

Chapter Sixteen Exercises

1. Identify each of these probability distributions as positively skewed, negatively skewed, or symmetrical:
 - a. the normal distribution
 - b. a Superfecta bet, where correctly picking the first four finishers in a horse race wins a large amount of money
 - c. the purchase of a junk bond

2. Four thousand years ago, Chinese ship owners worried about pirates and natural disasters put part of their cargo on each other's ships. How would modern portfolio theory explain this behavior?

3. A computer program identified these three portfolios as being on the Markowitz frontier. Carefully explain why there must be an error in this program.

Portfolio	Expected Return	Standard Deviation
1	5	8
2	10	15
3	15	18

4. An examination of the annual percentage returns for stocks and corporate bonds for the period 1926–1978 yielded these estimates:

	Stocks	Bonds
Average	11.2	3.4
Standard deviation	22.2	5.7

Assuming these numbers to be the expected return and standard deviation for the coming year, what portfolio of stocks and safe T-bills paying 2.5 percent dominates corporate bonds (has the same standard deviation as corporate bonds, but a higher expected return)? If so, why would any rational investor buy corporate bonds?

5. A mutual fund will divide its money among three groups of assets: T-bills paying 5 percent, a bundle of long-term bonds with an expected return of 8 percent and a standard deviation of 10 percent, and a bundle of stocks with an expected return of 15 percent and a standard deviation of 20 percent. What can you say about the ratio of long-term bonds to stocks that they should hold in their portfolio if there is no uncertainty about the economy and considerably uncertainty about interest rates, so that the correlation coefficient between stocks and long-term bonds is 1.0? Would it make any difference if there was considerable uncertainty about the economy?