Problem Set #10 Solutions

1. Using the index model, the alpha of a stock is 3.0%, the beta if 1.1 and the market return is 10%. What is the residual given an actual return of 15%?

   A. 0.0%
   B. 1.0%
   C. 2.0%
   D. 3.0%

$$R_i = 3 + 1.1(10) + e_i$$
$$e_i = 1$$

2. The risk premium for exposure to exchange rates is 5% and the firm has a beta relative to exchanges rates of 0.4. The risk premium for exposure to the consumer price index is -6% and the firm has a beta relative to the CPI of 0.8. If the risk free rate is 3.0%, what is the expected return on this stock?

   A. 0.2%
   B. 1.5%
   C. 3.6%
   D. 4.0%

$$E(r) = 3 + .4(5) + .8(-6) = .2\%$$

3. You run a regression of a stock's returns versus a market index and find the following:

	Coefficients	Lower 95%	Upper 95%
Intercept	0.789	-1.556	3.457
Slope	0.890	0.6541	1.465

   Based on the data you know that the stock

   A. earned a positive alpha that is statistically significantly different from zero
   B. has a beta precisely equal to 0.890
   C. has a beta that could be anything between 0.6541 and 1.465 inclusive
   D. has no systematic risk

4. In a well diversified portfolio, _____ risk is negligible.

   A. nondiversifiable
   B. market
   C. systematic
   D. unsystematic

5. Standard deviation of portfolio returns is a measure of _____.

   A. total risk
   B. relative systematic risk
   C. relative non-systematic risk
   D. relative business risk

6. In the context of the capital asset pricing model, the systematic measure of risk is captured by _____.

A. unique risk
B. beta
C. standard deviation of returns
D. variance of returns

7. What is the expected return on a stock with a beta of 0.8, given a risk free rate of 3.5% and an expected market return of 15.5%?

A. 3.8%
B. 13.1%
C. 15.6%
D. 19.1%

$$E(r_i) = 3.5 + .8(15.5 - 3.5) = 13.1\%$$

8. The two factor model on a stock provides a risk premium for exposure to market risk of 12%, a risk premium for exposure to silver commodity prices of 3.5% and a risk free rate of 4.0%. What is the expected return on the stock?

A. 11.6%
B. 13.0%
C. 15.3%
D. 19.5%

Assuming β = 1 on both factors:

$$E(r) = 4 + 1(12) + 1(3.5) = 19.5\%$$

9. Arbitrage is based on the idea that _____.

A. assets with identical risks must have the same expected rate of return
B. securities with similar risk should sell at different prices
C. the expected returns from equally risky assets are different
D. markets are perfectly efficient

10. According to the CAPM, what is the market risk premium given an expected return on a security of 13.6%, a stock beta of 1.2, and a risk free interest rate of 4.0%?

A. 4.0%
B. 4.8%
C. 6.6%
D. 8.0%

$$E(r_i) = r_f + \beta_i[E(r_m) - r_f]$$
$$13.6 = 4 + 1.2(MRP)$$
$$MRP = 8\%$$