**2. The market price of a security is $50. Its expected rate of return is 14 percent. The risk-free rate is 6 percent and the market risk premium is 8.5 percent. What will be the market price of the security if its covariance with the market portfolio doubles (and all other variables remain unchanged)?**

A doubling in the covariance of the security will result in a double of the beta as well as the risk premium. Therefore, we must determine the risk premium for the security:

With an original risk premium of 8%, we will get a new risk premium of 16%, and therefore an expected return of 22%:

Therefore, if we applied the dividend discount model to determine the discount relative to the price and the correlated change in the price considering the dividends, we will be able to determine the new price of the security:

The new price of the security is $31.82 as the change in the beta results in a higher required return by investors and, at the same rate of dividends, shareholders will be willing to pay $31.82 for the security.

**4. Are the following statements true or false?**

**a. Stocks with a beta of zero offer an expected rate of return of zero.**

False; A stock with a beta of zero has no risk relative to the market; this stock is most likely a risk-free asset and will produce returns at the risk-free rate

**b. The CAPM implies that investors require a higher return to hold highly volatile securities.**

False; An investor will expect return for undiversifiable risk. A smart investor in a perfect world will diversify away the risk associated with securities that have higher volatilities and returns.

**c. You can construct a portfolio with a beta of .75 by investing .75 of the budget in bills and the remainder in the market portfolio.**

Therefore, this is false – you must invest 75% into the market portfolio and 0.25 into bills.

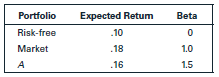
**If the simple CAPM is valid, which of the following situations in problems 10–16 are possible? Explain. Consider each situation independently.**

**10.** 

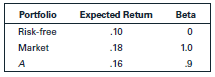
No, this is not possible. If Portfolio A has the higher Beta, it should have the higher expected return as well. The two portfolios cannot exist in equilibrium as investors should expect more from Portfolio A or less from Portfolio B.

**11.** 

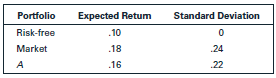
This mix of portfolios are possible – The standard deviation is not the beta. Portfolio A can have a lower expected return while having a higher standard deviation as long as Portfolio A has a lower Beta than portfolio B. Expected returns vary with the Beta, which is a representation of the Portfolio’s covariance with the market portfolio.

**12.** 

According to the SML, the expected return of Portfolio A must be 22% if we take into account the Beta of the portfolio. Therefore, the situation is not possible.

**13.** 

CAPM assumes that the expected return must be 17.2% and not 16%, and so, therefore, the situation is not possible.

**14.** 

This is possible, perhaps, as there is no info on the beta of Portfolio A, and therefore, we are unable to determine whether the expected return is low or high. Therefore, it is possible.

**In problems 17–19, assume that the risk-free rate of interest is 6 percent and the expected rate of return on the market is 16 percent.**

**17. A share of stock sells for $50 today. It will pay a dividend of $6 per share at the end of the year. Its beta is 1.2. What do investors expect the stock to sell for at the end of the year?**

At an beta of 1.2, investors will expect a return on 18%, and therefore will expect the price of the share to increase to $53, once taking into account the dividend of $6.

**19. A stock has an expected rate of return of 4 percent. What is its beta?**

The stock moves against the market with a Beta of -0.2.

**30. The capital asset pricing model asserts that portfolio returns are best explained by**

**a. Economic factors**

**b. Specific risk**

**c. Systematic risk**

**d. Diversification**

Answer: C

**31. According to the CAPM, the expected rate of return of a portfolio with a beta of 1.0 and an alpha**

**of 0 is**

**a. Between rM and rf**

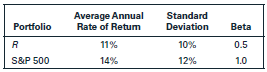
**b. The risk-free rate, rf**

**c. β(rM (2rf)**

**d. The expected return on the market, rM**

Answer: D

**Solve problems 32–33, referring to the following table showing risk and return measures of two portfolios.**



**32. When plotting portfolio R on the preceding table relative to the SML, portfolio R lies**

**a. On the SML**

**b. Below the SML**

**c. Above the SML**

**d. Insufficient data given**

Answer: D, we need the risk-free rate

**33. When plotting portfolio R relative to the capital market line, portfolio R lies**

**a. On the CML**

**b. Below the CML**

**c. Above the CML**

**d. Insufficient data given**

Answer: D, we need the risk-free rate