



RAMA UNIVERSITY

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FACULTY OF COMMERCE AND MANAGEMENT

COURSE: BBA (DM)

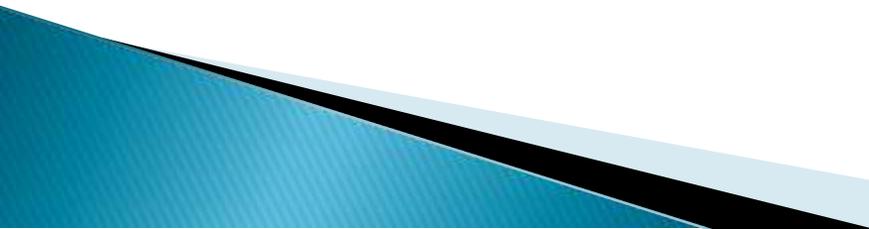
SUBJECT: SECURITY AND PORTFOLIO MANAGEMENT

SUBJECT CODE: BBA (DM) 602

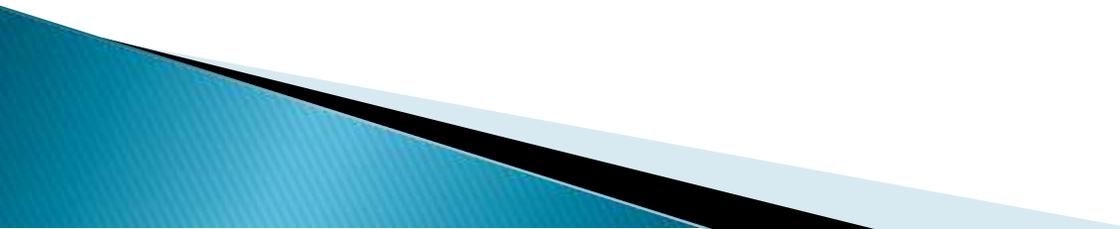
LECTURE: 13

NAME OF FACULTY: DR. NITIN GUPTA

Bond Valuation in Practice

- ▶ Bond valuation, in effect, is calculating the present value of a bond's expected future coupon payments. The theoretical fair value of a bond is calculated by discounting the future value of its coupon payments by an appropriate discount rate. The discount rate used is the yield to maturity, which is the rate of return that an investor will get if they reinvested every coupon payment from the bond at a fixed interest rate until the bond matures. It takes into account the price of a bond, par value, coupon rate, and time to maturity.
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Coupon Bond Valuation

- ▶ Calculating the value of a coupon bond factors in the annual or semi-annual coupon payment and the par value of the bond.
 - ▶ The present value of expected cash flows is added to the present value of the face value of the bond as seen in the following formula:
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$$V_{\text{coupons}} = \sum \frac{C}{(1+r)^t}$$

$$V_{\text{face value}} = \frac{F}{(1+r)^T}$$

where:

C =future cash flows, that is, coupon payments

r =discount rate, that is, yield to maturity

F =face value of the bond

t =number of periods

T =time to maturity

Example

- ▶ For example, let's find the value of a corporate bond with an annual interest rate of 5%, Face value Rs. 1000 making semi-annual interest payments for 2 years, after which the bond matures and the principal must be repaid. Assume a YTM of 3%:
- ▶
- ▶ $F = \text{Rs. } 1,000$ for corporate bond
- ▶ Coupon rate_{annual} = 5%, therefore, Coupon rate_{semi-annual} = $5\% / 2 = 2.5\%$
- ▶ $C = 2.5\% \times \text{Rs. } 1000 = 25$ per period
- ▶ $t = 2 \text{ years} \times 2 = 4$ periods for semi-annual coupon payments (half yearly)
- ▶ $T = 4$ periods

Zero-Coupon Bond Valuation

- ▶ A zero-coupon bond makes no annual or semi-annual coupon payments for the duration of the bond. Instead, it is sold at a deep discount to par when issued. The difference between the purchase price and par value is the investor's interest earned on the bond. To calculate the value of a zero-coupon bond, we only need to find the present value of the face value.

Example

- ▶ For example, let's find the value of a corporate bond with an annual interest rate of 5%, Face value Rs. 1000 making semi-annual interest payments for 2 years, after which the bond matures and the principal must be repaid. Assume a YTM of 3%:
- ▶ $1000 / (1.03)^4 = 888.49$