

UNIVERSITY OF TEXAS AT AUSTIN

Quiz #16Required returns. CAPM assumptions.

Provide your complete solutions to the following problems:**Problem 16.1.** (9 points) State the assumptions of the **Capital Asset Pricing Model**.

Problem 16.2. (2 points) You are given the following information about stock X and a portfolio P :

- The annual effective risk-free rate is 4%.
- The portfolio's expected return is 0.08 and its volatility is 0.25.
- The expected return of stock X is 6% and its volatility is 0.4.
- The correlation between the returns of stock X and the portfolio P is -0.2 .

Then, the investor holding portfolio P should invest in stock X . *True or false? Why?***Problem 16.3.** (2 points) Portfolio P has expected return 0.08 and volatility equal to 12%. Portfolio Q has expected return 0.10 and volatility equal to 12.5%. Then, we can say with certainty that portfolio P is not efficient. *True or false? Why?***Problem 16.4.** (2 points) You are given the following information about stock X and a portfolio P :

- The annual effective risk-free rate is 3%.
- The portfolio's expected return is 0.10 and its volatility is 0.20.
- The expected return of stock X is 0.06 and its volatility is 0.30.
- The correlation between the returns of stock X and the portfolio P is -0.25 .

Then, the investor holding portfolio P should invest in stock X . *True or false? Why?*