

### ADDITIONAL PROBLEMS FOR CHAPTER 5

**5-24** The market and Stock J have the following probability distributions:  
Expected returns

PROBABILITY	$k_M$	$k_J$
0.3	15%	20%
0.4	9	5
0.3	18	12

- a. Calculate the expected rates of return for the market and Stock J.
- b. Calculate the standard deviations for the market and Stock J.
- c. Calculate the coefficients of variation for the market and Stock J.

**5-25** Suppose  $k_{RF} = 5\%$ ,  $k_M = 10\%$ , and  $k_A = 12\%$ .  
Required rate of return

- a. Calculate Stock A's beta.
- b. If Stock A's beta were 2.0, what would be A's new required rate of return?

**5-26** You have a \$2 million portfolio consisting of a \$100,000 investment in each of 20 different stocks. The portfolio has a beta equal to 1.1. You are considering selling \$100,000 worth of one stock that has a beta equal to 0.9 and using the proceeds to purchase another stock that has a beta equal to 1.4. What will be the new beta of your portfolio following this transaction?  
Portfolio beta

**5-27** You have observed the following returns over time:  
Expected and required rates of return

YEAR	STOCK X	STOCK Y	MARKET
1998	14%	13%	12%
1999	19	7	10
2000	-16	-5	-12
2001	3	1	1
2002	20	11	15

- Assume that the risk-free rate is 6 percent and the market risk premium is 5 percent.
- a. What are the betas of Stocks X and Y? (Hint: See Web Appendix 5A.)
  - b. What are the required rates of return for Stocks X and Y?
  - c. What is the required rate of return for a portfolio consisting of 80 percent of Stock X and 20 percent of Stock Y?
  - d. If Stock X's expected return is 22 percent, is Stock X under- or overvalued?