Interest Rates on Various Financial Instruments: Exercises

Questions
[1] If the amount payable in two years is $2420 for a simple loan at 10 percent interest, what is the loan amount?

[2] For a 3-year simple loan of $10,000 at 10 percent, what is the amount to be repaid?

[3] If a $5,000 coupon bond has a coupon rate of 13 percent, then what is the coupon payment every year?

[4] What yield to maturity does a $10,000, 8 percent coupon bond that sells for $10,000 have?

[5] What is the price of a consol paying $20 annually when the interest rate is 5 percent?

[6] If a $10,000 face-value discount bond maturing in one year is selling for $5,000, then what is the yield to maturity?

[7] If the interest rate is 5%, what is the present value of a security that pays you $1,050 next year and $1,102.50 two years from now? If this security sold for $2200, is the yield to maturity greater or less than 5%? Why?

[8] Your favorite uncle advises you to purchase long-term bonds because their interest rate is 10%. Should you follow his advice?

[9] Would it make sense to buy a house when mortgage rates are 14% and expected inflation is 15%? Explain your answer.

Answers
[7] \[ PV = \frac{1050}{1 + 0.05} + \frac{1102.50}{(1 + 0.05)^2} = 2000 \]

If this security sold for $2200, the yield to maturity is less than 5%. The lower the interest rate the higher the present value.

[8] It depends on where you think interest rates are headed in the future. If you think interest rates will be going up, you should not follow your uncle's advice because you would then have to discount your bond if you needed to sell it before the maturity date. Long-term bonds have a greater interest-rate risk.

[9] Even though the nominal rate for the mortgage appears high, the real cost of borrowing the funds is -1%. Yes, under this circumstance it would be reasonable to make this purchase.