Midterm Exam

Financial Management (1514 & 1515, Fall 2015)
National Chiao Tung University
November 9, 2015 (Monday) 17:30 to 19:20

Instructions

- Please read the questions carefully and make sure you provide answers to all parts of questions.
- Raise your hand if you have any problem. Please do not talk to or exchange notes with other students.
- No bathroom breaks are allowed.
- Turn off your cell phone(s) and any other electronic device.

Part I. Multiple Choice (50%, 2 points each, <u>choose one correct answer</u>)**:**

1. A firm with no leases has a long-term debt ratio of 50%. This means that the book value of equity:
   (A) equals the book value of long-term debt
   (B) is less than the book value of long-term debt.
   (C) is greater than the book value of long-term debt.
   (D) is unknown in relation to the book value of long-term debt.
   (E) equals the market value of long-term debt.

2. Which of the following statements is correct?
   (A) For a given amount, the lower the discount rate, the less the present value.
   (B) The present value of an annuity due equals the present value of an ordinary annuity times the discount rate.
   (C) Converting an annuity to an annuity due increases the present value.
   (D) Nominal dollars refer to the amount of purchasing power.
   (E) An effective annual rate must be greater than an annual percentage rate.

3. Which of these indicates that a firm is efficient?
   (A) A high average collection period.
   (B) A high day's sales in inventories.
   (C) A low asset turnover.
   (D) A high inventory turnover.
   (E) A quick ratio that is lower than 1.

4. Which of following statements is incorrect?
   (A) Bonds that have a Standard & Poor's rating of BBB or better are considered to be investment-grade bonds.
   (B) Zero-coupon bonds are issued at prices below face value, and the investor's return comes from the difference between the purchase price and the payment of face value at maturity.
   (C) Bond investors may encounter decrease in income when they replace matured bonds with new-issued bonds when interest rate drops.
   (D) A downward sloping yield curve is observed when the current interest rate and inflation are both at low levels.
   (E) Bonds with a rating of Ba or below by Moody's are referred to as speculative grade, high-yield, or junk bonds.

5. A firm has $600,000 in current assets and $150,000 in current liabilities. Which of the following is correct if it uses cash to pay off $50,000 in accounts payable?
   (A) Current ratio will increase to 5.0.
   (B) Net working capital will increase to $500,000.
   (C) Current ratio will decrease.
   (D) Net working capital will not change.
   (E) Net working capital will decrease to $300,000.

6. What happens to a discount bond as the time to maturity decreases?
   (A) The coupon rate increases.
   (B) The coupon rate decreases.
   (C) The bond price increases.
   (D) The bond price decreases.
   (E) Neither the bond price nor the coupon rate would change.

7. Assume the total expense for your current year in college equals $20,000. How much would your parents have needed to invest 21 years ago in an account paying 8% compounded annually to cover this amount?
   (A) $952.46.
   (B) $1,600.00.
   (C) $1,728.08.
   (D) $3,973.11.
   (E) $6,754.26.

8. What are the annual sales for a firm with $400,000 in debt, a total debt ratio of .4, and an asset turnover of 3?
   (A) $333,333.
   (B) $1,200,000.
   (C) $1,800,000.
   (D) $3,000,000.
   (E) The amount of sales cannot be determined.

9. How much should you pay for a $1,000 bond with 10% coupon, annual payments, and 5 years to maturity if the interest rate is 12%?
   (A) $825.66.
   (B) $927.90.
   (C) $981.40.
   (D) $1,000.00.
   (E) $1,075.82.

10. In calculating the present value of $1,000 to be received 5 years from today, the discount factor has been calculated to be .7008. What is the apparent interest rate?
    (A) 5.43%.
    (B) 7.37%.
    (C) 8.12%.
    (D) 9.50%.
    (E) 12.13%.

11. Which of the following will allow your firm to achieve its targeted 16% ROA with an asset turnover of 2.5?
    (A) A profit margin of 6.4%.
    (B) A leverage ratio of 0.0667.
    (C) A P/E ratio of 14.
    (D) A return on equity of 25%.
    (E) A plowback ratio of 30%.

12. If the coupon rate on an outstanding bond is lower than the relevant current interest rate, then the yield to maturity will be:
    (A) lower than current interest rates
    (B) equal to the coupon rate
    (C) higher than the coupon rate
    (D) lower than the coupon rate
    (E) having no determined relation with the coupon rate

13. What is the present value of a five-period annuity of $3,000 if the interest rate per period is 12% and the first payment is made today?
    (A) $9,655.65.
    (B) $10,814.33.
    (C) $12,112.05.
    (D) $13,200.00.
    (E) $16,412.67.

14. Which one of these costs accounts for the difference between accounting income and economic value added?
    (A) Cost of capital.
    (B) Depreciation.
    (C) Taxes.
    (D) Dividends.
    (E) Interest payments.

15. After reading the fine print in your credit card agreement, you find that the "low" interest rate is actually an 18% APR, or 1.5% per month. What is the effective annual rate?
    (A) 18.47%
    (B) 19.56%
    (C) 18.82%
    (D) 19.21%.
    (E) 20.13%.

16. Which one of these is included in the yield of a bond with a low credit rating but not included in a U.S. Treasury bond yield? Assume both bonds are selling at a premium.
    (A) Real rate of return.
    (B) Inflation premium.
    (C) Loss of premium.
    (D) Interest rate risk premium.
    (E) Default premium.

17. What is the approximate total debt ratio for a firm with a total debt-equity ratio of .65?
    (A) 35%.
    (B) 39%.
    (C) 49%.
    (D) 54%.
    (E) 65%.

18. Investors who buy which type of bond will be guaranteed a capital loss if they hold the bond to maturity?
    (A) Discount bond.
    (B) Zero-coupon bond.
    (C) Junk bond.
    (D) Index bond.
    (E) Premium bond.

19. If a company has a healthy current ratio but a significantly lower quick ratio, then you can assume that:
    (A) the cost of goods sold represents more than half of sales.
    (B) current liabilities exceed current assets
    (C) the firm sells only on a cash basis
    (D) the amount of account receivable is relatively high
    (E) inventory represents a large portion of the firm's current assets

20. Consider a 3-year bond with a par value of $1,000 and an 8% annual coupon. If interest rates change from 8 to 6% the bond's price will:
    (A) increase by $51.54.
    (B) increase by $53.46.
    (C) decrease by $51.54.
    (D) decrease by $53.46.
    (E) decrease by $58.97.

21. Which of following statements is not correct?
    (A) Businesses that aggressively exploit any means possible to increase current earnings may cross over into fraudulent account practices.
    (B) Net working capital to total assets and current ratio are both liquidity ratios.
    (C) Market value added is the difference between the market value of the firm's equity and its book value.
    (D) The difference between the current and quick ratios is that inventory has been subtracted from current assets.
    (E) The higher the times interest earned ratio, the higher the interest expense.

22. What is the rate of return for an investor who pays $1,054.47 for a 3-year bond with coupon of 6.5% and sells the bond 1 year later for $1,037.19?
    (A) 4.53%.
    (B) 5.33%.
    (C) 5.16%.
    (D) 4.92%.
    (E) 6.78%.

23. The current ratio is a good proxy for a firm's:
    (A) efficiency
    (B) degree of leverage
    (C) profitability
    (D) growth opportunity
    (E) liquidity

24. What will be the monthly payment on a home mortgage of $75,000 at 12% interest, to be amortized over 30 years?
    (A) $771.46.
    (B) $808.90.
    (C) $956.33.
    (D) $1,028.61.
    (E) $9,310.77.

25. Which of the following statements is true?
    (A) Other things equal, an increase in average accounts receivable will increase a firm's return on assets.
    (B) Residual income is another term for market value added.
    (C) ROE is equal to ROA when the firm has no debt.
    (D) Bondholders face no risk when interest rate declines, because the bond prices would increase.
    (E) Firms will call their bonds for redemption when interest rate rises above the coupon rate.

Part II. Problems (50%, detail procedures must be provided)**:**

1. (5 points) What is the marginal tax rate for a corporation with $60,000 of taxable income and an average tax rate of 18% if the next-lowest marginal tax rate of 15% covers taxable incomes up to $50,000?

2. (20 points) Measuring corporate performance.
   (A) (5 points) The board of directors is dissatisfied with last year's ROE of 15%. If the profit margin and asset turnover ratio remain unchanged at 8% and 1.25, respectively, by how much must the leverage ratio (*i.e.*, assets/equity) increase to achieve 20% ROE?
   (B) (5 points) What is the ROE for a firm with a times interest earned ratio of 2, a tax liability of $1 million, and interest expense of $1.5 million if equity equals $1.5 million?
   (C) (5 points) In the past year, TVG had revenues of $3 million, cost of goods sold of $2.5 million, and depreciation expense of $200,000. The firm has a single issue of debt outstanding with a face value of $1million, market value of $.92 million, and a coupon rate of 8%. What is the firm's times interest earned ratio?
   (D) (5 points) Value Corp. recently reported earnings of $2 per share and each of its 50,000 shares is currently selling for $20. The firm's book equity is $600,000. Calculate the firm's price-to-earnings (P/E) and market-to-book ratios.

3. (6 points) Please explain the 4 main factors that affect a firm’s degree of sustainable growth. Please explain the relation between the degree of sustainable growth and each of factors.

4. (7 points) You are considering the purchase of a home that would require a mortgage of $150,000. How much more in *total interest* will you pay if you select a 30-year mortgage at 5.65% rather than a 15-year mortgage at 4.9%? (assuming the mortgage payment is made monthly)

5. (5 points) How much should you be prepared to pay for a 10-year bond with an annual coupon of 6%, face value of $1,000, and a yield to maturity of 7.5%?

6. (7 points) A bond has 8 years until maturity, carries a coupon rate of 8%, and sells for $1,100. What is the current yield and approximated yield to maturity on the bond?