

## Test3

1. The market value of Charcoal Corporation's common stock is \$20 million, and the market value of its risk-free debt is \$5 million. The beta of the company's common stock is 1.25, and the market risk premium is 8%. If the treasury bill rate is 5%, what is the company's cost of capital? (Assume no taxes.)
  - A. 17%
  - B. 14.6%
  - C. 13%
  - D. None of the above
  
2. The market value of XYZ Corporation's common stock is 40 million and the market value of the risk-free debt is 60 million. The beta of the company's common stock is 0.8, and the expected market risk premium is 10%. If the treasury bill rate is 6%, what is the firm's cost of capital? (Assume no taxes.)
  - A. 9.2%
  - B. 14%
  - C. 10%
  - D. None of the above

The historical returns data for the past three years for Company A's stock is -6.0%, 15%, 15% and that of the market portfolio is 10%, 10% and 16%.

3. Calculate the beta for Stock A.
  - A. 1.75
  - B. 1.0
  - C. 0.57
  - D. None of the above

The historical returns data for the past three years for Stock B and the stock market portfolio are: Stock B: 24%, 0%, 24%, Market Portfolios: 10%, 12%, 20%.

4. Calculate the variance in the market.
  - A. 192 (0.0192)
  - B. 128 (0.0128)
  - C. 28 (0.0028)
  - D. None of the above
  
5. Financial leverage affects the risk of the firm's assets.
 

True    False
  
6. A project has the following cash flows:  $C_0 = -100,000$ ;  $C_1 = 50,000$ ;  $C_2 = 150,000$ ;  $C_3 = 100,000$ . If the discount rate changes from 12% to 15%, what is the change in the NPV of the project (approximately)?
  - A. 12,750 increase
  - B. 12,750 decrease
  - C. 122,650 increase
  - D. 135,400 decrease

7. ~~A project has an initial investment of \$150. You have come up with the following estimates of revenues and costs. Calculate the NPV assuming that cash flow and perpetuities. (No taxes.)~~

	<del>Pessimistic</del>	<del>Most Likely</del>	<del>Optimistic</del>
<del>Total Revenues</del>	<del>30</del>	<del>50</del>	<del>65</del>
<del>Total Costs</del>	<del>-25</del>	<del>-20</del>	<del>-15</del>

- A. ~~50, -100, +400~~
- B. ~~-50, +300, +500~~
- C. ~~-100, +150, +350~~
- D. ~~None of the above~~

8. Petroleum Inc. owns a lease to extract crude oil from sea. It is considering the construction of a deep-sea oil rig at a cost of \$20 million (I0) and is expected to remain constant. The price of oil P is \$20/bbl and the extraction costs are \$8/bbl. The quantity of oil Q = 200,000 bbl per year forever. The risk-free rate is 10% per year which is also the cost of capital (Ignore taxes).

Calculate the value of the option to wait for one year

- A. + 6,000,000
- B. +4,000,000
- C. +10,000,000
- D. none of the above

9. Briefly explain why, in a competitive securities market, successive price changes are random.

10. If the capital markets are efficient, then the sale or purchase of any security at the prevailing market price is:

- A. Always a positive NPV transaction
- B. Generally a zero NPV transaction
- C. Is always a negative NPV transaction
- D. None of the above

11. The statement that stock prices follow a random walk implies that:

- (I) Successive price changes are independent of each other
- (II) Successive price changes are positively related
- (III) Successive price changes are negatively related
- (IV) The autocorrelation coefficient is either + 1 or -1

- A. I only
- B. II and III only
- C. IV only
- D. III only

12. The statement that stock prices follow a random walk implies that:

- (I) The correlation coefficient between successive price changes (auto correlation) is not significantly different from zero.
- (II) Successive price changes are positively related
- (III) Successive price changes are negatively related
- (IV) The autocorrelation coefficient is positive

- A. I only
- B. II only
- C. II and III only
- D. IV only

13. Which of the following is a statement of weak form efficiency?

- (I) If markets are efficient in the weak form, then it is impossible to make consistently superior profits by using trading rules based on past returns
- (II) If the markets are efficient in the weak form, then prices will adjust immediately to public information
- (III) If the markets are efficient in the weak form, then prices reflect all information

- A. I only

- B. II only
- C. II and III only
- D. III only

14. Which of the following statement(s) is/are true if the efficient market hypothesis holds?

- (I) It implies perfect forecasting ability
- (II) It implies market is irrational
- (III) It implies that prices follow a particular pattern
- (IV) It implies that prices reflect all available information

- A. I only
- B. II only
- C. I and III only
- D. IV only

15. Strong form market efficiency states that the market incorporates all information in the stock price. Strong form efficiency implies that:

- (I) An investor can only earn risk-free rates of return
- (II) An investor can always rely on technical analysis
- (III) An insider or corporate officer can not outperform the market by trading on the inside information

- A. I only
- B. II only
- C. III only
- D. I,II, and III

16. If the weak form of market efficiency holds then:

- (I) Technical analysis is useless
- (II) Stock prices reflect information contained in past prices
- (III) Stock price changes follow a random walk

- A. I only
- B. I and II only
- C. I, II, and III
- D. I and III only

17. Predictable cycles in stock price movements:

- (I) persist for a long time
- (II) self destruct as soon as investors recognize them
- (III) never appear as the stock price movements are random

- A. I only
- B. II only
- C. III only
- D. I,II, and III

18. In order to test the efficient-market hypothesis in the weak form, researchers have used the following methods except:

- A. Estimation of the serial correlation (autocorrelation) for securities and markets
- B. Measurement of the profitability of trading rules used by technical analysts
- C. Measurement of how rapidly security prices adjust to different news items
- D. All of the above are methods used for testing weak-form market efficiency

19. In order to test the efficient-market hypothesis in the semi-strong form, researchers have used (the) :

- A. Estimation of the serial correlation (autocorrelation) for securities and markets
- B. Measurement of the performance of mutual fund managers over the years
- C. Measurement of how rapidly security prices adjust to different news items

D. All of the above

20. Which of the following observations would provide evidence against the strong form of efficient market theory?

(I) Mutual fund managers do not on average make superior returns

(II) In any year approximately 50% of all pension funds outperform the market

(III) Managers who trade in their own firm's stocks make superior returns

A. I only

B. II only

C. III only

D. I and II only

21. A lawyer works for a firm that advises corporate firms planning to sue other corporations for antitrust damages. He finds that he can "beat the market" by short selling the stock of the firm that will be sued. This finding is in violation of the:

A. Weak form market efficiency

B. Semi-strong form market efficiency

C. Strong form market efficiency

D. None of the above

22. If capital markets are efficient, then the purchase or sale of any security at the prevailing market price is never a positive-NPV transaction.

True False

23. Modigliani and Miller's Proposition I states that:

A. The market value of any firm is independent of its capital structure

B. The market value of a firm's debt is independent of its capital structure

C. The market value of a firm's common stock is independent of its capital structure

D. None of the above

24. Health and Wealth Company is financed entirely by common stock which is priced to offer a 15% expected return. If the company repurchases 25% of the common stock and substitutes an equal value of debt yielding 6%, what is the expected return on the common stock after refinancing? (Ignore taxes.)

A. 18%

B. 21%

C. 15%

D. None of the above

25. Suppose that before refinancing, an investor owned 100 shares of Learn and Earn common stock. What should he do if he wishes to ensure that risk and expected return on his investment are unaffected by refinancing?

A. Borrow \$3,000 and buy 50 more shares

B. Continue to hold 100 shares

C. Sell 50 shares and buy \$3,000 debt (bonds)

D. None of the above

26. Briefly explain how changes in debt-equity ratio impacts on the beta of the firm's equity?

27. If a firm borrows \$50 million for one year at an interest rate of 10%, what is the present value of the interest tax shield? Assume a 30% tax rate. (Approximately.)

- A. \$1.364 million
- B. \$1.5 million
- C. \$1.0 million
- D. \$4.545 million
- E. None of the above

28. MM Proposition I with corporate taxes states that:

- (I) Capital structure can affect firm value by an amount that is equal to the present value of the interest tax shield
- (II) By raising the debt-to-equity ratio, the firm can lower its taxes and thereby increase its total value
- (III) Firm value is maximized at an all debt capital structure

- A. I only
- B. II only
- C. III only
- D. I, II, and III

29. Bombay Company's balance sheet is as follows: (NWC = net working capital; LTA = long term assets; D = debt; E= equity; V = firm value):

Book Values				Market Values			
NWC	200	500	D	NWC	200	500	D
LTA	2300	2000	E	LTA	2800	2500	E
	2500	2500	V		3000	3000	V

According to MM's Proposition I corrected for taxes, what will be the change in company value if Bombay issues \$200 of equity and uses it to make a permanent reduction in the company's debt? Assume a 35% tax rate.

- A. +\$140
- B. +\$70
- C. \$0
- D. -\$70

30. Suppose that a company can direct \$1 to either debt interest or capital gains for equity investors. If there were no personal taxes on capital gains, which of the following investors would not care how the money was channeled? The corporate tax rate is 35%.

- A. Investors paying personal tax of 17.5%
- B. Investors paying personal tax of 35%
- C. Investors paying personal tax of 53%
- D. None of the above

31. In Miller's model, when the quantity  $(1-T_C)(1-T_{pE}) = (1-T_p)$ , then:

- A. The firm should hold no debt
- B. The value of the levered firm is greater than the value of the unlevered firm
- C. The tax shield on debt is exactly offset by higher personal taxes paid on interest income
- D. None of the above

## Test3 KEY

1. (p. 218) C
2. (p. 218) A
3. (p. 220) A
4. (p. 220) C
5. (p. 218) FALSE
6. (p. 246) B
7. (p. 246) ~~C~~
8. (p. 258) A
9. (p. 334) In a competitive market, prices reflect all available information. The only reason prices change is because of new information. By definition new information arrives randomly. Therefore security prices change randomly.
10. (p. 333) B
11. (p. 334) A
12. (p. 334) A
13. (p. 337) A
14. (p. 337) D
15. (p. 337) C
16. (p. 337) C
17. (p. 337) B
18. (p. 339) C
19. (p. 339) C
20. (p. 340) C
21. (p. 340) C
22. (p. 334) TRUE
23. (p. 447) A
24. (p. 452) A
25. (p. 454) C
26. (p. 455) There is a linear relationship between the equity beta of a firm and the debt-equity ratio.  
It is obtained by combining Modigliani-Miller proposition II with the capital asset pricing model (CAPM). The relationship is given by:  $b_E = b_A + (D/E)(b_A - b_D)$ . Many times  $b_D$  (beta of debt) is zero. Then the relationship is written as:  $b_E = [1 + (D/E)](b_A)$ .
27. (p. 470) A
28. (p. 471) D
29. (p. 471) D
30. (p. 475) B
31. (p. 475) C