

## Chapter 5

1. You put up \$50 at the beginning of the year for an investment. The value of the investment grows 4% and you earn a dividend of \$3.50. Your HPR was \_\_\_\_\_.
  - A. 4%
  - B. 3.5%
  - C. 7%
  - D. 11%
  
2. The \_\_\_\_\_ measure of returns ignores compounding.
  - A. geometric average
  - B. arithmetic average
  - C. IRR
  - D. dollar-weighted
  
3. If you want to measure the performance of your investment in a fund, including the timing of your purchases and redemptions, you should calculate the \_\_\_\_\_.
  - A. geometric average return
  - B. arithmetic average return
  - C. dollar-weighted return
  - D. index return
  
4. Which one of the following measures time-weighted returns and allows for compounding?
  - A. geometric average return
  - B. arithmetic average return
  - C. dollar-weighted return
  - D. historical average return
  
5. You have calculated the historical dollar-weighted return, annual geometric average return, and annual arithmetic average return. If you desire to forecast performance for next year, the best forecast will be given by the \_\_\_\_\_.
  - A. dollar-weighted return
  - B. geometric average return
  - C. arithmetic average return
  - D. index return

6. Rank the following from highest average historical standard deviation to lowest average historical standard deviation from 1926 to 2013.
- I. Small stocks
  - II. Long-term bonds
  - III. Large stocks
  - IV. T-bills
- A. I, II, III, IV
  - B. III, IV, II, I
  - C. I, III, II, IV
  - D. III, I, II, IV
7. You have calculated the historical dollar-weighted return, annual geometric average return, and annual arithmetic average return. You always reinvest your dividends and interest earned on the portfolio. Which method provides the best measure of the actual average historical performance of the investments you have chosen?
- A. dollar-weighted return
  - B. geometric average return
  - C. arithmetic average return
  - D. index return
8. The dollar-weighted return is the \_\_\_\_\_.
- A. difference between cash inflows and cash outflows
  - B. arithmetic average return
  - C. geometric average return
  - D. internal rate of return
9. The geometric average of -12%, 20% and 25% is \_\_\_\_\_.
- A. 8.42%
  - B. 11.00%
  - C. 9.70%
  - D. 18.88%
10. Suppose you pay \$9,800 for a \$10,000 par Treasury bill maturing in two months. What is the annual percentage rate of return for this investment?
- A. 2.04%
  - B. 12.00 %
  - C. 12.24%
  - D. 12.89%

11. Suppose you pay \$9,400 for a \$10,000 par Treasury bill maturing in six months. What is the effective annual rate of return for this investment?
- A. 6.38%
  - B. 12.77%
  - C. 13.17%
  - D. 14.25%
12. Your investment has a 20% chance of earning a 30% rate of return, a 50% chance of earning a 10% rate of return and a 30% chance of losing 6%. What is your expected return on this investment?
- A. 12.8%
  - B. 11.0%
  - C. 8.9%
  - D. 9.2%
13. The reward-to-volatility ratio is given by \_\_\_\_\_.
- A. the slope of the capital allocation line
  - B. the second derivative of the capital allocation line
  - C. the point at which the second derivative of the investor's indifference curve reaches zero
  - D. the portfolio's excess return
14. Both investors and gamblers take on risk. The difference between an investor and a gambler is that an investor \_\_\_\_\_.
- A. is normally risk neutral
  - B. requires a risk premium to take on the risk
  - C. knows he or she will not lose money
  - D. knows the outcomes at the beginning of the holding period
15. In calculating the variance of a portfolio's returns, squaring the deviations from the mean results in:
- I. Preventing the sum of the deviations from always equaling zero
  - II. Exaggerating the effects of large positive and negative deviations
  - III. A number for which the unit is percentage of returns
- A. I only
  - B. I and II only
  - C. I and III only
  - D. I, II, and III

16. Your investment has a 40% chance of earning a 15% rate of return, a 50% chance of earning a 10% rate of return and a 10% chance of losing 3%. What is the standard deviation of this investment?
- A. 5.14%
  - B. 7.59%
  - C. 9.29%
  - D. 8.43%
17. If you require a real growth in the purchasing power of your investment of 8%, and you expect the rate of inflation over the next year to be 3%, what is the lowest nominal return that you would be satisfied with?
- A. 3.00%
  - B. 8.00%
  - C. 11.00%
  - D. 11.24%
18. Consider a treasury bill with a rate of return of 5% and the following risky securities:
- Security A:  $E(r) = .15$ ; variance = .0400
  - Security B:  $E(r) = .10$ ; variance = .0225
  - Security C:  $E(r) = .12$ ; variance = .1000
  - Security D:  $E(r) = .13$ ; variance = .0625
- The investor must develop a complete portfolio by combining the risk-free asset with one of the securities mentioned above. The security the investor should choose as part of his complete portfolio to achieve the best CAL would be \_\_\_\_\_.
- A. security A
  - B. security B
  - C. security C
  - D. security D
19. You invest \$1,000 in a complete portfolio. The complete portfolio is composed of a risky asset with an expected rate of return of 16% and a standard deviation of 20% and a treasury bill with a rate of return of 6%. A portfolio that has an expected value in one year of \$1,100 could be formed if you \_\_\_\_\_.
- A. Place 40% of your money in the risky portfolio and the rest in the risk free asset
  - B. Place 55% of your money in the risky portfolio and the rest in the risk free asset
  - C. Place 60% of your money in the risky portfolio and the rest in the risk free asset
  - D. Place 75% of your money in the risky portfolio and the rest in the risk free asset

20. You invest all of your money in 1-year T-bills. Which of the following statements is (are) correct?

I. Your nominal return on the T-bills is riskless.

II. Your real return on the T-bills is riskless.

III. Your nominal Sharpe ratio is zero.

A. I only

B. I and III only

C. II only

D. I, II, and III

21. Which of the following arguments supporting passive investment strategies is (are) correct?

I. Active trading strategies may not guarantee higher returns but guarantee higher costs.

II. Passive investors can free-ride on the activity of knowledge investors whose trades force prices to reflect currently available information.

III. Passive investors are guaranteed to earn higher rates of return than active investors over sufficiently long time horizons.

A. I only

B. I and II only

C. II and III only

D. I, II, and III

22. You are considering investing \$1,000 in a complete portfolio. The complete portfolio is composed of treasury bills that pay 5% and a risky portfolio, P, constructed with 2 risky securities X and Y. The optimal weights of X and Y in P are 60% and 40% respectively. X has an expected rate of return of 14% and Y has an expected rate of return of 10%. To form a complete portfolio with an expected rate of return of 8%, you should invest approximately \_\_\_\_\_ in the risky portfolio. This will mean you will also invest approximately \_\_\_\_\_ and \_\_\_\_\_ of your complete portfolio in security X and Y respectively.

A. 0%, 60%, 40%

B. 25%, 45%, 30%

C. 40%, 24%, 16%

D. 50%, 30%, 20%

23. You are considering investing \$1,000 in a complete portfolio. The complete portfolio is composed of treasury bills that pay 5% and a risky portfolio, P, constructed with 2 risky securities X and Y. The optimal weights of X and Y in P are 60% and 40% respectively. X has an expected rate of return of 14% and Y has an expected rate of return of 10%. The dollar values of your positions in X, Y, and treasury bills would be \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_ respectively if you decide to hold a complete portfolio that has an expected return of 8%.
- A. \$162, \$595, \$243  
 B. \$243, \$162, \$595  
 C. \$595, \$162, \$243  
 D. \$595, \$243, \$162
24. A security with normally distributed returns has an annual expected return of 18% and standard deviation of 23%. The probability of getting a return between -28% and 64% in any one year is
- A. 68.26%  
 B. 95.44%  
 C. 99.74%  
 D. 100.00%
25. In the mean standard deviation graph, the line that connects the risk-free rate and the optimal risky portfolio, P, is called the \_\_\_\_\_.
- A. capital allocation line  
 B. indifference curve  
 C. investor's utility line  
 D. security market line

1	2	3	4	5
D	B	C	A	C
6	7	8	9	10
C	B	D	C	C
11	12	13	14	15
C	D	A	B	B
16	17	18	19	20
A	D	A	A	B

21	22	23	24	25
B	C	b	B	A

1.

$$4\% + (\$3.5/\$50) \times 100\% = 11\%$$

9.

$$[(1 + (-12\%))(1 + 20\%)(1 + 25\%)]^{1/3} - 1 = 9.70\%$$

10.

$$\left( \frac{\$10,000 - \$9,800}{\$9,800} \right) \times 100\% \times \left( \frac{12}{2} \right) = 12.24\%$$

11.

$$\left( \frac{\$10,000}{\$9,400} \right)^{\frac{12}{6}} - 1 = 13.17\%$$

12.

$$(0.2)(30\%) + (0.5)(10\%) + (0.3)(-6\%) = 9.2\%$$

16.

$$E(r_p) = (.4)(15\%) + (.5)(10\%) + (.10)(-3\%) = 10.7\%$$

$$\sigma(r_p) = [ .4(.15 - .107)^2 + .5(.10 - .107)^2 + .10(-.03 - .107)^2 ]^{1/2} = 5.14\%$$

17.

$$\text{Nominal rate} = (1.08)(1.03) - 1 = 11.24\%$$

18.

Security A has the steepest slope and its slope is as follows:

$$\text{slope} = \frac{.15 - .05}{(.04)^5} = .50$$

19.

$$x(\$1,000)(1.16) + (1 - x)(\$1,000)(1.06) = \$1,100$$

$$x = 40\%$$

22.

$$E(r_p) = .6(14\%) + .4(10\%) = 12.4\%$$

$$w_{rp}(12.4\%) + (1 - w_{rp})(5\%) = 8\% \Rightarrow w_{rp} \approx 40\%$$

$$w_x \text{ in complete portfolio} = .40(.60) = 24\%$$

$$w_y \text{ in complete portfolio} = .40(.40) = 16\%$$

23.

$$T(.05) + (\$1,000 - T)[.6(14\%) + .4(10\%)] = .08(\$1,000) \Rightarrow T = \$595$$

$$X = (\$1,000 - \$595)(.6) = \$243$$

$$Y = (\$1,000 - \$595)(.4) = \$162$$

24.

$$\text{Probability of a return within } \pm 2\sigma = 95.44\%$$