

Corporate finance, CAPM, beta equation, practice exam problems

(The attached PDF file has better formatting.)

*Question 1.1: Expected Return

A stock with a CAPM β of 0.800 has an expected return of 12%, and a stock with a CAPM β of 1.200 has an expected return of 14%. What is the expected return for a stock with a CAPM β of 1.500?

- A. 15.0%
- B. 15.5%
- C. 16.0%
- D. 16.5%
- E. 17.0%

Answer 1.1: B

We use the CAPM equation and a pair of simultaneous linear equations to find the risk-free rate and the market risk premium.

- $12\% = \text{risk-free rate} + 0.800 \times \text{market risk premium}$
- $14\% = \text{risk-free rate} + 1.200 \times \text{market risk premium}$

$$\Rightarrow (1.200 - 0.800) \times \text{market risk premium} = 14\% - 12\% = 2\%$$

$$\Rightarrow \text{market risk premium} = 2\% / 0.4 = 5\%$$

$$\text{To find the risk-free rate: } 12\% = \text{risk-free rate} + 0.8 \times 5\% \Rightarrow \text{risk-free rate} = 8\%$$

$$\text{The expected return on this stock is } 8\% + 1.5 \times 5\% = 15.5\%$$

*Question 1.2: Betas

The CAPM beta of stock W is 1.200, the CAPM beta of stock Y is 0.800, and the risk-free rate equals the market risk premium. How much greater is the expected return on Stock W than the expected return on Stock Y?

- A. The same
- B. 20% greater
- C. 22% greater
- D. 40% greater
- E. 50% greater

Answer 1.2: C

Let the risk-free rate be R, so the market risk premium is also R.

- The expected return on Stock W is $R + 1.2 \times R = 2.2 \times R$.
- The expected return on Stock Y is $R + 0.8 \times R = 1.8 \times R$.

$$\text{The ratio of the expected returns is } 2.2R / 1.8R = 1.222$$