

Chapter 11 - Homework Questions and Problems Answers

2. Portfolio Expected Return. You own a portfolio that has \$2,750 invested in Stock A and \$3,900 invested in Stock B. If the expected returns on these stocks are 9 percent and 14 percent, respectively, what is the expected return on the portfolio?

Answer: The expected return of a portfolio is the sum of the weight of each asset times the expected return of each asset. The total value of the portfolio is:

$$\text{Total value} = \$2,750 + 3,900$$

$$\text{Total value} = \$6,650$$

So, the expected return of this portfolio is:

$$E(R_p) = (\$2,750 / \$6,650)(.09) + (\$3,900 / \$6,650)(.14)$$

$$E(R_p) = .1193, \text{ or } 11.93\%$$

3. Portfolio Expected Return. You own a portfolio that is 15 percent invested in Stock X, 40 percent in Stock Y, and 45 percent in Stock Z. The expected returns on these three stocks are 10 percent, 13 percent, and 15 percent, respectively. What is the expected return on the portfolio?

Answer: The expected return of a portfolio is the sum of the weight of each asset times the expected return of each asset. So, the expected return of the portfolio is:

$$E(R_p) = .15(.10) + .45(.13) + .45(.15)$$

$$E(R_p) = .1345, \text{ or } 13.45\%$$

5. Calculating Expected Return. Return. Based on the following information, calculate the expected return.

State of Economy	Probability of State of Economy	Rate of Return If State Occurs
Recession	.30	-.11
Boom	.70	.21

Answer: The expected return of an asset is the sum of the probability of each state occurring times the rate of return if that state occurs. So, the expected return of each asset is:

$$E(R) = .30(-.11) + .70(.21)$$

$$E(R) = .1140, \text{ or } 11.40\%$$

13. Using CAPM. A stock has a beta of 1.23, the expected return on the market is 10.9 percent, and the risk-free rate is 3.6 percent. What must the expected return on this stock be?

Answer: The CAPM states the relationship between the risk of an asset and its expected return. The CAPM is:

$$E(R_i) = R_f + [E(R_M) - R_f] \times \beta_i$$

Substituting the values we are given, we find:

$$E(R_i) = .036 + (.1090 - .036)(1.23)$$

$$E(R_i) = .1258, \text{ or } 12.58\%$$

14. Using CAPM. A stock has an expected return of 11.4 percent, the risk-free rate is 3.7 percent, and the market risk premium is 7.1 percent. What must the beta of this stock be?

Answer: We are given the values for the CAPM except for the β of the stock. We need to substitute these values into the CAPM, and solve for the β of the stock. One important thing we need to realize is that we are given the market risk premium. The market risk premium is the expected return of the market minus the risk-free rate. We must be careful not to use this value as the expected return of the market. Using the CAPM, we find:

$$E(R_i) = R_f + [E(R_M) - R_f] \times \beta_i$$

$$.114 = .037 + .071\beta_i$$

$$\beta_i = 1.08$$

15. Using CAPM. A stock has an expected return of 10.9 percent, its beta is .85, and the risk-free rate is 4.6 percent. What must the expected return on the market be?

Answer: Here, we need to find the expected return of the market, using the CAPM. Substituting the values given, and solving for the expected return of the market, we find:

$$E(R_i) = R_f + [E(R_M) - R_f] \times \beta_i \quad .109 = .046 + [E(R_M) - .046](.85) \quad E(R_M) = .1201, \text{ or } 12.01\%$$