

Name _____

Student Number _____

MGF 301 Corporation Finance
Spring 2015

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) **there is no way to estimate the stock price of a company using this model if the company does not pay a dividend**
(b) a higher discount rate will result in a lower estimated stock price
(c) a higher growth rate will result in a higher estimated stock price
(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: \$75,000 immediately
C: \$20,000 immediately and \$20,000 at the end of each year for 3 years

Mark the following as true (T) or false (F) for $r > 0$: (2 points each)

- _T_ a. If the discount rate is very low (close to 0), plan A will have the highest present value
T b. The present value of plan A will be larger than $10,000 \times$ (20 year annuity factor)
F c. Plan B will never have the highest present value
3. (a) 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. Set up a formula to calculate the price if the YTM is 6%: (Note: you do not have to solve the formula) (6 points)

$$\text{Price} = 40/(1.06^1) + 50/(1.06^2) + 60/(1.06^3) + 70/(1.06^4) + 1080/(1.06^5)$$

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

This bond will sell for a premium when the weighted average coupon rate is greater than the discount rate. This will definitely be true for years 3, 4 and 5 and is probably true beginning in time 2.

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

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

5. Your retirement plan pays a perpetuity of \$30,000 each year starting in 40 years (time 40) and going on forever (with payments to your heirs after your death). Set up a formula for finding the present value of this perpetuity. (Note: you do not have to solve for the answer) (6 points)

$$PV = 30,000/r/(1+r)^{39}$$

6. A car dealer is offering to lease you a car for \$300/month for 36 months, with the right to buy the car in month 36 for \$10,000. What is the present value of leasing the car for 36 months and then buying it if the annual discount rate is 6% and you use monthly discounting? (Setup your calculation without solving it). (6 points)

$$PV = 300/(1+.06/12) + 300/(1+.06/12)^2 + \dots + 10,300/(1+.06/12)^{36}$$

$$\text{or } =pv(.06/12,36,-300,-10000)$$

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 time 3 and beyond. 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) 15%
 - (ii) 6%
 - (iii) 9%
 - (iv) 10%

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

$$\text{Div1} = 4 \times .4 = \$1.60$$

$$\text{Div2} = 5 \times .4 = \$2.00$$

$$P = 1.6/(1.09) + 2/(1.09^2) + 2*(1.06)/(.09-.06)/1.09^2$$

or

$$P = 1.6/(1.09) + 2/(\.09-.06)/1.09$$

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

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

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

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

9. Which of the following is true about a 10 year 8% bond with a face value of \$1,000 that is selling for \$950?

(a) the bond sells at a discount so it must pay less than \$80 each year as interest

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

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

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

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

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

(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) will cause YTM to go up because all interest rates are rising, which will reduce the price of the bond; (b) will cause YTM to go down because the company is less risky, which will cause the price of the bond to go up. As the effects are in opposite directions, it is not clear what the overall effect will be.

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

(a) Price = $15/(1.02) + 15/(1.02^2) + \dots + 1015/(1.02^{40})$

(b) Price = $20/(1.08) + 20/(1.08^2) + \dots + 1020/(1.08^{40})$

(c) Price = $15/(1.02) + 15/(1.02^2) + \dots + 1015/(1.02^{40})$

(d) Price = $20/(1.015) + 20/(1.015^2) + \dots + 1020/(1.015^{40})$

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?

(a) value = $10,000 \times (1.04)^{21}$