

# Chapter 5

## Practice Problems

1. What is the price of a semiannual bond with 10 years to maturity, an 8% coupon rate, and a face value of \$1,000 if your required rate of return is
  - 10% APR with semiannual compounding?
  - 10% APR with quarterly compounding?
  - 10% APR with annual compounding?
2. What is the yield-to-maturity on an annual bond with a coupon rate of 8%, a par value of \$1,000, 10 years to maturity, and
  - a current price of \$1,050?
  - a current price of \$1,000?
  - a current price of \$924.50?
3. What is the price of a 10-year, \$1,000 par value bond that pays a 10% annual coupon if the required rate of return is 8%?
4. What is the most you would pay for a 10-year, \$1,000 par value semiannual bond that pays a coupon of 10% if your required rate of return 12% APR with monthly compounding?
5. A bond with 10 years to maturity and a \$1,000 par value has a 10% annual coupon rate. What is the bond's yield-to-maturity if the bond is currently trading at \$1,243.28?
6. What is the YTM on a bond with face value of \$1,000 and a 7% annual coupon rate, paying coupons semi-annually, and having 6 years to maturity if the current price is
  - \$1,000?
  - \$1,200?
  - \$875.20?
7. What is the YTM on a semi-annual coupon Treasury bond having face value equal to \$10,000; coupon rate equal to 5%; 9 years to maturity remaining; and a current price of \$9,856.40?
8. You have inherited \$10,000 to invest specifically in bonds. You look at current interest rates and decide that they are quite high, and you expect that they will fall in the near future. Given the choice between 5-year and 10-year maturity bonds, which should you buy? Given the choice between 7-year annual coupon bonds and 7-year zero-coupon bonds, which should you buy?

# Chapter 5

## Practice Problems (w/ answers)

1. What is the price of a semiannual bond with 10 years to maturity, an 8% coupon rate, and a face value of \$1,000 if your required rate of return is
  - 10% APR with semiannual compounding? **\$875.38**
  - 10% APR with quarterly compounding? **\$868.57**
  - 10% APR with annual compounding? **\$889.11**
2. What is the yield-to-maturity on an annual bond with a coupon rate of 8%, a par value of \$1,000, 10 years to maturity, and
  - a current price of \$1,050? **7.28%**
  - a current price of \$1,000? **8.00%**
  - a current price of \$924.50? **9.19%**
3. What is the price of a 10-year, \$1,000 par value bond that pays a 10% annual coupon if the required rate of return is 8%? **\$1134.20**
4. What is the most you would pay for a 10-year, \$1,000 par value semiannual bond that pays a coupon of 10% if your required rate of return 12% APR with monthly compounding? **\$869.69**
5. A bond with 10 years to maturity and a \$1,000 par value has a 10% annual coupon rate. What is the bond's yield-to-maturity if the bond is currently trading at \$1,243.28? **6.6%**
6. What is the YTM on a bond with face value of \$1,000 and a 7% annual coupon rate, paying coupons semi-annually, and having 6 years to maturity if the current price is
  - \$1,000? **7.1225%**
  - \$1,200? **3.33%**
  - \$875.20? **10.04%**
7. What is the YTM on a semi-annual coupon Treasury bond having face value equal to \$10,000; coupon rate equal to 5%; 9 years to maturity remaining; and a current price of \$9,856.40? **5.2676%**
8. You have inherited \$10,000 to invest specifically in bonds. You look at current interest rates and decide that they are quite high, and you expect that they will fall in the near future. Given the choice between 5-year and 10-year maturity bonds, which should you buy? Given the choice between 7-year annual coupon bonds and 7-year zero-coupon bonds, which should you buy?  
**Since you think that rates are going to fall, you expect that the price of whatever bond you buy will rise. You should pick the bond with the greatest price/interest rate risk: the 10-year bond or the the zero-coupon bond.**