

**Dr. A. Frank Thompson**

*Coverage: Valuation of Stocks and Bonds, Discounted Cash Flow Valuation, and Long Term Debt Characteristics. Please choose the best possible answer to the following questions. Completed exams and scan sheets will be due at the beginning of class on March 7, 2011.*

**True/False**

*Indicate whether the statement is true or false.*

- \_\_\_ 1. Suppose an investor plans to invest a given sum of money. She can earn an effective annual rate of 5% on Security A, while Security B will provide an effective annual rate of 12%. Within 11 years' time, the compounded value of Security B will be more than twice the compounded value of Security A. (Ignore risk, and assume that compounding occurs daily.)
- \_\_\_ 2. A bond that had a 20-year original maturity with 1 year left to maturity has more interest rate price risk than a 10-year original maturity bond with 1 year left to maturity. (Assume that the bonds have equal default risk and equal coupon rates, and they cannot be called.)
- \_\_\_ 3. The cash flows associated with common stock are more difficult to estimate than those related to bonds because stocks only have residual claims against the company.
- \_\_\_ 4. A call provision gives bondholders the right to demand, or "call for," repayment of a bond. Typically, calls are exercised if interest rates rise, because when rates rise the bondholder can get the principal amount back and reinvest it elsewhere at higher rates.
- \_\_\_ 5. Sinking funds are devices used to force companies to retire bonds on a scheduled basis prior to their maturity. Many bond indentures allow the company to acquire bonds for a sinking fund by either purchasing bonds in the market or selecting the bonds to be acquired by a lottery administered by the trustee through a call at face value.
- \_\_\_ 6. For bonds, price sensitivity to a given change in interest rates is generally greater the longer before the bond matures.
- \_\_\_ 7. As a general rule, a company's debentures have higher required interest rates than its mortgage bonds because mortgage bonds are backed by specific assets while debentures are unsecured.

**Multiple Choice**

*Identify the choice that best completes the statement or answers the question.*

- \_\_\_ 8. You are analyzing the value of a potential investment by calculating the sum of the present values of its expected cash flows. Which of the following would lower the calculated value of the investment?
  - a. The cash flows are in the form of a deferred annuity, and they total to \$100,000. You learn that the annuity lasts for only 5 rather than 10 years, hence that each payment is for \$20,000 rather than for \$10,000.
  - b. The discount rate increases.
  - c. The riskiness of the investment's cash flows decreases.
  - d. The total amount of cash flows remains the same, but more of the cash flows are received in the earlier years and less are received in the later years.
  - e. The discount rate decreases.
- \_\_\_ 9. Which of the following bank accounts has the highest effective annual return?
  - a. An account that pays 8% nominal interest with monthly compounding.

- b. An account that pays 8% nominal interest with annual compounding.
  - c. An account that pays 7% nominal interest with daily (365-day) compounding.
  - d. An account that pays 7% nominal interest with monthly compounding.
  - e. An account that pays 8% nominal interest with daily (365-day) compounding.
- \_\_\_ 10. A Treasury bond promises to pay a lump sum of \$1,000 exactly 3 years from today. The nominal interest rate is 6%, semiannual compounding. Which of the following statements is CORRECT?
- a. The periodic interest rate is greater than 3%.
  - b. The periodic rate is less than 3%.
  - c. The present value would be greater if the lump sum were discounted back for more periods.
  - d. The present value of the \$1,000 would be smaller if interest were compounded monthly rather than semiannually.
  - e. The PV of the \$1,000 lump sum has a higher present value than the PV of a 3-year, \$333.33 ordinary annuity.
- \_\_\_ 11. Last year Toto Corporation's sales were \$225 million. If sales grow at 6% per year, how large (in millions) will they be 5 years later?
- a. \$271.74
  - b. \$286.05
  - c. \$301.10
  - d. \$316.16
  - e. \$331.96
- \_\_\_ 12. Suppose the U.S. Treasury offers to sell you a bond for \$747.25. No payments will be made until the bond matures 5 years from now, at which time it will be redeemed for \$1,000. What interest rate would you earn if you bought this bond at the offer price?
- a. 4.37%
  - b. 4.86%
  - c. 5.40%
  - d. 6.00%
  - e. 6.60%
- \_\_\_ 13. Ten years ago, Levin Inc. earned \$0.50 per share. Its earnings this year were \$2.20. What was the growth rate in Levin's earnings per share (EPS) over the 10-year period?
- a. 15.17%
  - b. 15.97%
  - c. 16.77%
  - d. 17.61%
  - e. 18.49%
- \_\_\_ 14. An investment promises the following cash flow stream: \$750 at Time 0; \$2,450 at the end of Year 1 (or at  $t = 1$ ); \$3,175 at the end of Year 2; and \$4,400 at the end of Year 3. At a discount rate of 8.0%, what is the present value of the cash flow stream?
- a. \$7,916.51
  - b. \$8,333.17
  - c. \$8,771.76
  - d. \$9,233.43
  - e. \$9,695.10
- \_\_\_ 15. Your uncle has \$300,000 invested at 7.5%, and he now wants to retire. He wants to withdraw \$35,000 at the end of each year, beginning at the end of this year. He also wants to have \$25,000 left to give you when he ceases to withdraw funds from the account. For how many years can he make the \$35,000 withdrawals and still have \$25,000 left in the end?
- a. 14.21
  - b. 14.96

- c. 15.71
- d. 16.49
- e. 17.32

- \_\_\_\_\_ 16. Your uncle has \$300,000 invested at 7.5%, and he now wants to retire. He wants to withdraw \$35,000 at the beginning of each year, beginning immediately. He also wants to have \$25,000 left to give you when he ceases to withdraw funds from the account. For how many years can he make the \$35,000 withdrawals and still have \$25,000 left in the end?
- a. 11.98
  - b. 12.61
  - c. 13.27
  - d. 13.94
  - e. 14.63
- \_\_\_\_\_ 17. Suppose you are buying your first house for \$210,000, and are making a \$20,000 down payment. You have arranged to finance the remaining amount with a 30-year, monthly payment, amortized mortgage at a 6.5% nominal interest rate. What will your equal monthly payments be?
- a. \$1,083.84
  - b. \$1,140.88
  - c. \$1,200.93
  - d. \$1,260.98
  - e. \$1,324.02
- \_\_\_\_\_ 18. You decide to purchase a \$210,000 home making a \$20,000 downpayment. You secure a 6.5% fixed rate, 30 year mortgage on the balance. 10 years later when interest rates have dropped to 5%, you decide to refinance. What is the amount of the outstanding loan balance at the time of refinancing?
- a. \$161,074.74
  - b. \$130,258.90
  - c. \$154,293.17
  - d. \$134,287.14
- \_\_\_\_\_ 19. Your company has just taken out a 1-year installment loan for \$72,500. The nominal rate is 12.0%, but with equal end-of-month payments. What percentage of the 2nd monthly payment will go toward the repayment of principal?
- a. 73.01%
  - b. 76.85%
  - c. 80.89%
  - d. 85.15%
  - e. 89.63%
- \_\_\_\_\_ 20. Which of the following events would make it more likely that a company would choose to call its outstanding callable bonds?
- a. The company's bonds are downgraded.
  - b. Market interest rates rise sharply.
  - c. Market interest rates decline sharply.
  - d. The company's financial situation deteriorates significantly.
  - e. Inflation increases significantly.
- \_\_\_\_\_ 21. Which of the following bonds would have the greatest percentage increase in value if all interest rates fall by 1%?
- a. 10-year, zero coupon bond.
  - b. 20-year, 10% coupon bond.
  - c. 20-year, 5% coupon bond.
  - d. 1-year, 10% coupon bond.
  - e. 20-year, zero coupon bond.





- \_\_\_\_\_ 32. A stock is expected to pay a dividend of \$0.75 at the end of the year. The required rate of return is  $r_s = 12.5\%$ , and the expected constant growth rate is  $g = 8.5\%$ . What is the current stock price?
- a. \$17.82
  - b. \$18.28
  - c. \$18.75
  - d. \$19.22
  - e. \$19.70
- \_\_\_\_\_ 33. If  $D_1 = \$1.75$ ,  $g$  (which is constant) =  $4.5\%$ , and  $P_0 = \$46$ , what is the stock's expected dividend yield for the coming year?
- a. 3.26%
  - b. 3.43%
  - c. 3.61%
  - d. 3.80%
  - e. 3.99%

