

Bond Valuation

Refer the below you tube link to lecture on bond valuation

http://www.youtube.com/watch?v=7c8UfyqJ_kI

Bond Definitions

- Bond = Debt instrument
- Par value (face value)
- Coupon rate = Interest rate
- Coupon payment = Annuity value
- Maturity Period = Duration of bond
- Yield or Yield to maturity = Interest rate that makes the pv of the cash flows receivable from the bond equal to the price of the bond
- Bond Value = PV of coupons + PV of par
- Bond Value = PV annuity + PV of lump sum
- Remember, as interest rates increase present values decrease
- So, as interest rates increase, bond prices decrease and vice versa

The Bond-Pricing Equation

$$\text{Bond Value} = C \left[\frac{1 - \frac{1}{(1+r)^t}}{r} \right] + \frac{F}{(1+r)^t}$$

Relationship Between Coupon and Yield

- If YTM = coupon rate, then par value = bond price
- If YTM > coupon rate, then par value > bond price
 - Why?
 - Selling at a discount, called a discount bond
- If YTM < coupon rate, then par value < bond price
 - Why?
 - Selling at a premium, called a premium bond
- Consider a bond with a coupon rate of 10% and annual coupons. The par value is \$1000 and the bond has 5 years to maturity. The yield to maturity is 11%. What is the value of the bond?
 - Using the formula:
 - $B = \text{PV of annuity} + \text{PV of lump sum}$
 - $B = 100[1 - 1/(1.11)^5] / .11 + 1000 / (1.11)^5$
 - $B = 369.59 + 593.45 = 963.04$