Sample Problems – Chapter 7

1. You are considering buying bonds in ACBB, Inc. The bonds have a par value of \$1,000 and mature in 37 years. The annual coupon rate is 10.0% and the coupon payments are annual. If you believe that the appropriate discount rate for the bonds is 13.0%, what is the value of the bonds to you?

- a. \$1,417.35
- b. \$870.65
- c. \$1,291.18
- d. \$771.74
- e. \$826.14

2. XZYY, Inc. currently has an issue of bonds outstanding that will mature in 31 years. The bonds have a face value of \$1,000 and a stated annual coupon rate of 20.0% with annual coupon payments. The bond is currently selling for \$890. The bonds may be called in 4 years for 120.0% of the par value. What is your expected quoted annual rate of return if you buy the bonds and hold them until maturity?

- a. 22.48%
- b. 28.24%
- c. 20.48%
- d. 33.33%
- e. 36.15%

3. Again, Inc. bonds have a par value of \$1,000, a 33 year maturity, and an annual coupon rate of 12.0% with annual coupon payments. The bonds are currently selling for \$923. The bonds may be called in 4 years for 112.0% of par. What quoted annual rate of return do you expect to earn if you buy the bonds and company calls them when possible?

- a. 17.14%
- b. 13.02%
- c. 18.84%
- d. 14.23%
- e. 11.66%

4. Within Year, Inc. has bonds outstanding with a \$1,000 par value and a maturity of 17 years. The bonds have an annual coupon rate of 17.0% with semi-annual coupon payments. You would expect a quoted annual return of 14.0% if you purchased these bonds. What are the bonds worth to you?

- a. \$1,192.81
- b. \$1,269.29
- c. \$834.55
- d. \$1,146.45
- e. \$2,285.40

5. Yes They May, Inc. has a bond issue outstanding with a \$1,000 par value and a maturity of 40 years. The bonds have an annual coupon rate of 15.0% with quarterly coupon payments. The current market price for the bonds is \$1,035. The bonds may be called in 4 years for 115.0% of par. What is the quoted annual yield-to-maturity for the bonds?

- a. 3.62%
- b. 14.49%
- c. 15.04%
- d. 16.51%
- e. 23.20%

6. Yes They Can, Inc. has a bond issue outstanding with a \$1,000 par value and a maturity of 20 years. The annual coupon rate is 9.0% with semi-annual coupon payments. The bonds are currently selling for \$859. The bonds may be called in 3 years for 109.0% of par. What is the quoted annual yield-to-call for these bonds?

- a. 10.73%
- b. 24.80%
- c. 11.30%
- d. 5.36%
- e. 17.66%

7. You are considering buying bonds in AZYX, Inc. The bonds have a par value of \$1,000 and mature in 13 years. The annual coupon rate is 11.0% and the coupon payments are annual. The bonds are currently selling for \$1,442.63 based on a yield-to-maturity of 6.0%. What is the bond's current yield?

- a. 15.87%
- b. 11.00%
- c. 6.00%
- d. 4.16%
- e. 7.62%

8. You are considering buying bonds in AZYX, Inc. The bonds have a par value of \$1,000 and mature in 13 years. The annual coupon rate is 11.0% and the coupon payments are annual. The bonds are currently selling for \$1,442.63 based on a yield-to-maturity of 6.0%. What is the bond's expected capital gain/loss if the bonds are held until maturity?

- a. 0.00%
- b. -5.00%
- c. -1.62%
- d. 1.84%
- e. -9.87%

Answers:

- 1. d
- 2. a
- 3. a
- 4. a
- 5. b
- 6. e 7. e
- 7. c 8. c
- Q = 1 = 4¹ = 1 = 1

Solutions

1.				
Ν	Ι	**PV**	FV	PMT
37	13	771.74	1000	(0.10)(1000)

2.

=:				
Ν	** I **	PV	FV	PMT
31	22.48	-890	1000	(0.20)(1000)

3.

•••				
Ν	** I **	PV	FV	PMT
4	17.14	-923	(1.12)(1000)	120

4.				
Ν	Ι	**PV**	FV	PMT
17 X 2	(14)/(2)	1192.81	1000	[0.17(1000)]/(2)

5.

Ν	** I **	PV	FV	PMT
40 X 4	3.622775	-1035	1000	[0.15(1000)]/(4)
O	2 (22775 X 4 14 400	/		

Quoted annual rate = 3.622775 X 4 = 14.49%

6.

Ν	** I **	PV	FV	PMT
3 X 2	8.828586	-859	1090	[0.09(1000)]/(2)

Quoted annual rate = 8.828586 X 2 = 17.66%

7.

current yield = (annual coupon payment)/(price) = [(0.11)(1000)]/(1442.63) = 0.0762 = 7.62%

8.

current yield = [(0.11)(1000)]/(1442.63) = 0.0762

YTM = current yield + capital gain/loss0.06 = 0.0762 + capital gain/losscapital gain/loss = -0.0162 = -1.62%