	106.50	3.50
GOI 2010	7.55%	105.00	6.50
GOI 2015	7.38%	105.00	7.50
GOI 2022	8.35%	110.00	8.75
GOI 2032	7.95%	101.00	13.00

Face value of total investment in **Rs.** 5 crores in each government bond. Calculate the actual investment in the portfolio. What is a suitable action to churn out investment portfolio in the following scenario:

- Interest rates are expected to lower by 25 basis points
- Interest rates are expected to rise by 75 basis points

Also calculate the revised duration of investment portfolio in each scenario.

Q.16. M/s Transindia Ltd is contemplating calling ₹ 3 crores of 30 years Rs. 1000 bonds issued 5 years ago with a coupon interest rate of 14%. The bonds have a call price of ₹ 1140 and had initially collected proceeds of ₹ 2.91 crores due to a discount of ₹ 30 per bond. The initial floating cost was ₹ 3,60,000. The company intends to sell ₹ 3 crores of 12% coupon rate, 25 years bonds to raise funds for retiring the old bonds. It proposes to sell the new bonds at their par value of ₹1000. The estimated flotation cost is ₹ 4,00,000. The company is paying 40% tax and its after tax cost of debt is 8%. As the new bonds must first be sold and their proceeds then used to retire old bonds, the company expects a two months period of overlapping interest during which interest must be paid on both the old and new bonds. What is the feasibility of refunding bonds?

Q.17. The data given below relates to a convertible bond

Face Value	₹ 250
Coupon rate	12%
No of shares per bond	20
Market price of share	₹ 12
Straight value of bond	₹235
Market price of convertible bond	₹ 265

Calculate:

- | | |
|----------------------------|--|
| a) The stock value of bond | b) The percentage of downside risk |
| c) The conversion premium | d) The conversion parity price of bond |

Q.18. Duration & IMMUNISATION OF PORTFOLIO

A company has to pay Rs. 10 million after 6 years from today. The company wants to fund this obligation today only. The current interest rate in the market is 8%. Two zero coupon bonds are traded in the market on the basis of 8% YTM – one with a 5 year maturity and the other with a 7 year maturity. Suggest the interest rate immunized investment plan. Calculate the total amount to be received from the investments in following three cases :

- market interest rates remain unchanged throughout the period of 6 years .
- Market interest rates declines to 6%.
- Market interest rate rises to 10%.