# Chapter 18
# Performance Evaluation and Active Portfolio Management

1. d

4.

a.

| | E(r) | $\sigma$ | $\beta$ |
|---|---|---|---|
| Portfolio A | 11% | 10% | 0.8 |
| Portfolio B | 14% | 31% | 1.5 |
| Market index | 12% | 20% | 1.0 |
| Risk-free asset | 6% | 0% | 0.0 |

The alphas for the two portfolios are:

$$\alpha_A = 11\% - [6\% + 0.8(12\% - 6\%)] = 0.2\%$$

$$\alpha_B = 14\% - [6\% + 1.5(12\% - 6\%)] = -1.0\%$$

Ideally, you would want to take a long position in Portfolio A and a short position in Portfolio B.

b. If you hold only one of the two portfolios, then the Sharpe measure is the appropriate criterion:

$$S_A = \frac{11 - 6}{10} = 0.5$$

$$S_B = \frac{14 - 6}{31} = 0.26$$

Therefore, using the Sharpe criterion, Portfolio A is preferred.

9. The manager's alpha is: $10\% - [6\% + 0.5(14\% - 6\%)] = 0$

10.

a. $\alpha_A = 24\% - [12\% + 1.0(21\% - 12\%)] = 3.0\%$

$\alpha_B = 30\% - [12\% + 1.5(21\% - 12\%)] = 4.5\%$

$T_A = (24 - 12)/1 = 12$

$T_B = (30 - 12)/1.5 = 12$

As an addition to a passive diversified portfolio, both A and B are candidates because they both have positive alphas.

b. i. The managers may have been trying to time the market. In that case, the SCL of the portfolios may be non-linear. (ii) One year of data is too small a sample.(iii) The portfolios may have significantly different levels of diversification. If both have the same risk-adjusted return, the less diversified portfolio has a higher exposure to risk because of its higher diversifiable risk. Since the above measure adjusts for systematic risk only, it does not tell the entire story.