

## Chapter 4

1. What are the required properties of probability distribution for discrete random variables?

*$F(x_0)$  is between 0 and 1 for each  $x_0$ , the sum of the individual probabilities is 1.*

2. What is the expected value of a discrete random variable X?

*The mean,  $\mu$*

3. How do we calculate the standard deviation?

*The positive square root of the variance.*

4. What are the characteristics of a binomial probability distribution?

*Several trials, each of which has only two outcomes. The probability of the outcome is the same for each trial. The probability of the outcome on one trial does not affect the probability on other trials.*

5. What are the possible outcomes of a binomial distribution (Bernoulli)?

*Success and failure.*

6. What are the characteristics of joint probability distributions of discrete random variables?

*$P(x,y)$  is between 0 and 1. The sum of the joint probabilities  $P(x,y)$  over all possible pairs of values must be 1.*

7. How do you know whether the joint distributed random variables X and Y are independent?

*If their joint probability distribution is the product of their marginal probability distributions.*

8. What is a portfolio analysis?

*The linear combination of the mean values of the stocks in the portfolio.*