PROBLEM SET: Capm

Exercise 1. *weights* [2]

1) Which of the following statements is FALSE?

A) Without trading, the portfolio weights will decrease for the stocks in the portfolio whose returns are above the overall portfolio return.

B) The expected return of a portfolio is simply the weighted average of the expected returns of the investments within the portfolio.

C) Portfolio weights add up to 1 so that they represent the way we have divided our money between the different individual investments in the portfolio.

D) A portfolio weight is the fraction of the total investment in the portfolio held in an individual investment in the portfolio.

Exercise 2. *weight* [2]

Suppose you invest $20,000 by purchasing 200 shares of Abbott Labs (ABT) at $50 per share, 200 shares of Lowes Companies, Inc. (LOW) at $30 per share, and 100 shares of Ball Corporation (BLL) at $40 per share.

The weight on Abbott Labs in your portfolio is:

A) 50%.

B) 40%.

C) 30%.

D) 20%.

Exercise 3. *Portfolio return* [2]

Suppose you invest $20,000 by purchasing 200 shares of Abbott Labs (ABT) at $50 per share, 200 shares of Lowes Companies, Inc. (LOW) at $30 per share, and 100 shares of Ball Corporation (BLL) at $40 per share.

6) Suppose over the next year Ball Corporation has a return of 12.5%, Lowes Companies has a return of 20%, and Abbott Labs has a return of -10%. The return on your portfolio over the year is:

A) 0%.

B) 7.5%.

C) 3.5%.

D) 5.0%.

Exercise 4. [4]

Suppose you invest $20,000 by purchasing 200 shares of Abbott Labs (ABT) at $50 per share, 200 shares of Lowes Companies, Inc. (LOW) at $30 per share, and 100 shares of Ball Corporation (BLL) at $40 per share.

Suppose over the next year Ball Corporation has a return of 12.5%, Lowes Companies has a return of 20%, and Abbott Labs has a return of -10%. The weight on Lowes Companies in your portfolio after one year is closest to:

A) 20.0%.

B) 34.8%.

C) 30.0%.

D) 36.0%.

Exercise 5. [2]

11) Suppose you invest $15,000 in Merck stock and $25,000 in Home Depot stock. You expect a return of 16% for Merck and 12% for Home Depot. What is the expected return on your portfolio?

A) 13.50%

B) 14.00%

C) 13.75%

D) 14.50%

Exercise 6. *beta* [3]

You are presently invested in the Luther Fund, a broad-based mutual fund that invests in stocks and other securities. The Luther Fund has an expected return of 14% and a volatility of 20%. Risk-free Treasury bills are currently offering returns of 4%. You are considering adding a precious metals fund to your current portfolio. The metals fund has an expected return of 10%, a volatility of 30%, and a correlation of -.20 with the Luther Fund.

5) The beta of the precious metals fund with the Luther Fund

is closest to:

A) -0.3.

B) -0.6.

C) 0.3.

D) 0.6.

Exercise 7. [2]

8) Which of the following is NOT an assumption used in deriving the Capital Asset Pricing Model (CAPM)?

A) Investors have homogeneous expectations regarding the volatilities, correlation, and expected returns of securities.

B) Investors have homogeneous risk-averse preferences toward taking on risk.

C) Investors hold only efficient portfolios of traded securities, that is portfolios that yield the maximum expected return for the given level of volatility.

D) Investors can buy and sell all securities at competitive market prices without incurring taxes or transactions cost and can borrow and lend at the risk-free interest rate.

Exercise 8. *beta*

Suppose that Google stock has a beta of 1.06 and Boeing stock has a beta of 1.31. The beta on a portfolio that consists of 30% Google stock and 70% Boeing stock is closest to:

A) 1.06.

B) 1.14.

C) 1.19.

D) 1.24.

Exercise 9. *return*

Suppose that Google stock has a beta of 1.06 and Boeing stock has a beta of 1.31. If the risk-free interest rate is 4% and the expected return from the market portfolio is 12%, then the expected return on a portfolio that consists of 30% Google stock and 70% Boeing stock is closest to:

A) 12.5%.

B) 13.1%.

C) 13.5%.

D) 13.9%.

Exercise 10.

11-2. You own three stocks: 600 shares of Apple Computer, 10,000 shares of Cisco Systems, and 5000 shares of Colgate-Palmolive. The current share prices and expected returns of Apple, Cisco, and Colgate-Palmolive are, respectively, $500, $20, $100 and 12%, 10%, 8%.

a. What are the portfolio weights of the three stocks in your portfolio?

b. What is the expected return of your portfolio?

c. Suppose the price of Apple stock goes up by $25, Cisco rises by $5, and Colgate-Palmolive falls by $13. What are the new portfolio weights?

d. Assuming the stocks' expected returns remain the same, what is the expected return of the portfolio at the new prices?

Exercise 11.

There are two ways to calculate the expected return of a portfolio: either calculate the expected return using the value and dividend stream of the portfolio as a whole, or calculate the weighted average of the expected returns of the individual stocks that make up the portfolio. Which return is higher?