

Interest Rates and Bond Valuation

Class Exercise

1. Schrute farms bond makes semiannual payments at a coupon rate of 6.2%. The bond's YTM is 5.4% and has 15 years to maturity. Halpert's Prank Shop makes semiannual payment at a coupon rate of 5.4%. This bond's YTM is 7.4% and also has 15 years to maturity.
 - (a) What is the price of each bond today?
 - (b) Are the bonds trading at a premium or discount?
 - (c) Assuming rates do not change, what do you expect the price of bond to be one year from now?
 - (d) Similar to the last question, what is the price in 3 years? 5 years? 10 years? What do you notice?

Skills tested: Pricing a semiannual bond, relationship between price and time to maturity, premium vs discount bonds

2. Woodford Reserve and Four Roses both issue bonds with a 6.5% annual coupon and are priced at par. Woodford Reserve's bond has 5 years to maturity and Four Roses' bond has 18 years to maturity.
 - (a) If interest rates rise 1.5%. What is the price of each bond?
 - (b) If interest rates fall 1.5%. What is the price of each bond?
 - (c) What do you notice?
 - (d) Repeat the analysis for (a)-(c) if both bonds have 12 years to maturity but Woodford Reserve has a annual coupon rate of 2.5%.

Skills tested: Pricing an annual bond, interest rate risk

3. You are planning your retirement. If all goes to plan you will retire in 28 years. You are able to put away \$1,200 a month into a stock account in real dollars. This account is expected to have an EAR of 12% (nominal, compounded monthly). You will place an additional \$200 a month into a bond account in real dollars. This account is expected to have an EAR of 4% (nominal, compounded monthly). At retirement you will combine your money into an account with an EAR of 9% (nominal, compounded monthly). The inflation rate is expected to be 2.5%.
 - (a) Assuming you will withdraw for 30 years, how much can you withdraw each month in real dollars?
 - (b) What is nominal value of your last withdrawal?

Skills tested: EAR, APR, TVM using real cash flows, nominal vs real rate