FINM2063 Introduction to Finance

Chapter 4 Exercises

1. You are considering two stocks and have determined the following information:

|  |  |  |
| --- | --- | --- |
| Stock A | Return | Probability of the Return |
|  | 18% | 25% |
|  | 14 | 50 |
|  | 10 | 25 |

|  |  |  |
| --- | --- | --- |
| Stock B | Return | Probability of the Return |
|  | 22% | 10% |
|  | 12 | 60 |
|  | 11 | 30 |

1. Which of the two stocks has the higher expected return?
2. Which stock is riskier?
3. Given your answers to the two previous questions, what stock is preferred?
4. Stocks R and S have the following probability distributions of returns:

|  |  |  |
| --- | --- | --- |
|  | Returns | |
| Probability | Stock R | Stock S |
| 0.5 | -2% | 20% |
| 0.1 | 10 | 12 |
| 0.4 | 15 | 2 |

1. Calculate the expected return for each stock.
2. Calculate the expected return of a portfolio consisting of 50% of each stock.
3. Calculate the standard deviation of returns for each stock and for the portfolio. Which stock is considered riskier with respect to total risk?
4. Compute the coefficient of variation for each stock. According to the coefficient of variation, which stock is considered riskier?
5. If you added more stocks at random to the portfolio, which of the following statements most accurately describes what would happen to σP, the standard deviation of the portfolio?
   1. σP would remain constant.
   2. σP would decline to somewhere in the vicinity of the standard deviation of the market.
   3. σP would decline to zero if enough stocks were included.
6. Terry recently invested equal amounts in five stocks to form an investment portfolio, which has a beta equal to 1.2 – that is, βP = 1.2. Terry is considering selling the riskiest stock in the portfolio, which has a beta coefficient equal to 2.0, and replacing it with another stock. If Terry replaces the stock that has a β equal to 2.0 with a stock that has a β equal to 1.0, what will be the new beta of his investment portfolio? Assume that equal amounts are invested in each stock in the portfolio.
7. The McAlhany Investment Fund has total capital of $500 million invested in five stocks:

|  |  |  |
| --- | --- | --- |
| Stock | Investment | Stock’s Beta Coefficient |
| A | $160 million | 0.5 |
| B | 120 million | 2.0 |
| C | 80 million | 4.0 |
| D | 80 million | 1.0 |
| E | 60 million | 3.0 |

The current risk-free rate if 8%. Market returns have the following estimated probability distribution for the next period:

|  |  |
| --- | --- |
| Probability | Market Return |
| 0.1 | 10% |
| 0.2 | 12 |
| 0.4 | 13 |
| 0.2 | 16 |
| 0.1 | 17 |

1. Compute the expected return for the market.
2. Compute the beta coefficient for the investment fund.
3. What is the estimated equation for the Security Market Line?
4. Compute the fund’s required rate of return for the next period.
5. Suppose John McAlhany, the president, receives a proposal for a new stock. The investment needed to take a position in the stock is $50 million, it will have an expected return of 18%, and its estimated beta coefficient is 2.0. Should the firm purchase the new stock? At what expected rate of return should McAlhany be indifferent to purchasing the stock?