

1. Project A has conventional cash flows and is acceptable according to the NPV criterion. If the required rate of return is 12 percent, then:
  - A. the project will be acceptable using the IRR criterion.
  - B. the project will be rejected under the IRR criterion.
  - C. the project could be accepted or rejected depending on whether the IRR is greater than or less than 12 percent.
  - D. the project will be accepted only if the IRR is equal to 12 percent.
  - E. the project must also be acceptable according to the Payback Method.
  
2. All else the same, actions or events that cause firm returns to be less correlated with changes in the economy will \_\_\_\_\_ the firm's systematic risk.
  - A. increase
  - B. decrease
  - C. not affect
  - D. affect, but the direction is uncertain
  - E. increase the firm's unsystematic risk but not affect
  
3. In an efficient market, the price of a security will:
  - A. always rise immediately upon the release of new information with no further price adjustments related to that information.
  - B. react to new information over a two-day period after which time no further price adjustments related to that information will occur.
  - C. rise sharply when new information is first released and then decline to a new stable level by the following day.
  - D. react immediately to new information with no further price adjustments related to that information.
  - E. be slow to react for the first few hours after new information is released allowing time for that information to be reviewed and analyzed.
  
4. Theoretically, the NPV is the most appropriate method to determine the acceptability of a project. A false sense of security can be overwhelm the decision-maker when the procedure is applied properly and the positive NPV results are accepted blindly. Sensitivity and scenario analysis aid in the process by:
  - A. changing the underlying assumptions on which the decision is based.
  - B. highlights the areas where more and better data are needed.
  - C. providing a picture of how an event can affect the calculations.
  - D. All of the above.
  - E. None of the above.

5. For a multi-product firm with all equity, if a project's beta is different from that of the overall firm, then the:
- CAPM can no longer be used.
  - project should be discounted at the T-bill rate.
  - project should be discounted using the overall firm's beta.
  - project should be discounted at the market rate.
  - project should be discounted at a rate commensurate with its own beta.
6. Matt is analyzing two mutually exclusive projects of similar size and has prepared the following data. Both projects have 5 year lives.

	<u>Project A</u>	<u>Project B</u>
Net present value	\$15,090	\$14,693
Payback period	2.76 years	2.51 years
Average accounting return	9.3 percent	9.6 percent
Required return	8.3 percent	8.0 percent
Required AAR	9.0 percent	9.0 percent

Matt has been asked for his best recommendation given this information. His recommendation should be to accept:

- project B because it has the shortest payback period.
  - both projects as they both have positive net present values.
  - project A and reject project B based on their net present values.
  - project B and reject project A based on their average accounting returns.
  - project B and reject project A based on both the payback period and the average accounting return.
7. A project has a required return of 15 percent and a five year life. Which of the following is inconsistent with the others?
- Profitability index = 0
  - The payback is less than five years.
  - NPV = \$0
  - IRR = 15%
  - The present value of the future cash flows equals the initial cash outlay.
8. You hold four stocks in your portfolio: A, B, C, and D. The portfolio has a beta of 1.20. Stock C comprises 40 percent of your portfolio and has a beta of 1.60. If you sell all of your holdings in Stock C and replace it with Stock E with a beta of 1.25, what is the new beta of your portfolio?
- 1.00
  - 1.06
  - 1.12
  - 1.25
  - 1.32

9. Which of the following are true? The cost of capital is:
- I. an opportunity cost that depends on the use of funds, not the source.
  - II. the same thing as the required return.
  - III. the same as the WACC for projects with the same risk as the firm.
- A. III only  
B. II and III only  
C. I and III only  
D. I and II only  
E. I, II, and III
10. Given the following information: The risk-free rate is 7%, the beta of stock A is 1.2, the beta of stock B is 0.8, the expected return on stock A is 13.5%, the expected return on stock B is 11.0%. We also know that stock A is fairly priced and the betas of stocks A and B are correct. Which of the following must be true?
- A. Stock B is also fairly priced.
  - B. The price of stock B is too high.
  - C. The price of stock B is too low.
  - D. The expected return on stock B is too high.
  - E. The expected return on stock A is too high.

**Partial Credit Problems --- SHOW ALL WORK**

**Problem 1 (10 points)** Calculate the WACC for the following firm:

*Debt:* 55,000 bonds with a par value of \$1,000 and a quoted price of 105.30. The bonds have coupon rate of 4.8 percent and 9 years to maturity. 40,000 bonds with a par value of \$2,000 and a quoted price of 107.30. The bonds have a coupon rate of 5.3 percent and 28 years to maturity.

*Preferred Stock:* 600,000 shares of 4.3 percent preferred stock with a par value of \$25 selling at a price of \$28.85

*Common Stock:* 1,700,000 shares of stock selling at a market price of \$85. The beta of the stock is 1.15, the current dividend was \$0.70 and the dividend growth rate is 4.5 percent.

*Market:* The market risk premium is 7.5 percent and the risk-free rate is 3.1 percent. The corporate tax rate is 21 percent.

**Problem 2 (11 points)** Your company has a new project available. You will sell 125,000 units per year at a price of \$150 for 5 years. Equipment will cost \$3.5 million and will be depreciated on a 3-year MACRS schedule. The equipment can be sold for \$400,000 at the end of the project and fixed costs are \$3 million per year. The project requires a 14 percent return and net working capital equal to 10 percent of annual sales at the beginning of the project to be returned at the end of the project. What is the maximum variable cost per unit you could have to accept the project? The tax rate is 22 percent.

**Problem 3 (11 points)** Marshall Industries in an all-equity firm. The company has projected sales of \$153 million next year. Costs are expected to be \$82 million, and net investment is expected to be \$20 million. Each of these values is expected to grow over the following four years at 15 percent, 12 percent, 7 percent, and 5 percent, respectively. After that, the growth rate in each of these variables is expected to be 3.5 percent indefinitely. There are 6.2 million shares of stock outstanding. The company's stock has a beta of 1.15, the risk-free rate is 2.8 percent, and the expected return of the market is expected to be 10.7 percent. The corporate tax rate is 21 percent. What is your estimate of the current stock price?

**Problem 4 (13 points)** Your company is considering a new project. Sales are expected to be 17,000, 19,000, 23,000, and 15,000 units over the next four years, respectively. Equipment necessary for production will cost \$2.1 million, be depreciated on a 3-year MACRS schedule, and have no salvage value in four years. The unit sales price will be \$93, variable costs will be \$40, and the fixed costs each year will be \$350,000. All dollar amounts are expressed in today's terms. The sales price is expected to increase at the general inflation rate of 3.5 percent, variable costs are expected to increase at 3 percent, and fixed costs are expected to increase at 4 percent. The real required return is 7 percent. The tax rate is 21 percent. What is the NPV of the project?

**Problem 5 (25 points)**

**LINKIN PARK COMPUTER**

Linkin Park Computer is a small computer manufacturer located in Fairbanks, Alaska. You have been hired as an outside consultant to evaluate the feasibility of the company's planned expansion into printers.

**Company History:** Linkin Park Computer (LPC) was founded 26 years ago by Chester Bennington and has built computers over the entire life of the company. The company has never manufactured peripherals such as printers and scanners.

**The Problem:** The management of LPC is deciding whether or not to undertake the production of printers to complement their line of computers. LPC has determined that the necessary equipment will cost \$25 million and will be depreciated on a 7-year MACRS schedule. The project will require an investment of 12 percent of next year's sales in net working capital for each year. LPC expects to sell 90,000, 105,000, 115,000, 125,000 and 110,000 printers each year for the next five years, respectively, in conjunction with their computers. These printers will be sold at a price of \$129 each. LPC also plans to sell 15,000 printers per year at a price of \$169 on a stand-alone basis. Variable costs of manufacturing the printers are \$34 each and fixed costs are \$700,000 per year. The equipment used in the production of the printers can be sold for \$6 million in five years.

**Other Issues:** Since you have been hired as a consultant, you are going to be paid a fee of \$25,000 for your analysis. LPC currently uses Durst printers when a new computer is sold. In return, Durst has signed a contract to purchase 2,000 LPC computers each year. The contract calls for the delivery of 2,000 computers per year for the next two years. LPC believes the contract would be renewed they continue to use Durst printers. It is expected that the contract would be renewed for an additional 15 years. If LPC manufactures its own printers, Durst will not renew the contract. The computers are sold to Durst at a price of \$1,200, have a variable cost of \$480, and a fixed cost of \$900,000 per year. The tax rate for LPC is 21 percent. The cost of capital for the computer printer industry is 13%. LPC has an optimum capital structure of 40 percent debt and 60 percent equity. The floatation costs of debt are 5 percent and the floatation costs of equity are 7 percent. The company does not expect any retained earnings for the next several years. Net working capital does not require floatation costs.

**Analysis:** Calculate the payback period, NPV and IRR. Can you use each of these in this analysis? Should LPC produce the new printer?