Chapter 11
The Cost of Capital

■ Learning Goals

1. Understand the key assumptions, the basic concept, and the specific sources of capital associated with the cost of capital.
2. Determine the cost of long-term debt and the cost of preferred stock.
3. Calculate the cost of common stock equity and convert it into the cost of retained earnings and the cost of new issues of common stock.
4. Calculate the weighted average cost of capital (WACC) and discuss alternative weighting schemes and economic value added (EVA®).
5. Describe the procedures used to determine break points and the weighted marginal cost of capital (WMCC).
6. Explain the weighted marginal cost of capital (WMCC) and its use with the investment opportunities schedule (IOS) to make financing/investment decisions.

■ True/False

1. Business risk is the risk to the firm of being unable to cover operating costs.

   Answer: TRUE
   Level of Difficulty: 1
   Learning Goal: 1
   Topic: Business Risk

2. The target capital structure is the desired optimal mix of debt and equity financing that most firms attempt to achieve and maintain.

   Answer: TRUE
   Level of Difficulty: 1
   Learning Goal: 1
   Topic: Target Capital Structure

3. The cost of capital is the rate of return a firm must earn on investments in order to leave share price unchanged.

   Answer: TRUE
   Level of Difficulty: 1
   Learning Goal: 1
   Topic: Basic Concept of Cost of Capital

4. The cost of capital is used to decide whether a proposed corporate investment will increase or decrease the firm's stock price.

   Answer: TRUE
   Level of Difficulty: 1
   Learning Goal: 1
   Topic: Basic Concept of Cost of Capital

5. The cost of capital reflects the cost of funds over the long run measured at a given point in time, based on the best information available.

   Answer: TRUE
   Level of Difficulty: 1
   Learning Goal: 1
   Topic: Basic Concept of Cost of Capital

6. The cost of each type of capital depends on the risk-free cost of that type of funds, the business risk of the firm, and the financial risk of the firm.

   Answer: TRUE
   Level of Difficulty: 2
   Learning Goal: 1
   Topic: Basic Concept of Cost of Capital

7. The cost of capital acts as a major link between the firm's long-term investment decisions and the wealth of the owners as determined by investors in the marketplace.

   Answer: TRUE
   Level of Difficulty: 2
   Learning Goal: 1
   Topic: Basic Concept of Cost of Capital

8. The cost of capital can be thought of as the rate of return required by the market suppliers of capital in order to attract their funds to the firm.

   Answer: TRUE
   Level of Difficulty: 2
   Learning Goal: 1
   Topic: Basic Concept of Cost of Capital

9. Business risk is the risk to the firm of being unable to cover required financial obligations.

   Answer: FALSE
   Level of Difficulty: 2
   Learning Goal: 1
   Topic: Business Risk

10. Holding risk constant, the implementation of projects with a rate of return above the cost of capital will decrease the value of the firm, and vice versa.

    Answer: FALSE
    Level of Difficulty: 2
    Learning Goal: 1
    Topic: Basic Concept of Cost of Capital

11. The specific cost of each source of financing is the after-tax cost of obtaining the financing using the historically based cost reflected by the existing financing on the firm's books.

    Answer: FALSE
    Level of Difficulty: 2
    Learning Goal: 1
    Topic: Basic Concept of Cost of Capital

12. In general, floatation costs include two components, underwriting costs and administrative costs.

    Answer: TRUE
    Level of Difficulty: 1
    Learning Goal: 2
    Topic: Flotation Costs

13. Flotation costs reduce the net proceeds from the sale of a bond whether sold at a premium, at a discount, or at its par value.

    Answer: TRUE
    Level of Difficulty: 1
    Learning Goal: 2
    Topic: Flotation Costs

14. The net proceeds used in calculation of the cost of long-term debt are funds actually received from the sale after paying for flotation costs and taxes.

    Answer: FALSE
    Level of Difficulty: 1
    Learning Goal: 2
    Topic: Flotation Costs

15. Since preferred stock is a form of ownership, the stock will never mature.

    Answer: TRUE
    Level of Difficulty: 1
    Learning Goal: 2
    Topic: Cost of Preferred Stock

16. Preferred stock represents a special type of ownership interest in the firm and, thus, the preferred stockholders must receive their stated dividends prior to the distribution of any earnings to common stockholders and bondholders.

    Answer: FALSE
    Level of Difficulty: 1
    Learning Goal: 2
    Topic: Cost of Preferred Stock

17. When the net proceeds from sale of a bond equal its par value, the before-tax cost would just equal the coupon interest rate.

    Answer: TRUE
    Level of Difficulty: 2
    Learning Goal: 2
    Topic: Cost of Long-Term Debt

18. The amount of preferred stock dividends that must be paid each year may be stated in dollars (i.e., x-dollar preferred stock) or as a percentage of the firm's earnings (i.e., x-percent preferred stock).

    Answer: FALSE
    Level of Difficulty: 2
    Learning Goal: 2
    Topic: Cost of Preferred Stock

19. The cost of preferred stock is typically higher than the cost of long-term debt (bonds) because the cost of long-term debt (interest) is tax deductible.

    Answer: TRUE
    Level of Difficulty: 2
    Learning Goal: 2
    Topic: Cost of Preferred Stock Compared to Long-Term Debt

20. The cost of common stock equity may be measured using either the constant growth valuation model or the capital asset pricing model.

    Answer: TRUE
    Level of Difficulty: 1
    Learning Goal: 3
    Topic: Cost of Common Stock Equity

21. A firm can retain more of its earnings if it can convince its stockholders that it will earn at least their required return on the reinvested funds.

    Answer: TRUE
    Level of Difficulty: 1
    Learning Goal: 3
    Topic: Cost of Common Stock Equity

22. In computing the cost of retained earnings, the net proceeds represents the amount of money retained net of any underpricing and/or flotation costs.

    Answer: FALSE
    Level of Difficulty: 1
    Learning Goal: 3
    Topic: Cost of Retained Earnings

23. The cost of common stock equity is the rate at which investors discount the expected dividends of the firm to determine its share value.

    Answer: TRUE
    Level of Difficulty: 1
    Learning Goal: 3
    Topic: Cost of Common Stock Equity

24. The constant growth model uses the market price as a reflection of the expected risk-return preference of investors in the marketplace.

    Answer: TRUE
    Level of Difficulty: 2
    Learning Goal: 3
    Topic: Constant Growth Model

25. The cost of common stock equity capital represents the return required by existing shareholders on their investment in order to leave the market price of the firm's outstanding share unchanged.

    Answer: TRUE
    Level of Difficulty: 2
    Learning Goal: 3
    Topic: Cost of Common Stock Equity

26. The cost of retained earnings is always lower than the cost of a new issue of common stock due to the absence of flotation costs when financing projects with retained earnings.

    Answer: TRUE
    Level of Difficulty: 2
    Learning Goal: 3
    Topic: Cost of Retained Earnings

27. Since the net proceeds from sale of new common stock will be less than the current market price, the cost of new issues will always be less than the cost of existing issues.

    Answer: FALSE
    Level of Difficulty: 2
    Learning Goal: 3
    Topic: Cost of New Common Stock Equity

28. The Gordon model is based on the premise that the value of a share of stock is equal to sum of all future dividends it is expected to provide over an infinite time horizon.

    Answer: FALSE
    Level of Difficulty: 2
    Learning Goal: 3
    Topic: Constant Growth Model

29. The cost of retained earnings to the firm is the same as the cost of an equivalent fully subscribed issue of additional common stock.

    Answer: TRUE
    Level of Difficulty: 2
    Learning Goal: 3
    Topic: Cost of Retained Earnings

30. Using the Capital Asset Pricing Model (CAPM), the cost of common stock equity is the return required by investors as compensation for the firm's nondiversifiable risk.

    Answer: TRUE
    Level of Difficulty: 3
    Learning Goal: 3
    Topic: Capital Asset Pricing Model

31. Use of the Capital Asset Pricing Model (CAPM) in measuring the cost of common stock equity differs from the constant growth valuation model in that it directly considers the firm's risk as reflected by beta.

    Answer: TRUE
    Level of Difficulty: 3
    Learning Goal: 3
    Topic: Capital Asset Pricing Model

32. When the constant growth valuation model is used to find the cost of common stock equity capital, it can easily be adjusted for flotation costs to find the cost of new common stock; the Capital Asset Pricing Model (CAPM) does not provide a simple adjustment mechanism.

    Answer: TRUE
    Level of Difficulty: 3
    Learning Goal: 3
    Topic: CAPM and Constant Growth Model

33. The cost of new common stock is normally greater than any other long-term financing cost.

    Answer: TRUE
    Level of Difficulty: 3
    Learning Goal: 3
    Topic: Cost of New Common Stock Equity

34. The capital asset pricing model describes the relationship between the required return, or the cost of common stock equity capital, and the nonsystematic risk of the firm as measured by the beta coefficient.

    Answer: FALSE
    Level of Difficulty: 3
    Learning Goal: 3
    Topic: Capital Asset Pricing Model

35. The weighted average cost that reflects the interrelationship of financing decisions can be obtained by weighing the cost of each source of financing by its target proportion in the firm's capital structure.

    Answer: TRUE
    Level of Difficulty: 1
    Learning Goal: 4
    Topic: Target Market Value Weights

36. In computing the weighted average cost of capital, the historic weights are either book value or market value weights based on actual capital structure proportions.

    Answer: TRUE
    Level of Difficulty: 1
    Learning Goal: 4
    Topic: Market Value versus Book Value Weights

37. In computing the weighted average cost of capital, the target weights are either book value or market value weights based on actual capital structure proportions.

    Answer: FALSE
    Level of Difficulty: 1
    Learning Goal: 4
    Topic: Market Value versus Book Value Weights

38. In computing the weighted average cost of capital, from a strictly theoretical point of view, the preferred weighing scheme is target market value proportions.

Answer: TRUE
Level of Difficulty: 1
Learning Goal: 4
Topic: Target Market Value Weights

39. The weighted average cost of capital (WACC) reflects the expected average future cost of funds over the long run.

Answer: TRUE
Level of Difficulty: 1
Learning Goal: 4
Topic: Weighted Average Cost of Capital

40. Since retained earnings is a more expensive source of financing than debt and preferred stock, the weighted average cost of capital will fall once retained earnings have been exhausted.

Answer: FALSE
Level of Difficulty: 3
Learning Goal: 4
Topic: Weighted Marginal Cost of Capital

41. A firm may face increases in the weighted average cost of capital either when retained earnings have been exhausted or due to increases in debt, preferred stock, and common equity costs as additional new funds are required.

Answer: TRUE
Level of Difficulty: 3
Learning Goal: 4
Topic: Weighted Marginal Cost of Capital

42. The weighted marginal cost of capital is the firm's weighted average cost of capital associated with its next dollar of total financing.

Answer: TRUE
Level of Difficulty: 1
Learning Goal: 5
Topic: Weighted Marginal Cost of Capital

43. The weighted marginal cost of capital schedule is a graph that relates the firm's weighted average cost of capital to the level of total new financing.

Answer: TRUE
Level of Difficulty: 1
Learning Goal: 5
Topic: Weighted Marginal Cost of Capital

44. At any given time, the firm's financing costs and investment returns will be affected by the volume of financing and investment undertaken.

Answer: TRUE
Level of Difficulty: 2
Learning Goal: 5
Topic: Weighted Marginal Cost of Capital

45. As the volume of financing increases, the costs of the various types of financing will decrease, reducing the firm's weighted average cost of capital.

    Answer: FALSE
    Level of Difficulty: 2
    Learning Goal: 5
    Topic: Weighted Marginal Cost of Capital

46. The weighted marginal cost of capital is an increasing function of the level of total new financing.

    Answer: TRUE
    Level of Difficulty: 2
    Learning Goal: 5
    Topic: Weighted Marginal Cost of Capital

47. The breaking point is the level of total new financing at which the cost of one of the financing components rises.

    Answer: TRUE
    Level of Difficulty: 2
    Learning Goal: 5
    Topic: WMCC Break Points

48. A firm's investment opportunities schedule is a ranking of investment possibilities from best (highest return) to worst (lowest return).

    Answer: TRUE
    Level of Difficulty: 1
    Learning Goal: 6
    Topic: Investment Opportunities Schedule

49. The larger the volume of new financing, the greater the risk and, thus, the higher the financing costs.

    Answer: TRUE
    Level of Difficulty: 2
    Learning Goal: 6
    Topic: Weighted Marginal Cost of Capital

50. The investment opportunity schedule (IOS) is the graph that relates the firm's weighted average cost of capital (WACC) to the level of total new financing.

    Answer: FALSE
    Level of Difficulty: 3
    Learning Goal: 6
    Topic: WMCC and IOS

51. The acceptance of projects beginning with those having the greatest positive difference between IRR and the weighted average cost of capital, K_a, down to the point at which IRR just equals k_a should result in the maximum total NPV for all independent projects accepted.

    Answer: TRUE
    Level of Difficulty: 3
    Learning Goal: 6
    Topic: WMCC and IOS

52. As the cumulative amount of money invested in a firm's capital projects increases, its returns on the projects will increase.

    Answer: FALSE
    Level of Difficulty: 3
    Learning Goal: 6
    Topic: WMCC and IOS

53. While the return will increase with the acceptance of more projects, the weighted marginal cost of capital will increase because greater amounts of financing will be required.

    Answer: FALSE
    Level of Difficulty: 3
    Learning Goal: 6
    Topic: WMCC and IOS

54. According to the firm's owner wealth maximization goal, the firm should accept projects up to the point where the marginal return on its investment is equal to its weighted marginal cost of capital.

    Answer: TRUE
    Level of Difficulty: 3
    Learning Goal: 6
    Topic: WMCC and IOS

55. The cost of capital can be thought of as the "magic number" that is used to decide whether a proposed corporate investment will increase or decrease the firm's stock price.

    Answer: TRUE
    Level of Difficulty: 2
    Learning Goal: 1
    Topic: Basic Concept of Cost of Capital

56. The cost of common stock equity can be thought of as the "magic number" that is used to decide whether a proposed corporate investment will increase or decrease the firm's stock price.

    Answer: FALSE
    Level of Difficulty: 3
    Learning Goal: 1
    Topic: Basic Concept of Cost of Capital

57. The cost of capital is a static concept; it is not affected by economic and firm-specific factors such as business risk and financial risk.

    Answer: FALSE
    Level of Difficulty: 2
    Learning Goal: 1
    Topic: Basic Concept of Cost of Capital

58. The cost of capital is a dynamic concept; it is affected by economic and firm-specific factors such as business risk and financial risk.

    Answer: TRUE
    Level of Difficulty: 2
    Learning Goal: 1
    Topic: Basic Concept of Cost of Capital

59. In using the cost of capital, it is important that it reflects the historical cost of raising funds over the long run.

    Answer: FALSE
    Level of Difficulty: 3
    Learning Goal: 1
    Topic: Basic Concept of Cost of Capital

60. From a bond issuer's perspective, the IRR on a bond's cash flows is its cost to maturity; from the investor's perspective, the IRR on a bond's cash flows is the yield to maturity (YTM).

    Answer: TRUE
    Level of Difficulty: 3
    Learning Goal: 2
    Topic: Cost of Long-Term Debt

61. From a bond issuer's perspective, the IRR on a bond's cash flows is its yield to maturity (YTM); from the investor's perspective, the IRR on a bond's cash flows is the cost to maturity.

    Answer: FALSE
    Level of Difficulty: 3
    Learning Goal: 2
    Topic: Cost of Long-Term Debt

62. Nico Trading Corporation is considering issuing long-term debt. The debt would have a 30 year maturity and a 10 percent coupon rate. In order to sell the issue, the bonds must be underpriced at a discount of 5 percent of face value. In addition, the firm would have to pay flotation costs of 5 percent of face value. The firm's tax rate is 35 percent. Given this information, the after tax cost of debt for Nico Trading would be 7.26 percent.

    Answer: TRUE
    Level of Difficulty: 4
    Learning Goal: 2
    Topic: Cost of Long-Term Debt (Equation 11.2)

63. Nico Trading Corporation is considering issuing long-term debt. The debt would have a 30 year maturity and a 10 percent coupon rate. In order to sell the issue, the bonds must be underpriced at a discount of 5 percent of face value. In addition, the firm would have to pay flotation costs of 5 percent of face value. The firm's tax rate is 35 percent. Given this information, the after tax cost of debt for Nico Trading would be 11.17 percent.

    Answer: FALSE
    Level of Difficulty: 4
    Learning Goal: 2
    Topic: Cost of Long-Term Debt (Equation 11.2)

64. Nico Trading Corporation is considering issuing preferred stock. The preferred stock would have a par value of $75 and a preferred dividend of 7.5 percent of par. In order to issue the stock, Nico trading would have to pay flotation costs of 6 percent of par value. Given this information, Nico Trading's cost of preferred stock would be 7.98 percent.

    Answer: TRUE
    Level of Difficulty: 3
    Learning Goal: 2
    Topic: Cost of Preferred Stock (Equation 11.3)

65. Nico Trading Corporation is considering issuing preferred stock. The preferred stock would have a par value of $75 and a preferred dividend of 7.5 percent of par. In order to issue the stock, Nico trading would have to pay flotation costs of 6 percent of par value. Given this information, Nico Trading's cost of preferred stock would be 7.5 percent.

Answer: FALSE
Level of Difficulty: 3
Learning Goal: 2
Topic: Cost of Preferred Stock (Equation 11.3)

66. The cost of retained earnings for Tangshan Mining would be 16.64 percent if the firm just paid a dividend of $4.00, the stock price is $50.00, dividends are expected to grow at 8 percent indefinitely, and flotation costs are $5.00 per share.

Answer: TRUE
Level of Difficulty: 3
Learning Goal: 3
Topic: Cost of Retained Earnings (Equation 11.5)

67. The cost of retained earnings for Tangshan Mining would be 17.60 percent if the firm just paid a dividend of $4.00, the stock price is $50.00, dividends are expected to grow at 8 percent indefinitely, and flotation costs are $5.00 per share.

Answer: FALSE
Level of Difficulty: 3
Learning Goal: 3
Topic: Cost of Retained Earnings (Equation 11.5)

68. The cost of new common stock equity for Tangshan Mining would be 17.60 percent if the firm just paid a dividend of $4.00, the stock price is $50.00, dividends are expected to grow at 8 percent indefinitely, and flotation costs are $5.00 per share.

Answer: TRUE
Level of Difficulty: 3
Learning Goal: 3
Topic: Cost of New Common Stock Equity (Equation 11.8 and Equation 11.8a)

69. The cost of retained earnings equity for Tangshan Mining would be 18.00 percent if the expected return on U.S. Treasury Bills is 5.00 percent, the market risk premium is 10.00 percent, and the firm's beta is 1.3.

Answer: TRUE
Level of Difficulty: 3
Learning Goal: 3
Topic: Cost of Retained Earnings (Equation 11.6)

70. The cost of retained earnings equity for Tangshan Mining would be 18.00 percent if the expected return on U.S. Treasury Bills is 5.00 percent, the market return is 10.00 percent, and the firm's beta is 1.3.

Answer: FALSE
Level of Difficulty: 3
Learning Goal: 3
Topic: Cost of Retained Earnings (Equation 11.6)

71. Weights that use accounting values to measure the proportion of each type of capital in the firm's financial structure are called market value weights.

Answer: FALSE
Level of Difficulty: 2
Learning Goal: 4
Topic: Alternative Weighting Schemes

72. Weights that use accounting values to measure the proportion of each type of capital in the firm's financial structure are called book value weights.

Answer: TRUE
Level of Difficulty: 2
Learning Goal: 4
Topic: Alternative Weighting Schemes

73. Historical weights are either book value or market value weights based on the actual historical capital structure proportions.

Answer: TRUE
Level of Difficulty: 2
Learning Goal: 4
Topic: Alternative Weighting Schemes

74. Target weights are either book value or market value weights based on the actual historical capital structure proportions.

Answer: FALSE
Level of Difficulty: 2
Learning Goal: 4
Topic: Alternative Weighting Schemes

75. Target weights are either book value or market value weights based on desired capital structure proportions.

Answer: TRUE
Level of Difficulty: 2
Learning Goal: 4
Topic: Alternative Weighting Schemes

76. Economic value added is the difference between an investment's net operating profit after taxes and the cost of funds used to finance the investment, which is found by multiplying the dollar amount of the funds used to finance the investment by the firm's weighted average cost of capital.

Answer: TRUE
Level of Difficulty: 3
Learning Goal: 4
Topic: Economic Value Added

77. The investment operating schedule is the difference between an investment's net operating profit after taxes and the cost of funds used to finance the investment, which is found by multiplying the dollar amount of the funds used to finance the investment by the firm's weighted average cost of capital.

Answer: FALSE
Level of Difficulty: 3
Learning Goal: 4
Topic: Economic Value Added

78. The break point is the level of total new financing at which the cost of one of the financing components rises, thereby causing an upward shift in the weighted marginal cost of capital.

Answer: TRUE
Level of Difficulty: 2
Learning Goal: 5
Topic: Breaking Points

79. The investment opportunity point is the level of total new financing at which the cost of one of the financing components rises, thereby causing an upward shift in the weighted marginal cost of capital.

Answer: FALSE
Level of Difficulty: 2
Learning Goal: 5
Topic: Breaking Points

80. The weighted marginal cost of capital is the firm's weighted average cost of capital associated with the next dollar of total new financing.

Answer: TRUE
Level of Difficulty: 2
Learning Goal: 5
Topic: Weighted Marginal Cost of Capital

■ Multiple Choice Questions

1. The _____ is the rate of return a firm must earn on its investments in projects in order to maintain the market value of its stock.

(a) net present value
(b) cost of capital
(c) internal rate of return
(d) gross profit margin

Answer: B
Level of Difficulty: 1
Learning Goal: 1
Topic: Basic Concept of Cost of Capital

2. The _____ is the rate of return required by the market suppliers of capital in order to attract their funds to the firm.

(a) yield to maturity
(b) internal rate of return
(c) cost of capital
(d) gross profit margin

Answer: C
Level of Difficulty: 1
Learning Goal: 1
Topic: Basic Concept of Cost of Capital

3. _____ is the risk to the firm of being unable to cover operating costs.
   (a) Total risk
   (b) Business risk
   (c) Financial risk
   (d) Diversifiable risk

   Answer: B
   Level of Difficulty: 1
   Learning Goal: 1
   Topic: Business Risk

4. _____ is the risk to the firm of being unable to cover financial obligations.
   (a) Total risk
   (b) Business risk
   (c) Financial risk
   (d) Diversifiable risk

   Answer: C
   Level of Difficulty: 1
   Learning Goal: 1
   Topic: Financial Risk

5. The cost of capital reflects the cost of funds
   (a) over a short-run time period.
   (b) at a given point in time.
   (c) over a long-run time period.
   (d) at current book values.

   Answer: C
   Level of Difficulty: 1
   Learning Goal: 1
   Topic: Basic Concept of Cost of Capital

6. The four basic sources of long-term funds for the business firm are
   (a) current liabilities, long-term debt, common stock, and preferred stock.
   (b) current liabilities, long-term debt, common stock, and retained earnings.
   (c) long-term debt, paid-in capital in excess of par, common stock, and retained earnings.
   (d) long-term debt, common stock, preferred stock, and retained earnings.

   Answer: D
   Level of Difficulty: 1
   Learning Goal: 1
   Topic: Comparing the Cost of Various Sources of Capital

7. Firms typically raise long-term funds
   (a) only at the inception of the firm.
   (b) on a continuous basis.
   (c) in lump sums as needed.
   (d) in proportion to the capital mixture of the target capital structure.

   Answer: C
   Level of Difficulty: 1
   Learning Goal: 1
   Topic: Basic Concept of Cost of Capital

8. The firm's optimal mix of debt and equity is called its
   (a) optimal ratio.
   (b) target capital structure.
   (c) maximum wealth.
   (d) maximum book value.

   Answer: B
   Level of Difficulty: 1
   Learning Goal: 1
   Topic: Target Capital Structure

9. The cost of each type of capital depends on the
   (a) risk-free cost of that type of funds.
   (b) business risk of the firm.
   (c) financial risk of the firm.
   (d)All of the above.

   Answer: D
   Level of Difficulty: 2
   Learning Goal: 1
   Topic: Basic Concept of Cost of Capital

10. The _____ is a weighted average of the cost of funds which reflects the interrelationship of financing decisions.
   (a) risk premium
   (b) nominal cost
   (c) cost of capital
   (d) risk-free rate

   Answer: C
   Level of Difficulty: 2
   Learning Goal: 1
   Topic: Basic Concept of Cost of Capital

11. The _____ is the firm's desired optimal mix of debt and equity financing.
    (a) book value
    (b) market value
    (c) cost of capital
    (d) target capital structure

    Answer: D
    Level of Difficulty: 2
    Learning Goal: 1
    Topic: Target Capital Structure

12. The cost to a corporation of each type of capital is dependent upon
    (a) the risk-free rate of bonds plus the business risk of the firm.
    (b) the risk-free rate of each type of capital plus the business risk of the firm.
    (c) the risk-free rate of each type of capital plus the financial risk of the firm.
    (d) the risk-free rate of each type of capital plus the business risk and the financial risk of the firm.

    Answer: D
    Level of Difficulty: 3
    Learning Goal: 1
    Topic: Basic Concept of Cost of Capital

13. The specific cost of each source of long-term financing is based on _____ and _____ costs.
    (a) before-tax; historical
    (b) after-tax; historical
    (c) before-tax; book value
    (d) after-tax; current

    Answer: D
    Level of Difficulty: 3
    Learning Goal: 1
    Topic: Basic Concept of Cost of Capital

14. In order to recognize the interrelationship between financing and investments, the firm should use _____ when evaluating an investment.
    (a) the least costly source of financing
    (b) the most costly source of financing
    (c) the weighted average cost of all financing sources
    (d) the current opportunity cost

    Answer: C
    Level of Difficulty: 3
    Learning Goal: 1
    Topic: Basic Concept of Cost of Capital

15. A corporation has concluded that its financial risk premium is too high. In order to decrease this, the firm can
    (a) increase the proportion of long-term debt to decrease the cost of capital.
    (b) increase short-term debt to decrease the cost of capital.
    (c) decrease the proportion of common stock equity to decrease financial risk.
    (d) increase the proportion of common stock equity to decrease financial risk.

    Answer: D
    Level of Difficulty: 4
    Learning Goal: 1
    Topic: Financial Risk

16. The _____ from the sale of a security are the funds actually received from the sale after _____, or the total costs of issuing and selling the security, which have been subtracted from the total proceeds.
    (a) gross proceeds; the after-tax costs
    (b) gross proceeds; the flotation costs
    (c) net proceeds; the flotation costs
    (d) net proceeds; the after-tax costs

    Answer: C
    Level of Difficulty: 1
    Learning Goal: 2
    Topic: Flotation Costs

17. A tax adjustment must be made in determining the cost of _____.
    (a) long-term debt
    (b) common stock
    (c) preferred stock
    (d) retained earnings

    Answer: A
    Level of Difficulty: 1
    Learning Goal: 2
    Topic: Cost of Long-Term Debt

18. The before-tax cost of debt for a firm which has a 40 percent marginal tax rate is 12 percent. The after-tax cost of debt is
    (a) 4.8 percent.
    (b) 6.0 percent.
    (c) 7.2 percent.
    (d) 12 percent.

    Answer: C
    Level of Difficulty: 1
    Learning Goal: 2
    Topic: Cost of Long-Term Debt (Equation 11.2)

19. What is the dividend on an 8 percent preferred stock that currently sells for $45 and has a face value of $50 per share?

(a) $3.33
(b) $3.60
(c) $4.00
(d) $5.00

Answer: C
Level of Difficulty: 1
Learning Goal: 2
Topic: Cost of Preferred Stock (Equation 11.3)

20. A firm has issued 10 percent preferred stock, which sold for $100 per share par value. The cost of issuing and selling the stock was $2 per share. The firm's marginal tax rate is 40 percent. The cost of the preferred stock is

(a) 3.9 percent.
(b) 6.1 percent.
(c) 9.8 percent.
(d) 10.2 percent.

Answer: D
Level of Difficulty: 2
Learning Goal: 2
Topic: Cost of Preferred Stock (Equation 11.3)

21. A firm has issued preferred stock at its $125 per share par value. The stock will pay a $15 annual dividend. The cost of issuing and selling the stock was $4 per share. The cost of the preferred stock is

(a) 7.2 percent.
(b) 12 percent.
(c) 12.4 percent.
(d) 15 percent.

Answer: C
Level of Difficulty: 2
Learning Goal: 2
Topic: Cost of Preferred Stock (Equation 11.3)

22. When determining the after-tax cost of a bond, the face value of the issue must be adjusted to the net proceeds amounts by considering

(a) the risk.
(b) the flotation costs.
(c) the approximate returns.
(d) the taxes.

Answer: B
Level of Difficulty: 2
Learning Goal: 2
Topic: Cost of Long-Term Debt

23. The approximate before-tax cost of debt for a 15-year, 10 percent, $1,000 par value bond selling at $950 is

(a) 10 percent.
(b) 10.6 percent.
(c) 12 percent.
(d) 15.4 percent.

Answer: B
Level of Difficulty: 3
Learning Goal: 2
Topic: Cost of Long-Term Debt (Equation 11.1)

24. If a corporation has an average tax rate of 40 percent, the approximate, annual, after-tax cost of debt for a 15-year, 12 percent, $1,000 par value bond, selling at $950 is

(a) 10 percent.
(b) 10.6 percent.
(c) 7.6 percent.
(d) 6.0 percent.

Answer: C
Level of Difficulty: 3
Learning Goal: 2
Topic: Cost of Long-Term Debt (Equation 11.1 and Equation 11.2)

25. If a corporation has an average tax rate of 40 percent, the approximate annual, after-tax cost of debt for a 10-year, 8 percent, $1,000 par value bond selling at $1,150 is

(a) 3.6 percent.
(b) 4.8 percent.
(c) 6 percent.
(d) 8 percent.

Answer: A
Level of Difficulty: 3
Learning Goal: 2
Topic: Cost of Long-Term Debt (Equation 11.1 and Equation 11.2)

26. The approximate before-tax cost of debt for a 10-year, 8 percent, $1,000 par value bond selling at $1,150 is

(a) 6 percent.
(b) 8.3 percent.
(c) 8.8 percent.
(d) 9 percent.

Answer: A
Level of Difficulty: 3
Learning Goal: 2
Topic: Cost of Long-Term Debt (Equation 11.1 and Equation 11.2)

27. The approximate after-tax cost of debt for a 20-year, 7 percent, $1,000 par value bond selling at $960 (assume a marginal tax rate of 40 percent) is
    (a) 4.41 percent.
    (b) 5.15 percent.
    (c) 7 percent.
    (d) 7.35 percent.

    Answer: A
    Level of Difficulty: 3
    Learning Goal: 2
    Topic: Cost of Long-Term Debt (Equation 11.1 and Equation 11.2)

28. Debt is generally the least expensive source of capital. This is primarily due to
    (a) fixed interest payments.
    (b) its position in the priority of claims on assets and earnings in the event of liquidation.
    (c) the tax deductibility of interest payments.
    (d) the secured nature of a debt obligation.

    Answer: C
    Level of Difficulty: 3
    Learning Goal: 2
    Topic: Cost of Long-Term Debt

29. A firm has determined it can issue preferred stock at $115 per share par value. The stock will pay a $12 annual dividend. The cost of issuing and selling the stock is $3 per share. The cost of the preferred stock is
    (a) 6.4 percent.
    (b) 10.4 percent.
    (c) 10.7 percent.
    (d) 12 percent.

    Answer: C
    Level of Difficulty: 3
    Learning Goal: 2
    Topic: Cost of Preferred Stock (Equation 11.3)

30. The cost of common stock equity is
    (a) the cost of the guaranteed stated dividend.
    (b) the rate at which investors discount the expected dividends of the firm.
    (c) the after-tax cost of the interest obligations.
    (d) the historical cost of floating the stock issue.

    Answer: B
    Level of Difficulty: 1
    Learning Goal: 3
    Topic: Cost of Common Stock Equity

31. The cost of common stock equity may be estimated by using the
    (a) yield curve.
    (b) net present value method.
    (c) Gordon model.
    (d) DuPont analysis.

    Answer: C
    Level of Difficulty: 1
    Learning Goal: 3
    Topic: Constant Growth Model

32. The cost of common stock equity may be estimated by using the
    (a) yield curve.
    (b) capital asset pricing model.
    (c) internal rate of return.
    (d) DuPont analysis.

    Answer: B
    Level of Difficulty: 1
    Learning Goal: 3
    Topic: Capital Asset Pricing Model

33. The cost of retained earnings is
    (a) zero.
    (b) equal to the cost of a new issue of common stock.
    (c) equal to the cost of common stock equity.
    (d) irrelevant to the investment/financing decision.

    Answer: C
    Level of Difficulty: 1
    Learning Goal: 3
    Topic: Cost of Retained Earnings

34. The cost of new common stock financing is higher than the cost of retained earnings due to
    (a) flotation costs and underpricing.
    (b) flotation costs and overpricing.
    (c) flotation costs and commission costs.
    (d) commission costs and overpricing.

    Answer: A
    Level of Difficulty: 2
    Learning Goal: 3
    Topic: Cost of New Common Stock Equity

35. The constant growth valuation model—the Gordon model—is based on the premise that the value of a share of common stock is
    (a) the sum of the dividends and expected capital appreciation.
    (b) determined based on an industry standard P/E multiple.
    (c) determined by using a measure of relative risk called beta.
    (d) equal to the present value of all expected future dividends.

    Answer: D
    Level of Difficulty: 2
    Learning Goal: 3
    Topic: Constant Growth Model

36. In calculating the cost of common stock equity, the model having the stronger theoretical foundation is
    (a) the constant growth model.
    (b) the Gordon model.
    (c) the variable growth model.
    (d) the capital asset pricing model.

    Answer: D
    Level of Difficulty: 2
    Learning Goal: 3
    Topic: CAPM versus Constant Growth Model

37. A firm has a beta of 1.2. The market return equals 14 percent and the risk-free rate of return equals 6 percent. The estimated cost of common stock equity is
    (a) 6 percent.
    (b) 7.2 percent.
    (c) 14 percent.
    (d) 15.6 percent.

    Answer: D
    Level of Difficulty: 2
    Learning Goal: 3
    Topic: Capital Asset Pricing Model (Equation 11.6)

38. One major expense associated with issuing new shares of common stock is
    (a) underwriting fees.
    (b) legal fees.
    (c) registration fees.
    (d) underpricing.

    Answer: D
    Level of Difficulty: 2
    Learning Goal: 3
    Topic: Flotation Costs

39. Firms underprice new issues of common stock for the following reason(s).
    (a) When the market is in equilibrium, additional demand for shares can be achieved only at a lower price.
    (b) When additional shares are issued, each share's percent of ownership in the firm is diluted, thereby justifying a lower share value.
    (c) Many investors view the issuance of additional shares as a signal that management is using common stock equity financing because it believes that the shares are currently overpriced.
    (d) All of the above.

    Answer: D
    Level of Difficulty: 3
    Learning Goal: 3
    Topic: Underpricing New Common Stock Equity

40. Circumstances in which the constant growth valuation model—the Gordon model—for estimating the value of a share of stock should be used include
    (a) declining dividends.
    (b) an erratic dividend stream.
    (c) the lack of dividends.
    (d) a steady growth rate in dividends.

    Answer: D
    Level of Difficulty: 3
    Learning Goal: 3
    Topic: Constant Growth Model

41. A firm has common stock with a market price of $25 per share and an expected dividend of $2 per share at the end of the coming year. The growth rate in dividends has been 5 percent. The cost of the firm's common stock equity is
    (a) 5 percent.
    (b) 8 percent.
    (c) 10 percent.
    (d) 13 percent.

    Answer: D
    Level of Difficulty: 3
    Learning Goal: 3
    Topic: Constant Growth Model (Equation 11.5)

42. A firm has common stock with a market price of $55 per share and an expected dividend of $2.81 per share at the end of the coming year. The dividends paid on the outstanding stock over the past five years are as follows:

Year	Dividend
1	$2.00
2	2.14
3	2.29
4	2.45
5	2.62

The cost of the firm's common stock equity is

(a) 4.1 percent.
(b) 5.1 percent.
(c) 12.1 percent.
(d) 15.4 percent.

Answer: C
Level of Difficulty: 3
Learning Goal: 3
Topic: Constant Growth Model (Equation 11.5)

43. Using the capital asset pricing model, the cost of common stock equity is the return required by investors as compensation for

(a) the specific risk of the firm.
(b) the firm's diversifiable risk.
(c) price volatility of the stock.
(d) the firm's nondiversifiable risk.

Answer: D
Level of Difficulty: 3
Learning Goal: 3
Topic: Capital Asset Pricing Model

44. A firm has common stock with a market price of $100 per share and an expected dividend of $5.61 per share at the end of the coming year. A new issue of stock is expected to be sold for $98, with $2 per share representing the underpricing necessary in the competitive capital market. Flotation costs are expected to total $1 per share. The dividends paid on the outstanding stock over the past five years are as follows:

Year	Dividend
1	$4.00
2	4.28
3	4.58
4	4.90
5	5.24

The cost of this new issue of common stock is

(a) 5.8 percent.
(b) 7.7 percent.
(c) 10.8 percent.
(d) 12.8 percent.

Answer: D
Level of Difficulty: 3
Learning Goal: 3
Topic: Constant Growth Model (Equation 11.8 and Equation 11.8a)

45. Since retained earnings are viewed as a fully subscribed issue of additional common stock, the cost of retained earnings is

(a) less than the cost of new common stock equity.
(b) equal to the cost of new common stock equity.
(c) greater than the cost of new common stock equity.
(d) not related to the cost of new common stock equity.

Answer: A
Level of Difficulty: 3
Learning Goal: 3
Topic: Cost of Retained Earnings

46. In comparing the constant growth model and the capital asset pricing model (CAPM) to calculate the cost of common stock equity,

(a) the constant growth model ignores risk, while the CAPM directly considers risk as reflected in the beta.
(b) the CAPM directly considers risk as reflected in the beta, while the constant growth model uses the market price as a reflection of the expected risk-return preference of investors.
(c) the CAPM directly considers risk as reflected in the beta, while the constant growth model uses dividend expectations as a reflection of risk.
(d) the CAPM indirectly considers risk as reflected in the market return, while the constant growth model uses dividend expectations as a reflection of risk.

Answer: B
Level of Difficulty: 4
Learning Goal: 3
Topic: CAPM versus Constant Growth Model

47. In calculating the cost of common stock equity
    (a) the use of the capital asset pricing model (CAPM) is often preferred, because the data required are more readily available.
    (b) the use of the CAPM is preferred, because it more directly calculates risk.
    (c) the use of the constant growth valuation model is often preferred, because the data required are more readily available.
    (d) the use of the constant growth valuation model is often preferred, because it has a stronger theoretical foundation.

    Answer: C
    Level of Difficulty: 4
    Learning Goal: 3
    Topic: CAPM versus Constant Growth Model

48. Given that the cost of common stock is 18 percent, dividends are $1.50 per share, and the price of the stock is $12.50 per share, what is the annual growth rate of dividends?
    (a) 4 percent.
    (b) 5 percent.
    (c) 6 percent.
    (d) 8 percent.

    Answer: C
    Level of Difficulty: 4
    Learning Goal: 3
    Topic: Constant Growth Model (Equation 11.5)

49. Generally, the order of cost, from the least expensive to the most expensive, for long-term capital of a corporation is
    (a) new common stock, retained earnings, preferred stock, long-term debt.
    (b) common stock, preferred stock, long-term debt, short-term debt.
    (c) preferred stock, retained earnings, common stock, new common stock.
    (d) long-term debt, preferred stock, retained earnings, new common stock.

    Answer: D
    Level of Difficulty: 1
    Learning Goal: 4
    Topic: Comparing the Cost of Various Sources of Capital

50. Generally the least expensive source of long-term capital is
    (a) retained earnings.
    (b) preferred stock.
    (c) long-term debt.
    (d) short-term debt.

    Answer: C
    Level of Difficulty: 1
    Learning Goal: 4
    Topic: Comparing the Cost of Various Sources of Capital

51. Weighing schemes for calculating the weighted average cost of capital include all of the following EXCEPT
    (a) book value weights.
    (b) optimal value weights.
    (c) market value weights.
    (d) target weights.

    Answer: B
    Level of Difficulty: 1
    Learning Goal: 4
    Topic: Alternative Weighting Schemes

52. The preferred capital structure weights to be used in the weighted average cost of capital are
    (a) market weights.
    (b) nominal weights.
    (c) historic weights.
    (d) target weights.

    Answer: D
    Level of Difficulty: 1
    Learning Goal: 4
    Topic: Target Market Value Weights

53. When discussing weighing schemes for calculating the weighted average cost of capital, the preferences can be stated as
    (a) market value weights are preferred over book value weights and target weights are preferred over historic weights.
    (b) book value weights are preferred over market value weights and target weights are preferred over historic weights.
    (c) book value weights are preferred over market value weights and historic weights are preferred over target weights.
    (d) market value weights are preferred over book value weights and historic weights are preferred over target weights.

    Answer: A
    Level of Difficulty: 3
    Learning Goal: 4
    Topic: Alternative Weighting Schemes

54. A firm has determined its cost of each source of capital and optimal capital structure, which is composed of the following sources and target market value proportions:

Source of Capital	Target Market Proportions	After-Tax Cost
Long-term debt	40%	6%
Preferred stock	10	11
Common stock equity	50	15

The weighted average cost of capital is

(a) 6 percent.
(b) 10.7 percent.
(c) 11 percent.
(d) 15 percent.

Answer: C
Level of Difficulty: 3
Learning Goal: 4
Topic: Weighted Average Cost of Capital (Equation 11.9)

55. A firm has determined its cost of each source of capital and optimal capital structure, which is composed of the following sources and target market value proportions:

Source of Capital	Target Market Proportions	After-Tax Cost
Long-term debt	45%	5%
Preferred stock	10	14
Common stock equity	45	22

If the firm were to shift toward a more leveraged capital structure (i.e., a greater percentage of debt in the capital structure), the weighted average cost of capital would

(a) increase.
(b) remain unchanged.
(c) decrease.
(d) not be able to be determined.

Answer: C
Level of Difficulty: 3
Learning Goal: 4
Topic: Weighted Average Cost of Capital (Equation 11.9)

56. As the volume of financing increases, the costs of the various types of financing will _____, _____ the firm's weighted average cost of capital.

(a) increase, lowering
(b) increase, raising
(c) decrease, lowering
(d) decrease, raising

Answer: B
Level of Difficulty: 3
Learning Goal: 4
Topic: Weighted Marginal Cost of Capital

A firm has determined its optimal capital structure which is composed of the following sources and target market value proportions.

Table 11.1

Source of Capital	Target Market Proportions
Long-term debt	20%
Preferred stock	10
Common stock equity	70

Debt: The firm can sell a 12-year, $1,000 par value, 7 percent bond for $960. A flotation cost of 2 percent of the face value would be required in addition to the discount of $40.

Preferred Stock: The firm has determined it can issue preferred stock at $75 per share par value. The stock will pay a $10 annual dividend. The cost of issuing and selling the stock is $3 per share.

Common Stock: A firm's common stock is currently selling for $18 per share. The dividend expected to be paid at the end of the coming year is $1.74. Its dividend payments have been growing at a constant rate for the last four years. Four years ago, the dividend was $1.50. It is expected that to sell, a new common stock issue must be underpriced $1 per share in floatation costs. Additionally, the firm's marginal tax rate is 40 percent.

57. The firm's before-tax cost of debt is (See Table 11.1.)

(a) 7.7 percent.
(b) 10.6 percent.
(c) 11.2 percent.
(d) 12.7 percent.

Answer: A
Level of Difficulty: 4
Learning Goal: 4
Topic: Cost of Long-Term Debt (Equation 11.1)

58. The firm's after-tax cost of debt is (See Table 11.1.)

(a) 3.25 percent.
(b) 4.6 percent.
(c) 8 percent.
(d) 8.13 percent.

Answer: B
Level of Difficulty: 4
Learning Goal: 4
Topic: Cost of Long-Term Debt (Equation 11.2)

59. The firm's cost of preferred stock is (See Table 11.1.)

(a) 7.2 percent.
(b) 8.3 percent.
(c) 13.3 percent.
(d) 13.9 percent.

Answer: D
Level of Difficulty: 4
Learning Goal: 4
Topic: Cost of Preferred Stock (Equation 11.3)

60. The firm's cost of a new issue of common stock is (See Table 11.1.)
    (a) 7 percent.
    (b) 9.08 percent.
    (c) 13.2 percent.
    (d) 14.4 percent.

    Answer: C
    Level of Difficulty: 4
    Learning Goal: 4
    Topic: Cost of New Common Stock Equity (Equation 11.8 and Equation 11.8a)

61. The firm's cost of retained earnings is (See Table 11.1.)
    (a) 10.2 percent.
    (b) 13.9 percent.
    (c) 12.4 percent.
    (d) 13.6 percent.

    Answer: C
    Level of Difficulty: 4
    Learning Goal: 4
    Topic: Cost of Retained Earnings (Equation 11.5)

62. The weighted average cost of capital up to the point when retained earnings are exhausted is (See Table 11.1.)
    (a) 7.5 percent.
    (b) 8.65 percent.
    (c) 10.4 percent.
    (d) 11.0 percent.

    Answer: D
    Level of Difficulty: 4
    Learning Goal: 4
    Topic: Weighted Marginal Cost of Capital (Equation 11.9)

63. The weighted average cost of capital after all retained earnings are exhausted is (See Table 11.1.)
    (a) 13.6 percent.
    (b) 11.0 percent.
    (c) 11.55 percent.
    (d) 10.4 percent.

    Answer: C
    Level of Difficulty: 4
    Learning Goal: 4
    Topic: Weighted Marginal Cost of Capital (Equation 11.9)

A firm has determined its optimal structure which is composed of the following sources and target market value proportions.

Table 11.2

Source of Capital	Target Market Proportions
Long-term debt	60%
Common stock equity	40

Debt: The firm can sell a 15-year, $1,000 par value, 8 percent bond for $1,050. A flotation cost of 2 percent of the face value would be required in addition to the premium of $50.

Common Stock: A firm's common stock is currently selling for $75 per share. The dividend expected to be paid at the end of the coming year is $5. Its dividend payments have been growing at a constant rate for the last five years. Five years ago, the dividend was $3.10. It is expected that to sell, a new common stock issue must be underpriced $2 per share and the firm must pay $1 per share in flotation costs. Additionally, the firm has a marginal tax rate of 40 percent.

64. The firm's before-tax cost of debt is (See Table 11.2.)

(a) 7.7 percent.
(b) 10.6 percent.
(c) 11.2 percent.
(d) 12.7 percent.

Answer: A
Level of Difficulty: 4
Learning Goal: 4
Topic: Cost of Long-Term Debt (Equation 11.1)

65. The firm's after-tax cost of debt is (See Table 11.2.)

(a) 4.6 percent.
(b) 6 percent.
(c) 7 percent.
(d) 7.7 percent.

Answer: A
Level of Difficulty: 4
Learning Goal: 4
Topic: Cost of Long-Term Debt (Equation 11.2)

66. The firm's cost of a new issue of common stock is (See Table 11.2.)
    (a) 10.2 percent.
    (b) 14.3 percent.
    (c) 16.7 percent.
    (d) 17.0 percent.

    Answer: D
    Level of Difficulty: 4
    Learning Goal: 4
    Topic: Cost of New Common Stock Equity (Equation 11.8 and Equation 11.8a)

67. The firm's cost of retained earnings is (See Table 11.2.)
    (a) 10.2 percent.
    (b) 14.3 percent.
    (c) 16.7 percent.
    (d) 17.0 percent.

    Answer: C
    Level of Difficulty: 4
    Learning Goal: 4
    Topic: Cost of Retained Earnings (Equation 11.5)

68. The weighted average cost of capital up to the point when retained earnings are exhausted is (See Table 11.2.)
    (a) 6.8 percent.
    (b) 7.7 percent.
    (c) 9.44 percent.
    (d) 11.29 percent.

    Answer: C
    Level of Difficulty: 4
    Learning Goal: 4
    Topic: Weighted Marginal Cost of Capital (Equation 11.9)

69. Assuming the firm plans to pay out all of its earnings as dividends, the weighted average cost of capital is (See Table 11.2.)
    (a) 9.6 percent.
    (b) 10.9 percent.
    (c) 11.6 percent.
    (d) 12.1 percent.

    Answer: A
    Level of Difficulty: 4
    Learning Goal: 4
    Topic: Weighted Marginal Cost of Capital (Equation 11.9)

Table 11.3

Balance Sheet General Talc Mines December 31, 2003	
Assets	
Current Assets	
Cash	$25,000
Accounts Receivable	120,000
Inventories	300,000
Total Current Assets	$445,000
Net Fixed Assets	$500,000
Total Assets	$945,000
Liabilities and Stockholders' Equity	
Current Liabilities	
Accounts Payable	$80,000
Notes Payable	350,000
Accruals	50,000
Total Current Liabilities	$480,000
Long-Term Debts(150 bonds issued at $1,000 par)	150,000
Total Liabilities	$630,000
Stockholders' Equity Common Stock (7,200 shares outstanding)	$180,000
Retained Earnings	135,000
Total Stockholders' Equity	$315,000
Total Liabilities and Stockholders' Equity	$945,000

70.

Source of Capital	After-Tax Cost
Long-term debt	8%
Common stock equity	19

Given this after-tax cost of each source of capital, the weighted average cost of capital using book weights for General Talc Mines is (See Table 11.3.)

(a) 11.6 percent.

(b) 15.5 percent.

(c) 16.6 percent.

(d) 17.5 percent.

Answer: B
Level of Difficulty: 4
Learning Goal: 4
Topic: Weighted Average Cost of Capital (Equation 11.9)

71. General Talc Mines has compiled the following data regarding the market value and cost of the specific sources of capital.

Source of Capital	After-Tax Cost
Long-term debt	8%
Common stock equity	19

Market price per share of common stock $50
Market value of long-term debt $980 per bond
The weighted average cost of capital using market value weights is (See Table 11.3.)
(a) 11.7 percent.
(b) 13.5 percent.
(c) 15.8 percent.
(d) 17.5 percent.

Answer: C
Level of Difficulty: 4
Learning Goal: 4
Topic: Weighted Average Cost of Capital (Equation 11.9)

72. The _____ is the level of total financing at which the cost of one of the financing components rises.
(a) weighted average cost of capital
(b) weighted marginal cost of capital
(c) target capital structure
(d) breaking point

Answer: D
Level of Difficulty: 1
Learning Goal: 5
Topic: WMCC Breaking Point

73. As a source of financing, once retained earnings have been exhausted, the weighted average cost of capital will
(a) increase.
(b) remain the same.
(c) decrease.
(d) change in an undetermined direction.

Answer: A
Level of Difficulty: 2
Learning Goal: 5
Topic: Weighted Marginal Cost of Capital

74. A firm expects to have available $500,000 of earnings in the coming year, which it will retain for reinvestment purposes. Given the following target capital structure, at what level of total new financing will retained earnings be exhausted?

Source of Capital	Target Market Proportions
Long-term debt	40%
Preferred stock	10
Common stock equity	50

(a) $500,000.
(b) $800,000.
(c) $1,000,000.
(d) $1,500,000.

Answer: C
Level of Difficulty: 3
Learning Goal: 5
Topic: WMCC Breaking Point (Equation 11.10)

75. A corporation expects to have earnings available to common shareholders (net profits minus preferred dividends) of $1,000,000 in the coming year. The firm plans to pay 40 percent of earnings available in cash dividends. If the firm has a target capital structure of 40 percent long-term debt, 10 percent preferred stock, and 50 percent common stock equity, what capital budget could the firm support without issuing new common stock?

(a) $2,000,000.
(b) $ 600,000.
(c) $1,200,000.
(d) $800,000.

Answer: C
Level of Difficulty: 4
Learning Goal: 5
Topic: WMCC Breaking Point (Equation 11.10)

76. The _____ is a schedule or graph relating the firm's weighted average cost of capital to the level of new financing.

(a) weighted average cost of capital
(b) weighted marginal cost of capital
(c) target capital structure
(d) breaking point

Answer: B
Level of Difficulty: 1
Learning Goal: 6
Topic: WMCC and IOS

77. The investment opportunity schedule (IOS) is
    (a) a set of decision criteria for determining the acceptability of capital projects.
    (b) a determination of the weighted average cost of capital at various increments of financing.
    (c) an internal rate of return ranking of capital projects from best to worst.
    (d) a list of investment opportunities available to the firm.

    Answer: C
    Level of Difficulty: 1
    Learning Goal: 6
    Topic: WMCC and IOS

78. A firm has determined its cost of each source of capital and optimal capital structure which is composed of the following sources and target market value proportions.

Source of Capital	Target Market Proportions	After-Tax Cost
Long-term Debt	35%	9%
Preferred Stock	10	14
Common Stock Equity	55	20

    The firm is considering an investment opportunity, which has an internal rate of return of 10 percent. The project
    (a) should not be considered because its internal rate of return is less than the cost of long-term debt.
    (b) should be considered because its internal rate of return is greater than the cost of debt.
    (c) should not be considered because its internal rate of return is less than the weighted average cost of capital.
    (d) should be considered because its internal rate of return is greater than the weighted average cost of capital.

    Answer: C
    Level of Difficulty: 2
    Learning Goal: 6
    Topic: WMCC and IOS (Equation 11.9)

79. The weighted marginal cost of capital is _____ function of total financing in dollars; the internal rate of return on individual projects is _____ function of the total capital investment in dollars.
    (a) an increasing; an increasing
    (b) a decreasing; an increasing
    (c) a decreasing; a decreasing
    (d) an increasing; a decreasing

    Answer: D
    Level of Difficulty: 3
    Learning Goal: 6
    Topic: WMCC and IOS

80. The investment opportunity schedule combined with the weighted marginal cost of capital indicates
(a) those projects that a firm should select.
(b) those projects that will result in the highest cash flows.
(c) which projects are acceptable given the firm's cost of capital.
(d) which combination of projects will fit within the firm's capital budget.

Answer: C
Level of Difficulty: 3
Learning Goal: 6
Topic: WMCC and IOS

81. In order to recognize the interrelationship between financing and investments, the firm should use _____ when evaluating an investment.
(a) the least costly source of financing
(b) the most costly source of financing
(c) the weighted average cost of all financing sources
(d) the current opportunity cost

Answer: C
Level of Difficulty: 3
Learning Goal: 6
Topic: WMCC and IOS

82. A project's rate of return should be _____ than the weighted marginal cost of financing. The cumulative acceptance of projects _____ the weighted marginal cost of capital.
(a) less; increases
(b) less; decreases
(c) greater; increases
(d) greater; decreases

Answer: C
Level of Difficulty: 3
Learning Goal: 6
Topic: WMCC and IOS

83. According to the investment opportunity schedule (IOS), as the cumulative amount of money invested in a project increases, the return on the projects will
(a) decrease.
(b) increase.
(c) remain unchanged.
(d) not be a factor.

Answer: A
Level of Difficulty: 3
Learning Goal: 6
Topic: WMCC and IOS

84. The wealth-maximizing investment decision for a firm occurs when
    (a) the cost of capital equals the return on the project.
    (b) the weighted marginal cost of capital is less than the investment opportunity schedule.
    (c) the weighted cost of capital exceeds the marginal cost of capital.
    (d) the weighted marginal cost of capital equals the investment opportunity schedule.

    Answer: D
    Level of Difficulty: 3
    Learning Goal: 6
    Topic: WMCC and IOS

85. In utilizing the investment opportunity schedule and the weighted marginal cost of capital, a capital project will be
    (a) acceptable as long as the marginal return equals or exceeds the average cost of capital over all levels of needed funding.
    (b) unacceptable if the marginal return equals the weighted marginal cost of capital.
    (c) unacceptable if the marginal return equals or exceeds the weighted marginal cost of capital.
    (d) acceptable as long as the marginal return equals or exceeds the weighted marginal cost of capital.

    Answer: D
    Level of Difficulty: 4
    Learning Goal: 6
    Topic: WMCC and IOS

86. The cost utilized in making capital budgeting decisions given an investment opportunity schedule is
    (a) the weighted average cost of all needed financing for funding.
    (b) the simple average of the cost of the last incremental amount of financing.
    (c) the weighted average cost of the last incremental amount of financing.
    (d) the weighted average cost of all bonds issued that are related to the capital budget.

    Answer: C
    Level of Difficulty: 4
    Learning Goal: 6
    Topic: WMCC and IOS

87. An investment opportunity/cost schedule
    (a) ranks capital projects by net present value, from highest to lowest, and then compares the discount rate to the marginal cost of capital.
    (b) ranks capital projects by internal rate of return from the highest to lowest and marginal cost from lowest to highest, and then compares the marginal return to the marginal cost.
    (c) ranks capital projects by internal rate of return from lowest to highest and marginal cost from highest to lowest, and then compares the marginal return to the marginal cost.
    (d) ranks capital projects by net present value, and then compares the marginal return to the cost.

    Answer: B
    Level of Difficulty: 4
    Learning Goal: 6
    Topic: WMCC and IOS

88. A firm's current investment opportunity schedule and the weighted marginal cost of capital schedule are shown below.

Investment Opportunity Schedule	IRR	Initial Investment
A	15%	200,000
B	12	300,000
C	19	100,000
D	10	400,000
E	16	300,000

Weighted Marginal Cost of Capital

Range of Total New Financing	WMCC
$0–$250,000	7.5%
250,001–500,000	8.9
500,001–1,000,000	10.0
1,000,001–1,500,000	12.0

The investment opportunities which should be selected are

(a) A, B, C, and D.

(b) A, B, C, and E.

(c) A, B, D, and E.

(d) B, C, D, and E.

Answer: B
Level of Difficulty: 4
Learning Goal: 6
Topic: WMCC and IOS (Equation 11.9 and Equation 11.10)

89. Nico Trading Corporation is considering issuing long-term debt. The debt would have a 30 year maturity and a 10 percent coupon rate. In order to sell the issue, the bonds must be underpriced at a discount of 5 percent of face value. In addition, the firm would have to pay flotation costs of 5 percent of face value. The firm's tax rate is 35 percent. Given this information, the after tax cost of debt for Nico Trading would be

(a) 7.26%.

(b) 11.17%.

(c) 10.00%.

(d) none of the above

Answer: A
Level of Difficulty: 3
Learning Goal: 2
Topic: Cost of Long-Term Debt (Equation 11.1 and Equation 11.2)

90. Tangshan Mining is considering issuing long-term debt. The debt would have a 30 year maturity and a 12 percent coupon rate and make semiannual coupon payments. In order to sell the issue, the bonds must be underpriced at a discount of 2.5 percent of face value. In addition, the firm would have to pay flotation costs of 2.5 percent of face value. The firm's tax rate is 33 percent. Given this information, the after tax cost of debt for Nico Trading would be

(a) 6.38%.

(b) 12.76%.

(c) 4.98%.

(d) 8.55%.

Answer: D
Level of Difficulty: 4
Learning Goal: 2
Topic: Cost of Long-Term Debt (Equation 11.1 and Equation 11.2)

91. Tangshan Mining is considering issuing preferred stock. The preferred stock would have a par value of $75, and a 5.50 percent dividend. What is the cost of preferred stock for Tangshan if flotation costs would amount to 5.5 percent of par value?

(a) 5.50%.

(b) 5.27%.

(c) 7.73%.

(d) 5.82%.

Answer: D
Level of Difficulty: 3
Learning Goal: 2
Topic: Cost of Preferred Stock (Equation 11.3)

92. What would be the cost of new common stock equity for Tangshan Mining if the firm just paid a dividend of $4.25, the stock price is $55.00, dividends are expected to grow at 8.5 percent indefinitely, and flotation costs are $6.25 per share?

(a) 17.96%.

(b) 16.88%.

(c) 9.46%.

(d) none of the above

Answer: A
Level of Difficulty: 3
Learning Goal: 3
Topic: Cost of New Common Stock Equity (Equation 11.8 and Equation 11.8a)

93. What would be the cost of retained earnings equity for Tangshan Mining if the expected return on U.S. Treasury Bills is 5.00 percent, the market risk premium is 10.00 percent, and the firm's beta is 1.3?

(a) 11.5%

(b) 18.0%

(c) 10.0%

(d) none of the above

Answer: B
Level of Difficulty: 3
Learning Goal: 3
Topic: Cost of Retained Earnings (Equation 11.6)

■ Essay Questions

1. A firm has determined its optimal capital structure, which is composed of the following sources and target market value proportions:

Source of Capital	Target Market Proportions
Long-term debt	30%
Preferred stock	5
Common stock equity	65

Debt: The firm can sell a 20-year, $1,000 par value, 9 percent bond for $980. A flotation cost of 2 percent of the face value would be required in addition to the discount of $20.

Preferred Stock: The firm has determined it can issue preferred stock at $65 per share par value. The stock will pay an $8.00 annual dividend. The cost of issuing and selling the stock is $3 per share.

Common Stock: The firm's common stock is currently selling for $40 per share. The dividend expected to be paid at the end of the coming year is $5.07. Its dividend payments have been growing at a constant rate for the last five years. Five years ago, the dividend was $3.45. It is expected that to sell, a new common stock issue must be underpriced at $1 per share and the firm must pay $1 per share in flotation costs. Additionally, the firm's marginal tax rate is 40 percent.

Calculate the firm's weighted average cost of capital assuming the firm has exhausted all retained earnings.

Answer: ki = 5.6%

kp = 12.9%

kn = 21.34%

ka = (0.3)(5.6) + (0.05)(12.9) + (0.65)(21.34) = 16.20%

Level of Difficulty: 3
Learning Goal: 4
Topic: Weighted Marginal Cost of Capital (Equation 11.9)

2. Promo Pak has compiled the following financial data:

Source of Capital	Book Value	Market Value	Cost
Long-term debt	$10,000,000	$8,500,000	5.0%
Preferred stock	1,000,000	1,500,000	14.0
Common stock equity	9,000,000	15,000,000	20.0
	$20,000,000	$25,000,000	

(a) Calculate the weighted average cost of capital using book value weights.
(b) Calculate the weighted average cost of capital using market value weights.

Answers:

(a)

Long-term debt	50%
Preferred stock	5
Common stock equity	45
	100%

ka = (0.5)(5) + (0.05)(14) + (0.45)(20) = 2.5 + 0.7 + 9 = 12.2%

(b)

Long-term debt	34%
Preferred stock	6
Common stock equity	60
	100%

ka = (0.34)(5) + (0.06)(14) + (0.60)(20) = 1.7 + 0.84 + 12 = 14.5%

Level of Difficulty: 4
Learning Goal: 4
Topic: WACC Under Alternative Weighting Schemes (Equation 11.9)

North Sea Oil has compiled the following data relative to current costs of its basic sources of external capital—long-term debt, preferred stock, and common stock equity—for variant ranges of financing.

Table 11.4

Source of Capital	Cost	Range of Total New Financing
Long-term debt	7%	$0–$2,000,000
	8	$2,000,001–$3,000,000
	10	$3,000,001 and above
Preferred stock	19%	$0–$ 960,000
	21	$960,001 and above
Common stock	20%	$0–$ 700,000
	24	$700,001–$1,600,000
	26	$1,600,001–$2,200,000
	30	$2,200,001 and above

The firm expects to have $350,000 of current retained earnings in the coming year at a cost of 20 percent; once these retained earnings are exhausted, the firm will issue new common stock. The company's target capital structure proportions are used in calculating the weighted average cost of capital follow.

Source of Capital	Target Capital Structure
Long-term debt	0.25
Preferred stock	0.25
Common stock equity	0.50

3. Calculate the firm's cost of capital prior to exhausting the firm's available current retained earnings. (See Table 11.4.)

Answer: ka = (7)(0.25) + (19)(0.25) + (20)(0.50) = 16.5%.

Level of Difficulty: 4
Learning Goal: 6
Topic: WMCC and Breaking Points (Equation 11.9 and Equation 11.10)

4. Calculate the firm's cost of capital for $2,000,000 of total new financing. (See Table 11.4.)

Answer: ka = (7)(0.25) + (21)(0.25) + (26)(0.50) = 20%.

Level of Difficulty: 4
Learning Goal: 6
Topic: WMCC and Breaking Points (Equation 11.9 and Equation 11.10)

5. Given the following information on the available investment opportunities below, determine which projects should be selected. (See Table 11.4.)

Investment Opportunity	Initial Investment	Internal Rate of Return
A	400,000	22%
B	500,000	21
C	400,000	19
D	400,000	17
E	600,000	16
F	700,000	16

Answer: Projects A, B, and C.
Level of Difficulty: 4
Learning Goal: 6
Topic: WMCC and IOS

6. A corporation is considering a capital project for the coming year.

The project has an internal rate of return of 14 percent. If the firm has the following target capital structure and costs, what should their decision be and why?

Source of Capital	Proportion	After-Tax Cost
Long-term debt	0.40	10%
Preferred stock	0.10	15%
Common stock equity	0.50	20%

Answers: ka = (0.40)(10%) + (0.10)(15%) + (0.50)(20%) = 15.5%

They should reject this project, because the weighted average cost of capital is 15.5 percent and the internal rate of return is 14 percent.

Level of Difficulty: 4
Learning Goal: 6
Topic: WMCC and IOS (Equation 11.9)