3. You are evaluating various investment opportunities currently available and you have Calculated expected returns and standard deviations for five different well-diversified portfolios of risky assets:

Portfolio // Expected Return // Standard Deviation

Q 7.8% 10.5%

R 10.0 14.0

S 4.6 5.0

T 11.7 18.5

U 6.2 7.5

a. For each portfolio, calculate the risk premium per unit of risk that you expect to receive ([E(R) − RFR]/σ). Assume that the risk-free rate is 3.0 percent.

b. Using your computations in Part a, explain which of these five portfolios is most likely to be the market portfolio. Use your calculations to draw the capital market line (CML).

c. If you are only willing to make an investment with σ = 7.0%, is it possible for you to earn a return of 7.0 percent?

d. What is the minimum level of risk that would be necessary for an investment to earn 7.0 percent? What is the composition of the portfolio along the CML that will generate that expected return?

e. Suppose you are now willing to make an investment with σ = 18.2%. What would be the investment proportions in the riskless asset and the market portfolio for this portfolio? What is the expected return for this portfolio?

4 You are an analyst for a large public pension fund and you have been assigned the task of evaluating two different external portfolio managers (Y and Z). You consider the following historical average return, standard deviation, and CAPM beta estimates for these two managers over the past five years:

Portfolio // Actual Avg. Return // Standard Dev // Beta

Manager Y 10.20% 12.00% 1.20

Manager Z 8.80 9.90 0.80

Additionally, your estimate for the risk premium for the market portfolio is 5.00 percent and the risk-free rate is currently 4.50 percent.

a. For both Manager Y and Manager Z, calculate the expected return using the CAPM.

Express your answers to the nearest basis point (i.e., xx.xx%).

b. Calculate each fund manager’s average “alpha” (i.e., actual return minus expected return) over the five-year holding period. Show graphically where these alpha statistics would plot on the security market line (SML).

c. Explain whether you can conclude from the information in Part b if: (1) either manager outperformed the other on a risk-adjusted basis, and (2) either manager out performed market expectations in general. Chapter 8: An Introduction to Asset Pricing Models 237

5. Assume the following daily closings for the Dow Jones Industrial Average:

D a y D J I A D a y D J I A

1 13,010 7 13,220

2 13,100 8 13,130

3 13,165 9 13,250

4 13,080 10 13,315

5 13,070 11 13,240

6 13,150 12 13,310

a. Calculate a four-day moving average for Days 4 through 12.

b. Assume that the index on Day 13 closes at 13,300. Would this signal a buy or sell decision?

6. The cumulative advance-decline line reported in Barron’s at the end of the month is 21,240.

During the first week of the following month, the daily report for the Exchange is as follows:

D a y 1 2 3 4 5

Issues traded 3,544 3,533 3,540 3,531 3,521

Advances 1,737 1,579 1,759 1,217 1,326

Declines 1,289 1,484 1,240 1,716 1,519

Unchanged 518 470 541 598 596

a. Compute the daily net advance-decline line for each of the five days.

b. Compute the cumulative advance-decline line for each day and the final value at the end of the week.