

Name _____

Student Number _____

MGF 301 Corporation Finance
Spring 2010

TEST 1

Please sign name in box

Please tear off the answer sheet and answer all of the following questions on the answer sheet.
(Note: Total Points = 100; Multiple Choice = 4 points each)

1. Which of the following statements about the constant growth stock pricing model is false?
- (a) a higher discount rate will result in a lower estimated stock price
 - (b) a higher growth rate will result in a higher estimated stock price
 - (c) there is no way to estimate the stock price of a company using this model if the company does not pay a dividend**
 - (d) none of the above

2. You have won an accident settlement in court and can choose between the following choices of payment plans:

- A: \$10,000 immediately and \$10,000 at the end of each year for 19 years
- B: \$60,000 immediately
- C: \$20,000 immediately and \$20,000 at the end of each year for 3 years

Mark each of the following as true (T) or false (F): (2 points each)

- F a. Regardless of the discount rate, plan B will never have the highest present value
- T b. If the discount rate is very low, plan A will have the highest present value
- T c. If the discount rate = r , the present value of plan A will be larger than $10,000 \times (20 \text{ year annuity factor})$

3. A company has introduced a new type of bond that pays interest that increases by 1% each year. It is a 5 year bond with a \$1,000 face value that pays 4% interest the first year, 5% the second year, 6% interest the third year, 7% the fourth year, and 8% the fifth year.

- (a) Set up an equation to find the price of this bond if the yield to maturity is 6%. Show as much detail as possible (you do not need to solve for an exact answer) (6 points)

$$\text{Price} = 40/1.06 + 50/1.06^2 + 60/1.06^3 + 70/1.06^4 + 1080/1.06^5$$

- (b) When, if ever, would this bond sell for a premium? Explain. (6 points)

This bond will sell at a premium if the YTM falls sufficiently. (Currently, the price is 995. This will go over \$1,000 next year if YTM stays the same or if YTM falls to about 5.5%).

4. Which of the following gives the EAR of a 10% annual rate compounded daily?

- (a) $.10 \times 365$
- (b) $(1+.10)^{365} - 1$
- (c) $(1+.10/12)^{12} - 1$
- (d) none of the above**

5. Your plan is to save \$10,000 at the end of each year for the next 20 years. If you earn 5% interest, how much will you have after 20 years (in time 20)? Setup a solution to the problem in as much detail as possible (note: you do not have to solve the equation). (6 points)

$$FV_{20} = 10000 \times [20 \text{ year annuity factor at } 5\%] \times (1.05)^{20}$$

or

$$FV_{20} = 10000 \times (1.05)^{19} + 10000 \times (1.05)^{18} + \dots + 10000 \times (1.05) + 10000$$

6. You have decided to buy a car from a relative for \$10,000 and pay equal amounts every week (i.e, 52 payments per year) for the next three years at an annual rate of 5.2%. Using either the annuity formula or the PMT formula from excel (=PMT(r,t,pv)), set up the calculation you would do to solve for the weekly payment. (Note: you do not have to solve your formula). (6 points)

$$=PMT(.052/52,52 \times 3,10000)$$

or

$$C = 10000/[1/.001 - 1/((.001 \times 1.001)^{156})]$$

7. BP Inc. is expected to have earnings per share (EPS) of \$4 in time 1, \$5 in time 2 and EPS that grows at 6% for every period after that. The company has a policy of paying 40% of its EPS as a dividend and the discount rate is 9%.

- (a) For years 3 and beyond, which of the following is the Return on Equity (ROE)?
 - (i) 6%
 - (ii) 9%
 - (iii) 10%**
 - (iv) 15%

(b) Set up your calculation of the expected stock price in detail. (Note: you do not need to solve for the price) (6 points)

$$\text{Price} = 1.60/1.09 + 2/((.09-.06)/1.09) \quad \text{or} \quad \text{Price} = 1.60/1.09 + 2/1.09^2 + 2.12/((.09-.06)/1.09^2)$$

- (c) Which of the following is true about the present value of growth opportunities?
 - (i) BP has low PVGO because the growth rate is below the discount rate
 - (ii) a non-growth perpetuity will be required as part of the**

calculation of PVGO

(iii) PVGO cannot be calculated here because the EPS does not increase at a constant rate

(iv) none of the above is true

8. Mark each of the following as True (T) or False (F). (2 points each)

F (a) The company receives cash when its stocks and/or bonds are bought in the secondary market by investors

F (b) A bond price will not change over the life of the bond unless the interest paid by the bond changes

F (c) All public companies are required to pay dividends so their stock prices can be estimated

9. Which of the following is true about a 10 year 8% bond with a face value of \$1,000 that is selling for \$1,050?

(a) if the yield to maturity remains constant over the next year, the price will be higher next year

(b) the yield to maturity is less than 8%

(c) the bond sells at a premium so it must pay more than \$80 each year as interest

(d) none of the above

10. Ten years ago, WXZ issued a bond paying interest of 6.75%, with face value of \$1,000 and a 30 year maturity. The bond was issued with a price of \$990 and was rated A by Standard & Poors.

Without doing any calculations, which of the following is false?

(a) today, the bond will be priced as if it were a 20 year bond because there are only 20 years remaining

(b) the bond's rating may change over the life of a bond

(c) if the yield to maturity goes up, the price of the bond will go up

(d) none of the above

11. For the bond in question 10, assume that two changes have happened over the last 10 years: (a) overall interest rates in the economy increased by two percent and (b) WXZ was very successful and its rating changed to AAA. What will be the effect of these two changes on the bond price?

Explain your answer in the space on the answer sheet. (6 points)

(a) an increase in interest rates in the economy will increase YTM which lowers the price of the bond; (b) an increase in the rating of the company lowers YTM which raises the price

Overall, the two effects move in opposite directions

12. A company has a 10 year 6% bond that pays interest quarterly, has a face value of \$1,000 and has YTM = 8%. Which of the following is the correct method for finding the price?

(a) Price = $20/(1.08) + 20/(1.08^2) + \dots + 20/(1.08^{10}) + 1000/(1.08^{10})$

(b) Price = $15/(1.02) + 15/(1.02^2) + \dots + 15/(1.02^{40}) + 1000/(1.02^{40})$

(c) Price = $20/(1.015) + 20/(1.015^2) + \dots + 20/(1.015^{40}) + 1000/(1.015^{40})$

(d) Price = $15/(1.02) + 15/(1.02^2) + \dots + 15/(1.02^{10}) + 1000/(1.02^{10})$

13. Julia will receive \$10,000 in five years (time 5) when she turns 21. If she invests the money immediately at a 4% interest rate, how much will her investment be worth when she is 30?