

Question

(6-3)

Security A has an expected return of 7%, a standard deviation of returns of 35%, a correlation coefficient with the market of -0.3 , and a beta coefficient of -1.5 . Security B has an expected return of 12%, a standard deviation of returns of 10%, a correlation with the market of 0.7 , and a beta coefficient of 1.0 . Which security is riskier? Why?

(6-4)

Suppose you owned a portfolio consisting of \$250,000 of U.S. government bonds with a maturity of 30 years.

- Would your portfolio be riskless?
- Now suppose you hold a portfolio consisting of \$250,000 of 30-day Treasury bills. Every 30 days your bills mature, and you reinvest the principal (\$250,000) in a new batch of bills. Assume that you live on the investment income from your portfolio and that you want to maintain a constant standard of living. Is your portfolio truly riskless?
- Can you think of any asset that would be completely riskless? What security comes closest to being riskless? Explain.

(6-5)

If investors' aversion to risk *increased*, would the risk premium on a high-beta stock increase by more or less than that on a low-beta stock? Explain.

(6-6)

If a company's beta were to double, would its expected return double?

(6-7)

In the real world, is it possible to construct a portfolio of stocks that has an expected return equal to the risk-free rate?

Self-Test Problems

Solutions Appear in Appendix A

(ST-1)

Stocks A and B have the following historical returns:

Realized Rates of
Return

Year	\bar{r}_A	\bar{r}_B
2006	-18%	-24%
2007	44	24
2008	-22	-4
2009	22	8
2010	34	56

- Calculate the average rate of return for each stock during the 5-year period. Assume that someone held a portfolio consisting of 50% of Stock A and 50% of Stock B. What would have been the realized rate of return on the portfolio in each year? What would have been the average return on the portfolio for the 5-year period?
- Now calculate the standard deviation of returns for each stock and for the portfolio. Use Equation 6-5.
- Looking at the annual returns data on the two stocks, would you guess that the correlation coefficient between returns on the two stocks is closer to 0.8 or to -0.8 ?
- If you added more stocks at random to the portfolio, which of the following is the most accurate statement of what would happen to σ_p ?
 - σ_p would remain constant.
 - σ_p would decline to somewhere in the vicinity of 20%.
 - σ_p would decline to zero if enough stocks were included.