

FINM3093 Investments

Lecture 5 Exercises

1. Suppose that there are two independent economic factors, F_1 and F_2 . The risk-free rate is 6%, and all stocks have independent firm-specific components with a standard deviation of 45%. Portfolios A and B are both well-diversified with the following properties:

Portfolio	Beta on F_1	Beta on F_2	Expected Return
A	1.5	2.0	31%
B	2.2	-0.2	27%

What is the expected return-beta relationship in this economy?

2. Consider the following data for a one-factor economy. Both portfolios are well diversified.

Portfolio	$E(r)$	Beta
A	12%	1.2
B	6%	0.0

Suppose that another portfolio, portfolio E , is well diversified with a beta of .6 and expected return of 8%. Would an arbitrage opportunity exist? If so, what would be the arbitrage strategy?

3. Consider the following multifactor (APT) model of security returns for a particular stock.

Factor	Factor Beta	Factor Risk Premium
Inflation	1.2	6%
Industrial production	0.5	8%
Oil prices	0.3	3%

- If T-bills currently offer a 6% yield, find the expected rate of return on this stock if the market views the stock as fairly priced.
- Suppose that the market expects the values for the three macro factors given in

column 1 below, but that the actual values turn out as given in column 2. Calculate the revised expectations for the rate of return on the stock once the “surprises” become known.

Factor	Expected Value	Actual Value
Inflation	5%	4%
Industrial production	3%	6%
Oil prices	2%	0%

4. Respond to each of the following comments.
 - a. If stock prices follow a random walk, then capital markets are little different from a casino.
 - b. A good part of a company’s future prospects are predictable. Given this fact, stock prices can’t possibly follow a random walk.
 - c. If markets are efficient, you might as well select your portfolio by throwing darts at the stock listings in *The Wall Street Journal*.

5. Which of the following hypothetical phenomena would be either consistent with or a violation of the efficient market hypothesis? Explain briefly.
 - a. Nearly half of all professionally managed mutual funds are able to outperform the S&P 500 in a typical year.
 - b. Money managers who outperform the market (on a risk-adjusted basis) in one year are likely to outperform the market in the following year.
 - c. Stock prices tend to be predictably more volatile in January than in other months.
 - d. Stock prices of companies that announce increased earnings in January tend to outperform the market in February.

6. Investors expect the market rate of return in the coming year to be 12%. The T-bill rate is 4%. Changing Fortunes Industries’ stock has a beta of .5. The market value of its outstanding equity is \$100 million.
 - a. Using the CAPM, what is your best guess currently as to the expected rate of return on Changing Fortunes’s stock? You believe that the stock is fairly priced.
 - b. If the market return in the coming year actually turns out to be 10%, what is your best guess as to the rate of return that will be earned on Changing Fortunes’s stock?

- c. Suppose now that Changing Fortunes wins a major lawsuit during the year. The settlement is \$5 million. Changing Fortunes' stock return during the year turns out to be 10%. What is your best guess as to the settlement the market previously expected Changing Fortunes to receive from the lawsuit? (Continue to assume that the market return in the year turned out to be 10%.) The magnitude of the settlement is the only unexpected firm-specific event during the year.