

Name _____

Student Number _____

TEST 1

MGF 301 Corporation Finance
Fall 2011

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. If you are earning interest at a 4% annual rate on deposits at a bank, which of the following will have the highest value after 5 years?
 - (a) an account that pays simple interest without compounding
 - (b) an account that pays compound interest quarterly (i.e., 4 times per year)
 - (c) an account that pays compound interest daily (i.e., 365 times per year)**
 - (d) cannot be determined

2. ABC corp. reported no news yesterday, but its price increased yesterday by 10% in trading on the New York Stock Exchange. Which of the following is true about ABC yesterday?
 - (a) the market value of the equity stayed the same
 - (b) the book value of equity increased by 10%
 - (c) the increase in the stock price increased the amount of cash that ABC has on hand
 - (d) none of the above is true.**

3. You are planning to make 20 equal annual payments beginning today (time 0) and running through time 19 to save for retirement. If you want to have \$1,000,000 in 40 years from today (time 40) and the interest rate you can earn on invested money is 5%, set up a calculation to show how to find the annual payment. (Note: you do not need to solve) (6 points)
\$1,000,000 in time 40 has PV = $1,000,000/1.05^{40} = \$142,045.70$

So set up an equation where the PV of 20 payments beginning in time 0 equals \$142,045.70 and solve:

 $\$142,045.70 = C + C(\text{annuity factor where } r=.05 \text{ and } t=19)$

4. A 10 year bond with a coupon rate of 8% was issued 4 years ago. It has a \$1,000 face value and pays a quarterly coupon. If the yield to maturity is 6%, set up a calculation to find the bond price. (Note: you do not need to solve) (6 points)

Price = $20/1.015 + 20/1.015^2 + 20/1.015^3 + \dots + 1020/1.015^{24}$

5. BCD Corp. has come out with a popular new product that analysts believe will cause BCS earnings to double in two years. Which of the following is the effect of this news on the BCD stock price?
 - (a) the price will increase only when dividends paid by BCD increase
 - (b) the price is set by the stock exchange and will not change because of the new product
 - (c) the price will increase only when the higher earnings are realized in two years
 - (d) none of the above**

6. Your retirement plan will begin making fixed monthly payments of \$2,000 to you 40 years from today. These payments will continue forever in perpetuity (and will go to your beneficiaries after you die). Set up a formula using monthly compounding to calculate the present value of this retirement plan. Note: you do not need to solve your formula. (6 points)

$$\text{If } R = r/12 \text{ then } PV = 2000/R/(1+R)^{478}$$

7. Ben is buying a car for \$15,000. If Ben wants to make four annual payments and the interest rate is 7%, which of the following is most consistent with time value of money principles if interest is compounded monthly?

- (a) There is no way to compound monthly if the payment is annual
- (b) The annual payment equals \$15,000 divided by 4 because there are 4 payments
- (c) The annual payment can be calculated by applying the annuity formula to find forty eight equal monthly payments and then multiplying the monthly payment by 12
- (d) None of the above is consistent**

8. Jason has a choice of Option A (receiving \$15,000 next year (in time 1)) or Option B (receiving 10,000 in time 1 and \$10,000 in time 2). Answer the following as (T)true or (F)alse

- T (a) For some discount rates, option A will have a higher PV than option B
- F (b) There is no discount rate where option B has a higher PV than option A
- F (c) If you calculate the future value of both options in time 2, Option B might have a higher FV even if it has a lower PV than A

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

- T (a) In the primary market, the company issues stocks and/or bonds to investors
- F (b) If a company does not pay a dividend, most analysts will estimate the stock price using the book value of equity
- T (c) Market value of equity is usually higher than book value of equity

10. Today, WXZ issued a bond paying interest of X, with face value of \$1,000 and a 30 year maturity. The bond was issued with a price of \$1,010 and was rated A by Standard & Poors.

Without doing any calculations, which of the following is not true?

- (a) the coupon rate for this bond is fixed when issued and will not change over the 30 year life
- (b) the bond currently pays more interest than investors require given the risk
- (c) the bond price will increase each year**
- (d) none of the above

11. For the bond in question 10, if the following changes occur 5 years from now: (i) the company's rating is changed to AA and (ii) overall interest rates in the economy go down, which of the following is true about the price of the bond in 5 years?

- (a) the price of the bond will go down
- (b) the price of the bond will go up**
- (c) the two effects at least partially offset so that it is not clear what will happen to the price of the bond
- (d) none of the above

12. Which of the following is true about a 10 year 8% bond with a face value of 1,000 that is selling for 1050?

- (a) the bond will pay more interest each year if it is a semi-annual bond that pays twice a year
- (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

13. If you have received a 7% return on a bond that you own and the inflation rate is 3%, what is the approximate real rate of return on the bond?

- (a) 10%
- (b) 7%
- (c) 3%
- (d) **4%**

14. BP Inc. has 3,000,000 shares of stock issued and outstanding. The expected earnings of the company are \$6 million in time 1. The discount rate is 11%.

- (a) If BP pays out 60% of its earnings as dividends and has a return on equity of 13%, calculate the growth rate of dividends. Show your work. (6 points)

$$g = .13 \times .6 = .078$$

- (b) If the dividend paid by BP is expected to grow at the rate in (a) above in perpetuity, calculate the present value of growth options (PVGO) for its stock. Show your work. (6 points)

$$EPS_1 = 6,000,000/3,000,000 = \$2$$

$$Div_1 = 2 \times .6 = \$1.20$$

$$PVGO = (1.2/(\.11 - .078)) - (2/\.11) = 2.51$$

15. Alex is considering taking out a new loan at a lower interest rate to replace his current mortgage loan on his house. It will cost \$4,000 today in fees to complete the refinancing transaction. His bank loan officer has calculated that Alex will save \$100 per month if he refinances and that it will take $4000/100 = 40$ months for this transaction to pay for itself. Applying principles we have discussed in class, will this transaction pay for itself in 40 months? Explain (6 points)

He will save \$100 each month for 40 months. The PV of this will be less than \$4,000 because \$100 in month 40 will be less than \$100 today, etc. So because of the time value of money, he will not get his money back in 40 months – it will take longer.