Financial Management
Chapter 6 Problems

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<tr><th>#</th><th>Question</th></tr>
<tr><td>P6-1</td><td>The real rate of return. Carl Foster, a trainee at an investment banking firm, is trying to get an idea of what real rate of return investors are expecting in today’s marketplace. He has looked up the rate paid on three-month U.S. Treasury bills and found it to be 1.5%. He has decided to use the recent rate of change in the Consumer Price Index as a proxy for the inflationary expectations of investors. That annualized rate now stands at 0.5%. On the basis of the information that Carl has collected, what is the approximate real rate of return? What is the exact real rate?</td></tr>
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<tr><td>P6-4</td><td>Real and nominal rates of interest. Zane Perelli currently has $100 that he can spend today on socks costing $2.50 each. Alternatively, he could invest the $100 in a risk-free U.S. Treasury security that is expected to earn a 9% nominal rate of interest. The consensus forecast of leading economists is a 5% rate of inflation over the coming year.

a. How many socks can Zane purchase today?
b. How much money will Zane have at the end of one year if he forgoes purchasing the socks today and invests his money instead?
c. How much would you expect the socks to cost at the end of one year in light of the expected inflation?
d. Use your findings in parts b and c to determine how many socks (fractions are OK) Zane can purchase at the end of one year. In percentage terms, how many more or fewer socks can Zane buy at the end of one year?
e. What is Zane’s exact real rate of return over the year? How is it related to the percentage change in Zane’s buying power found in part d? Explain.</td></tr>
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<tr><td>P6-5</td><td>Yield curve. A firm wishing to evaluate interest rate behavior has gathered yield data on five U.S. Treasury securities, each having a different maturity and all measured at the same point in time. The summarized data follow.

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<tr><th>U.S. Treasury security</th><th>Time to maturity</th><th>Yield</th></tr>
<tr><td>A</td><td>1 year</td><td>12.6%</td></tr>
<tr><td>B</td><td>10 years</td><td>11.2</td></tr>
<tr><td>C</td><td>6 months</td><td>13.0</td></tr>
<tr><td>D</td><td>20 years</td><td>11.0</td></tr>
<tr><td>E</td><td>5 years</td><td>11.4</td></tr>
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#	Question
	a. Draw the yield curve associated with these data. b. Describe the resulting yield curve in part a, and explain what it says about the direction of future interest rates under the expectations theory.
P6-7	**Nominal and real rates.** Tyra loves to shop at Dollar Barrel, where she can find many items priced at exactly $1. Tyra has $200 to spend and is thinking of going on a shopping spree at Dollar Barrel, but she is also thinking of investing her money. a. Suppose the expected rate of inflation is 1% (so next year, everything at Dollar Barrel will cost $1.01) and Tyra can earn 5% on her investments. Approximately what real rate of interest could Tyra earn if she invests her money? How many items can she buy at Dollar Barrel today, and how many can she buy a year from now if she invests today and goes shopping later? What is the percentage increase in Tyra's purchasing power if she waits a year to shop? Compare your answer to the approximate real interest rate on Tyra's investment. b. Now suppose that the expected inflation rate is 10% and Tyra can earn 20% on money that she invests over the year. What is the approximate real rate of interest that Tyra will earn? Calculate the number of items that Tyra could buy next year from Dollar Barrel if she invests her money. What is the percentage increase in her purchasing power if she waits a year to go shopping? Relate your answer back to Tyra's real rate of return.
P6-11	**Bond interest payments before and after taxes.** Charter Corp. issued 2,500 debentures with a $1,000 par value and a 7% coupon rate. a. What dollar amount of interest per bond can an investor expect to receive each year from Charter? b. What is Charter's total interest expense per year associated with this bond issue? c. Assuming that Charter pays a 21% corporate tax, what is the company's net after-tax interest cost associated with this bond issue?
P6-14	**Bond prices and yields.** Assume that the Financial Management Corporation's $1,000-par-value bond had a 5.700% coupon, matures on May 15, 2027, has a current price quote of 97.708, and has a yield to maturity (YTM) of 6.034%. Given this information, answer the following questions: a. What was the dollar price of the bond?

#	Question
	b. What is the bond's current yield? c. Is the bond selling at par, at a discount, or at a premium? Why? d. Compare the bond's current yield calculated in part b to its YTM and explain why they differ.
P5-9	**Single-payment loan repayment.** A person borrows $200 that he must repay in a lump sum no more than eight years from now. The interest rate is 8.5% annually compounded. The borrower can repay the loan at the end of any earlier year with no prepayment penalty. a. What amount will be due if the borrower repays the loan after one year? b. How much would the borrower have to repay after four years? c. What amount is due at the end of the eighth year?