Midterm Exam

Financial Management (1510 & 1511, Fall 2017)
National Chiao Tung University
November 7, 2017 (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, choose one correct answer)**:**

1. A bond is priced at $1,100, has 10 years remaining until maturity, and has a 10% coupon, paid semiannually. What is the amount of the next interest payment?
   (A) $50.
   (B) $55.
   (C) $100.
   (D) $110.
   (E) $150.

2. Which of the following statements is correct?
   (A) The reduction in value over time of intangible assets is known as amortization..
   (B) MVA is the net profit of the firm adjusted for the cost of capital.
   (C) Receivable turnover ratio and asset turnover ratio are both liquidity ratios.
   (D) Net working capital is determined from the difference between current assets and long-term liabilities.
   (E) An annuity factor represents the future value of $1 that is deposited today.

3. When Tri-C Corp. compares its ratios to industry averages, it has a higher current ratio, an average quick ratio, and a lower inventory turnover. What might you assume about Tri-C?
   (A) Its cash balance is too low.
   (B) Its cost of goods sold is too low.
   (C) Its current liabilities are too low.
   (D) Its average inventory is too high.
   (E) Its book-to-market ratio is too low.

4. Which of following statements is correct?
   (A) Accrued interest declines with each payment on an amortizing loan.
   (B) The more frequent the compounding, the lower the future value, other things equal. .
   (C) An annual percentage rate (APR) is determined by annualizing the rate using compound interest.
   (D) A dollar tomorrow is worth more than a dollar today.
   (E) Any sequence of equally spaced, level cash flows is called an annuity. An annuity is also known as a perpetuity.

5. How much interest will be earned in the next year on an investment paying 12% compounded annually if $100 was just credited to the account for interest?
   (A) $88.
   (B) $100.
   (C) $112.
   (D) $200.
   (E) $280.

6. The only measure of firm performance that accounts for cost of capital is:
   (A) ROC.
   (B) ROA.
   (C) EVA.
   (D) ROE.
   (E) MVA.

7. How much can be accumulated for retirement if $2,000 is deposited annually, beginning 1 year from today, and the account earns 9% interest compounded annually for 40 years?
   (A) $87,200.00.
   (B) $675,764.89.
   (C) $736,583.73.
   (D) $802,876.27.
   (E) $966,323.11.

8. The purpose of a floating-rate bond is to:
   (A) save interest expense for corporate issuers.
   (B) avoid making interest payments until maturity.
   (C) shift the yield curve.
   (D) offer rates that adjust to current market conditions.
   (E) reduce likelihood of default from issuers.

9. Which of the following statements is correct for a firm in which depreciation expense exceeds EBIT? The firm:
   (A) will have a net loss.
   (B) will have no income-tax liability.
   (C) needs to lower its interest expense.
   (D) can still have a positive net income.
   (E) must have a negative net working capital.

10. The yield curve depicts the current relationship between:
   (A) bond yields and default risk.
   (B) bond maturity and bond ratings.
   (C) bond ratings and potential default rates.
   (D) promised yields and default premiums.
   (E) bond yields and maturity.

11. When an investment pays only simple interest, this means:
   (A) the interest rate is lower than on comparable investments.
   (B) the future value of the investment will be low.
   (C) the earned interest is nontaxable to the investor.
   (D) interest is earned only on the original investment.
   (E) the earned interest will grow throughout more compounding periods.

12. If a firm has a debt-equity ratio of .45, long-term debt of $500, and equity of $2,000, then:
   (A) current liabilities must be $400.
   (B) current assets must be $400.
   (C) retained earnings must be $900.
   (D) preferred stock must be $400.
   (E) market-to-book ratio should be 2.5.

13. A "convertible bond" provides the option to convert:
   (A) fixed-rate coupon payments into floating-rate payments.
   (B) a zero-coupon bond to a coupon-paying bond.
   (C) a junk bond to a investment-grade bond.
   (D) a bond without sinking fund to a bond with sinking fund.
   (E) a bond into shares of common stock.

14. If the future value of an annuity due is $25,000 and $24,000 is the future value of an ordinary annuity that is otherwise similar to the annuity due, what is the implied discount rate?
    (A) 1.04%.
    (B) 5.00%.
    (C) 4.17%.
    (D) 6.29%.
    (E) 8.19%.

15. A firm has average daily expenses of $2.13 million and average accounts payable of $112.7 million. On average, how many days does it take the firm to pay its bills?
    (A) 63.47 days
    (B) 52.91 days
    (C) 48.19 days
    (D) 59.03 days
    (E) 69.33 days

16. The market price of a bond with 12 years until maturity and an annual coupon rate of 8% increased yesterday. Which one of these may have caused this price increase?
    (A) The bond's rating was downgraded.
    (B) The issuing firm announced the next interest payment.
    (C) The issuing firm announced that its annual earnings met investor expectations.
    (D) A similar bond has just defaulted on its interest payment.
    (E) Market interest rates decreased.

17. The salesperson offers, "Buy this new car for $25,000 cash or, with an appropriate down payment, pay $500 per month for 48 months at 8% interest." Assuming that the salesperson does not offer a free lunch, calculate the "appropriate" down payment.
    (A) $1,000.00.
    (B) $5,127.24.
    (C) $9,685.22.
    (D) $8,000.00.
    (E) $4,519.04.

18. What is the yield to maturity for a bond paying $100 annually that has 6 years until maturity and sells for $1,000?
    (A) 6.0%.
    (B) 8.5%.
    (C) 10.0%.
    (D) 12.5%.
    (E) 15.0%.

19. A total debt ratio of .35:
    (A) indicates that the firm is financed with 35% long-term debt.
    (B) would exist if a firm had liabilities of $700 and assets of $2,000.
    (C) indicates that 35 cents of every dollar of capital is in the form of short-term debt.
    (D) indicates that 35 cents of every dollar of capital is in the form of long-term debt.
    (E) would exist if a firm had equities of $700 and assets of $2,000.

20. Three thousand dollars is deposited into an account paying 10% annually to provide three annual withdrawals of $1,206.34 beginning in one year. How much remains in the account after the second payment has been withdrawn?
    (A) $1,326.97.
    (B) $1206.34.
    (C) $587.32.
    (D) $2,093.66.
    (E) $1,096.69.

21. Which one of the following is correct concerning real interest rates?
    (A) Real interest rates are constant.
    (B) Real interest rates, if positive, increase purchasing power over time.
    (C) Real interest rates must be positive.
    (D) Real interest rates must be less than nominal interest rates.
    (E) Real interest rates often fluctuate with economic condition.

22. Balsco's balance sheet shows total assets of $238,000 and total liabilities of $107,000. The firm has 55,000 shares of stock outstanding that sell for $11 a share. What is amount of market value added?
    (A) $389,000.
    (B) $474,000.
    (C) $1,073,000.
    (D) $123,712.
    (E) $226,000.

23. What happens to the coupon rate of a $1,000 face value bond that pays $80 annually in interest if market interest rates change from 9% to 10%?
    (A) The coupon rate increases to 10%.
    (B) The coupon rate remains at 9%
    (C) The coupon rate remains at 8%
    (D) The coupon rate increases to 9%
    (E) The coupon rate decreases to 7%

24. Given a set future value, which of the following will contribute to a lower present value?
    (A) Higher discount rate.
    (B) Fewer time periods.
    (C) Less frequent discounting.
    (D) Lower discount factor.
    (E) Higher discount factor.

25. Calculate the average collection period for Dots Inc. if its accounts receivables were $550 at the beginning of a year in which the firm generated $3,000 of sales?
    (A) 55 days.
    (B) 60 days.
    (C) 61 days.
    (D) 67 days.
    (E) 73 days.

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

1. (5 points) What is the marginal tax rate for a corporation with $65,000 of taxable income and an average tax rate of 20% if the next-lowest marginal tax rate of 16% covers taxable incomes up to $50,000?

2. (5 points) By how much must a firm reduce its assets in order to improve ROA from 10% to 12% if the firm's operating profit margin is 5% on sales of $4 million?

3. (5 points) A company has total assets of $1,000, current liabilities of $130, and total liabilities of $350. What is the long-term debt ratio?

4. (6 points) Travel Corp. has net income of $1.95 million, an effective tax rate of 35%, interest expense of $400,000, an asset turnover of 2, and $14 million in total assets, of which $7 million is debt. Use the DuPont system to calculate its ROE, decomposed into leverage ratio, asset turnover, profit margin, and debt burden.

5. (5 points) Sappy Syrup's ROA equals the industry average, but its ROE exceeds the industry average. How is this possible?

6. (6 points) How much must be deposited today in an account earning 6% annually to accumulate a 20% down payment to use in purchasing a car one year from now, assuming that the car's current price is $20,000 which would grow with inflation rate of 4% in a year?

7. (6 points) Approximately how much should be accumulated by the beginning of retirement to provide a $2,500 monthly check that will last for 25 years, during which time the fund will earn 6% interest with monthly compounding?

8. (6 points) If a 4-year bond with a 7% coupon and a 10% yield to maturity is currently worth $904.90, how much will it be worth 1 year from now if interest rates are constant?

9. (6 points) What is the total return to an investor who buys a bond for $1,100 when the bond has a 9% coupon and 5 years until maturity, then sells the bond after 1 year for $1,085?