

Managerial Finance II

Instructor

Subject

Date

Chapter 9**Problem # 3: Future Value**

Formula: $FV = PV (1+i)^n$

3. You invest \$9,000 today, how much will you have:

a) In 2 years time at 9%?

$$FV = \$9,000 (1+.09)^2$$

$$FV = \$9,000 (1.09)^2$$

$$FV = 10,692.9$$

b) In 7 years a 12%?

$$FV = \$9,000 (1+.12)^7$$

$$FV = \$9,000 (1.12)^7$$

$$FV = 19,896.13$$

c) In 25 years at 14%?

$$FV = \$9,000 (1+.14)^{25}$$

$$FV = \$9,000 (1.14)^{25}$$

$$FV = 238,157.24$$

d) In 25 years at 14%, compounded semi-annually?

$$FV = A [(1+i)^n - 1/i]$$

$$FV = \$9,000 [(1+.14)^{25} - 1/.14]$$

$$FV = \$9,000 [(1.14)^{25} - 1/.14]$$

$$FV = \$9,000 (181.87)$$

$$FV = \$1,636,837.45$$

Problem # 5: Present Value

Formula: $PV = FV/(1+i)^n$

5. How much would you have to invest today to receive:

a) \$15,000 in 8 years at 10 percent?

$$PV = \$15,000/(1+.10)^8$$

$$PV = \$15,000/(1.10)^8$$

$$PV = \$6,997.61$$

b) \$20,000 in 12 years at 13 percent?

$$PV = \$20,000/(1+.13)^{12}$$

$$PV = \$20,000/(1.13)^{12}$$

$$PV = \$4,614.12$$

c) \$6,000 each year for 10 years at 9 percent?

$$PV = \$6,000/(1+.09)^{10}$$

$$PV = \$15,000/(1.09)^{10}$$

$$PV = \$2,534.46$$

d) \$50,000 each year for 50 years at 7 percent?

$$PV = \$50,000/(1+.07)^{50}$$

$$PV = \$50,000/(1.07)^{50}$$

$$PV = \$1,697.39$$

Problem # 6: Future Value

Formula: $FV = PV (1+i)^n$

6. If you invest \$2,000 a year in a retirement account, how much will you have:

a) In 5 years at 6 percent?

$$FV = \$2,000 (1+.06)^5$$

$$FV = \$2,000 (1.06)^5$$

$$FV = \$2,676.45$$

b) In 20 years at 10 percent?

$$FV = \$2,000 (1+.10)^{20}$$

$$FV = \$2,000 (1.10)^{20}$$

$$FV = \$13,455.00$$

c) In 40 years at 12 percent?

$$FV = \$2,000 (1+.12)^{40}$$

$$FV = \$2,000 (1.12)^{40}$$

$$FV = \$186,100.94$$

Problem # 17

17. What is the value of all future benefits?

$$\$2.00 + \$2.20 + \$2.40 = \$6.60$$

$$\$33 - \$6.60 = \$26.40 \text{ (Future Benefits)}$$

Formula: $PV = FV/(1+i)^n$

$$PV = \$26.40/(1+.11)^3$$

$$PV = \$26.40/(1.11)^3$$

$$PV = \$36.11$$

Chapter 10

Problem # 2

Formula: $P_b = \text{Interest Payment} + \text{Principal Payment}$

2. Midland Oil has \$1,000 par value bonds outstanding at 8 percent interest. The bonds will mature in 25 years. Compute the current price of the bonds if the present yield to maturity is:

a) 7 percent:

$$PV_A = A \times PV_{ifa}$$

$$PV_A = \$1,000 \times 1 - [1/(1+i)^n/i]$$

$$PV_A = \$1,000 \times 1 - [1/(1+.07)^{25}/.07]$$

$$PV_A = \$1,000 \times 11.66$$

$$PV_A = \$11,660$$

$$PV_A = \$11,660$$

$$P_b = 11,660 + 184.00 = \$11,844.00$$

$$PV = FV \times PV_{if}$$

$$PV = \$1,000 \times 1/(1+i)^n$$

$$PV = \$1,000 \times 1/(1+.07)^{25}$$

$$PV = \$1,000 \times 0.184$$

$$PV = \$184.00$$

b) 10 percent:

$$PV_A = A \times PV_{ifa}$$

$$PV_A = \$1,000 \times 1 - [1/(1+i)^n/i]$$

$$PV_A = \$1,000 \times 1 - [1/(1+.10)^{25}/.10]$$

$$PV_A = \$1,000 \times 9.08$$

$$PV_A = \$9,080$$

$$PV_A = \$9,080$$

$$P_b = \$9,080 + \$92.00 = \$9,172.00$$

$$PV = FV \times PV_{if}$$

$$PV = \$1,000 \times 1/(1+i)^n$$

$$PV = \$1,000 \times 1/(1+.10)^{25}$$

$$PV = \$1,000 \times 0.184$$

$$PV = \$92.00$$

c) 13 percent:

$$PV_A = A \times PV_{ifa}$$

$$PV_A = \$1,000 \times 1 - [1/(1+i)^n/i]$$

$$PV_A = \$1,000 \times 1 - [1/(1+.13)^{25}/.13]$$

$$PV_A = \$1,000 \times 7.31$$

$$PV_A = \$7,310$$

$$PV_A = \$7,310$$

$$Pb = \$7,310 + 47.00 = \$7,357.$$

$$PV = FV \times PV_{if}$$

$$PV = \$1,000 \times 1/(1+i)^n$$

$$PV = \$1,000 \times 1/(1+.13)^{25}$$

$$PV = \$1,000 \times 0.047$$

$$PV = \$47.00$$

Problem # 19

a) What is the original price?

$$\text{Formula: } P_o = D_o/K_e$$

$$P_o = \$6/.06$$

$$P_o = \$100$$

b) What is the current value of this preferred stock?

$$\text{Formula: } P_o = D_o/K_e$$

$$P_o = \$6/.14$$

$$P_o = \$42.86$$

c) How will the price of the preferred stock be affected?

The preferred stock will increase.

Problem # 24

Common Stock Value

$$\text{Formula: } P_o = D_1/K_e - g$$

a) Compute P_o

$$P_o = \$1.50/.10 - .05 = \$30$$

b) What is the new P_o

$$P_o = \$1.50/.12 - .05 = \$21.43$$

c) Growth rate and the new P_o

$$P_o = \$1.50/.10 - .07 = \$50$$

d) New Value of P_o

$$P_o = \$2/.10 - .05 = \$40$$