

Directions: Please answer the following questions designed to test your knowledge of portfolio analysis, risk/return relationships, the basics of financial options, cost of capital and cash flow determination within the context of the capital asset pricing model. There are 33 questions each weighted equally, so please choose the best possible response from those given to each problem. This exam will be due at the beginning of class on March 21, 2011.

True/False

Indicate whether the statement is true[A] or false[B].

- 1. According to the Capital Asset Pricing Model, investors are primarily concerned with portfolio risk, not the risks of individual stocks held in isolation. Thus, the relevant risk of a stock is the stock's contribution to the riskiness of a well-diversified portfolio.
- 2. A firm can change its beta through managerial decisions, including capital budgeting and capital structure decisions.
- 3. "Risk aversion" implies that investors require higher expected returns on risky securities if they are to be induced to purchase them.
- 4. The preemptive right gives current stockholders the right to purchase, on a pro rata basis, any new shares sold by the firm. This right helps protect current stockholders against both dilution of control and dilution of value.
- 5. Founders' shares are a type of classified stock where the shares are owned by the firm's founders, and they generally have more votes per share than the other classes of common stock.
- 6. An option is a contract that gives its holder the right to buy or sell an asset at a predetermined price within a specified period of time.
- 7. As the price of a stock rises above the strike price, the value investors are willing to pay for a call option increases because both (1) the immediate capital gain that can be realized by exercising the option and (2) the likely exercise value of the option when it expires have increased.
- 8. The firm's cost of external equity raised by issuing new stock is the same as the required rate of return on the firm's outstanding common stock.
- 9. Estimating project cash flows is generally the most important but also the most difficult step in the capital budgeting process. Methodology, such as the use of NPV versus IRR, is important, but less so than estimating projects' cash flows.
- 10. In cash flow estimation, the existence of externalities must be taken into account if those externalities have any effects on the firm's cash flows.
- 11. The primary advantage of accelerated depreciation over straight-line depreciation is that, while the total amount of depreciation and thus tax savings is unchanged, charges are taken sooner. This means that the firm gets the benefits of the tax savings sooner, which increases their present value.

Multiple Choice

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

- _____ 12. A highly risk-averse investor is considering adding one additional stock to a 3-stock portfolio, to form a 4-stock portfolio. The three stocks currently held all have $b = 1.0$ and a perfect positive correlation with the market. Potential new Stocks A and B both have expected returns of 15%, and both are equally correlated with the market, with $r = 0.75$. However, Stock A's standard deviation of returns is 12% versus 8% for Stock B. Which stock should this investor add to his or her portfolio, or does the choice matter?
- Either A or B, i.e., the investor should be indifferent between the two.
 - Stock A.
 - Stock B.
 - Neither A nor B, as neither has a return sufficient to compensate for risk.
 - Add A, since its beta must be lower.
- _____ 13. A stock has an expected return of 12.60%. Its beta is 1.49 and the risk-free rate is 5.00%. What is the market risk premium?
- 5.10%
 - 5.23%
 - 5.36%
 - 5.49%
 - 5.63%
- _____ 14. Ripken Iron Works believes the following probability distribution exists for its stock. What is the coefficient of variation on the company's stock?

State of the Economy	Probability of State Occurring	Stock's Expected Return
Boom	0.25	25%
Normal	0.50	15%
Recession	0.25	5%

- 0.4360
 - 0.4714
 - 0.5068
 - 0.5448
 - 0.5856
- _____ 15. You hold a diversified portfolio consisting of a \$5,000 investment in each of 20 different common stocks. The portfolio beta is equal to 1.12. You have decided to sell a lead mining stock ($b = 1.00$) at \$5,000 net and use the proceeds to buy a like amount of a steel company stock ($b = 2.00$). What is the new beta of the portfolio?
- 1.1139
 - 1.1725
 - 1.2311
 - 1.2927
 - 1.3573

- _____ 16. A stock is expected to pay a dividend of \$0.75 at the end of the year. The required rate of return is $r_s = 12.5\%$, and the expected constant growth rate is $g = 8.5\%$. What is the current stock price?
- \$17.82
 - \$18.28
 - \$18.75
 - \$19.22
 - \$19.70
- _____ 17. If $D_0 = \$2.25$, g (which is constant) = 3.5%, and $P_0 = \$50$, what is the stock's expected dividend yield for the coming year?
- 4.42%
 - 4.66%
 - 4.89%
 - 5.13%
 - 5.39%
- _____ 18. If $D_1 = \$1.25$, g (which is constant) = 5.5%, and $P_0 = \$44$, what is the stock's expected total return for the coming year?
- 7.54%
 - 7.73%
 - 7.93%
 - 8.13%
 - 8.34%
- _____ 19. The Isberg Company just paid a dividend of \$0.80 per share, and that dividend is expected to grow at a constant rate of 6.00% per year in the future. The company's beta is 1.25, the market risk premium is 5.00%, and the risk-free rate is 4.00%. What is the company's current stock price?
- \$19.95
 - \$20.45
 - \$20.96
 - \$21.49
 - \$22.02
- _____ 20. WWW Servers just paid a dividend of $D_0 = \$1.00$. Analysts expect the company's dividend to grow by 30% this year, by 10% in Year 2, and at a constant rate of 5% in Year 3 and thereafter. The required return on WWW's stock is 9.00%. What is the best estimate of the stock's current intrinsic value?
- \$31.50
 - \$32.31
 - \$33.14
 - \$33.96
 - \$34.84
- _____ 21. An option that gives the holder the right to sell a stock at a specified price at some future time is
- a call option.
 - a put option.
 - an out-of-the-money option.
 - a naked option.
 - a covered option.

- _____ 22. Suppose you believe that Johnson Company's stock price is going to increase from its current level of \$22.50 sometime during the next 5 months. For \$310.25 you can buy a 5-month call option giving you the right to buy 100 shares at a price of \$25 per share. If you buy this option for \$310.25 and Johnson's stock price actually rises to \$45, what would your pre-tax net profit be?
- \$310.25
 - \$1,689.75
 - \$1,774.24
 - \$1,862.95
 - \$1,956.10

- _____ 23. An analyst wants to use the Black-Scholes model to value call options on the stock of Ledbetter Inc. based on the following data:

- The price of the stock is \$40.
- The strike price of the option is \$40.
- The option matures in 3 months ($t = 0.25$).
- The standard deviation of the stock's returns is 0.40, and the variance is 0.16.
- The risk-free rate is 6%.

Given this information, the analyst then calculated the following necessary components of the Black-Scholes model:

- $d_1 = 0.175$
- $d_2 = -0.025$
- $N(d_1) = 0.56946$
- $N(d_2) = 0.49003$

$N(d_1)$ and $N(d_2)$ represent areas under a standard normal distribution function. Using the Black-Scholes model, what is the value of the call option?

- \$2.81
 - \$3.12
 - \$3.47
 - \$3.82
 - \$4.20
- _____ 24. Bankston Corporation forecasts that if all of its existing financial policies are adhered to, its proposed capital budget would be so large that it would have to issue new common stock. Since new stock has a higher cost than retained earnings, Bankston would like to avoid issuing new stock. Which of the following actions would reduce its need to issue new common stock?
- Increase the percentage of debt in the target capital structure.
 - Increase the dividend payout ratio for the upcoming year.
 - Increase the proposed capital budget.
 - Reduce the amount of short-term bank debt in order to increase the current ratio.
 - Reduce the percentage of debt in the target capital structure.

- _____ 25. Hettenhouse Company's perpetual preferred stock sells for \$102.50 per share, and it pays a \$9.50 annual dividend. If the company were to sell a new preferred issue, it would incur a flotation cost of 4.00% of the price paid by investors. What is the company's cost of preferred stock for use in calculating the WACC?
- 9.27%
 - 9.65%
 - 10.04%
 - 10.44%
 - 10.86%
- _____ 26. Assume that you are a consultant to Magee Inc., and you have been provided with the following data: $r_{RF} = 4.00%$; $RP_M = 5.00%$; and $b = 1.15$. What is the cost of equity from retained earnings based on the CAPM approach?
- 9.75%
 - 10.04%
 - 10.34%
 - 10.65%
 - 10.97%
- _____ 27. Assume that you are a consultant to Broske Inc., and you have been provided with the following data: $D_1 = \$1.30$; $P_0 = \$42.50$; and $g = 7.00%$ (constant). What is the cost of equity from retained earnings based on the DCF approach?
- 9.08%
 - 9.56%
 - 10.06%
 - 10.56%
 - 11.09%
- _____ 28. You were hired as a consultant to Kroncke Company, whose target capital structure is 40% debt, 10% preferred, and 50% common equity. The after-tax cost of debt is 6.00%, the cost of preferred is 7.50%, and the cost of retained earnings is 13.25%. The firm will not be issuing any new stock. What is its WACC?
- 9.48%
 - 9.78%
 - 10.07%
 - 10.37%
 - 10.68%
- _____ 29. To help finance a major expansion, Delano Development Company sold a noncallable bond several years ago that now has 15 years to maturity. This bond has a 10.25% annual coupon, paid semiannually, it sells at a price of \$1,025, and it has a par value of \$1,000. If Delano's tax rate is 40%, what component cost of debt should be used in the WACC calculation?
- 5.11%
 - 5.37%
 - 5.66%
 - 5.96%
 - 6.25%
- _____ 30. You were recently hired by Nast Media Inc. to estimate its cost of capital. You were provided with the following data: $D_1 = \$2.00$; $P_0 = \$55.00$; $g = 8.00%$ (constant); and $F = 5.00%$. What is the cost of equity raised by selling new common stock?
- 11.24%
 - 11.83%
 - 12.42%
 - 13.04%
 - 13.69%

- _____ 31. You work for Athens Inc., and you must estimate the Year 1 operating cash flow for a project with the following data. What is the Year 1 operating cash flow?

Sales revenues	\$15,000
Depreciation	\$4,000
Other operating costs	\$6,000
Tax rate	35.0%

- a. \$7,250
- b. \$7,431
- c. \$7,617
- d. \$7,807
- e. \$8,003

- _____ 32. Fool Proof Software is considering a new project whose data are shown below. The equipment that would be used has a 3-year tax life, and the MACRS rates for such property are 33%, 45%, 15%, and 7% for Years 1 through 4. Revenues and other operating costs are expected to be constant over the project's 10-year life. What is the operating cash flow for Year 1?

Equipment cost (depreciable basis)	\$65,000
Sales revenues, each year	\$60,000
Operating costs excl. depr'n	\$25,000
Tax rate	35.0%

- a. \$30,258
- b. \$31,770
- c. \$33,359
- d. \$35,027
- e. \$36,778

- _____ 33. California Hideaways is considering a new project whose data are shown below. The equipment that would be used has a 3-year tax life, would be depreciated by the straight-line method over its 3-year life, and would have zero salvage value. No new working capital would be required. Revenues and other operating costs are expected to be constant over the project's 3-year life. What is the project's NPV? (Hint: Cash flows are constant in Years 1-3.)

WACC	10.0%
Net investment cost (depreciable basis)	\$65,000
Straight-line depr'n rate	33.3333%
Sales revenues, each year	\$60,000
Operating costs excl. depr'n, each year	\$25,000
Tax rate	35.0%

- a. \$8,499
- b. \$8,946
- c. \$9,417
- d. \$9,913
- e. \$10,434

