Solutions to Chapter 5 Assigned Problems:

1. N= 12; I/YR = YTM= 9%; PMT = 1,000 x .08 = $80; FV = 1,000; PV = Price of the bond = 928.39

2. N=12; PV = -850; PMT = 1,000 x .10 = $100; FV=1,000; I/YR = YTM = 12.47%

3. N=7; I/YR=YTM=8; PMT = 1,000 x .09=$90, FV=1,000; PV=Price of the Bond =$1,052.06

Current Yield = 90/1,052.06 = 8.55%

6. real rate = 3%; Inflation premium = 3%; two year rate = 6.3%; MRP =

Two year rate = real rate + IP +MRP = 6.3%

3% + 3% + MRP = 6.3%

MRP = .3%

7. N=16;I/YR=8.5/2 = 4.25; PMT = 50; FV = 1,000

PV = -1,085.80

8. N=10 x 2; PV = -1,100; PMT = .08/2 x 1,000= 40; FV = 1,050; I/YR = 3.24%

YTC = 3.24% x 2 = 6.62%

9. a.

1. 5% Bond L: N=15; I/YR= 5; PMT = 100, FV = 1,000; PV = 1,518.98

   Bond S: change inputs to N=1, PV = $1,047.62

2. 8% Bond L: N=15; I/YR=8, PMT = 100; FV=1,000; PV = 1,171.19

   Bond S: change inputs N=1, PV= 1,018.52

3. 12% Bond L: N=15, PMT=100; FV=1,000, I/YR = 12; PV=863.78

Bond S: change inputs N=1; PV= 982.14

b. Think about the bond the matures in the next month. Its present value is influenced primarily by the maturity value coming due in a month. Even it interest rates were to double, the holder of this short term bond would get the maturity value plus coupon that is due at the end of the bond --- interest rates do not really matter at this point – maturity value does.

10. a.

1. N=5; PV=-829; PMT = 90; FV= 1,000; I/YR = 13.98%

2. Change inputs to PV = -1,104; I/YR = 6.50%

b. Yes, at a price of $829 the yield to maturity of 13.9% is greater than your required rate of return of 12%. If your required rate of return were 12% you would be willing to buy the bond at a price below $891.86.

11. N= 7; PV = -1,100; PMT = 60; FV = 1,000, I/YR = 14.82%

5-12 a. N= 20; PV = -1,100; PMT = 60; FV = 1,000; I/YR = 5.1849%

However the annual rate is 5.1849% x 2 = 10.3699%

b. The current yield is: $120/1,100 = 10.91%

c. YTM = Current Yield + Capital Gains Yield

10.37% = 10.91% + Capital Loss Yield

-.54% = Capital Loss Yield

d. N= 8; PV=-1,100; PMT = 60; FV = 1,060, I/YR = 5.0748*

So the annual yield to maturity would be 5.0748% x 2 = 10.1495%

5-13. PV = 974.42

I/YR = YTM = 8.6%

5-14. Current Yield = Annual Interest / Current Price on the Bond = $110/$1,020 = 10.78%

5-15. Need to calculate the bond's yield to call:

N=10; PV= -1,353.54; PMT = 70; FV =1,050; solve for I/YR = 3.24A%

Therefore, the annual yield to call is: 3.24% x 2 = 6.47%

5-16

	Price at 8%	Price at 7 %	Percentage Change in Price due to a 1% Change in Interest Rates
10% Annual Coupon	1,134.20	1,210.71	6.75%
10-Year Zero Coupon Bond	463.19	508.35	9.75%
5-Year Zero Coupon Bond	680.58	712.99	4.76%
30 Year Zero Coupon Bond	99.38	131.37	32.19%
$100 Perpetuity	1,250	1,428.57	14.29%