

CHAPTER 14

Exercise 3: See BMA for the question

- (a) False
- (b) False
- (c) True
- (d) False
- (e) False
- (f) True

Exercise 5: Analysis of 60 monthly rates of return on United Futon common stock indicates a beta of 1.45 and an alpha of -.2% per month. A month later, the market is up by 5%, and United Futon is up by 6%. What is Futon's abnormal rate of return?

Abnormal stock return = actual return – expected return
Abnormal stock return = 6% - {-0.2+(1.45*5%)} = -1.05%

Exercise 8: Here again are the six lessons of market efficiency. For each lesson give an example showing the lesson's relevance to financial managers.

a. Markets have no memory.

An investor should not buy or sell shares based on apparent trends or cycles in returns.

b. Trust market prices

A CFO should not speculate on changes in interest rates or foreign exchange rates. There is no reason to think that that CFO has superior information.

c. Read the entrails.

A financial manager evaluating the creditworthiness of a large customer could check the customer's stock price and the yield on its debt. A falling stock price or a high yield could indicate trouble ahead.

d. There are no financial illusions.

Don't assume that accounting choices that increase or decrease earnings will have any effect on stock price.

e. The do-it-yourself alternative.

The company should not seek diversification just to reduce risk. Investors can diversify on their own.

f. Seen one stock, seen them all.

Stock issues do not depress price if investors believe the issuer has no private information.

Exercise 10: See BMA for the question text

a) There is risk in almost everything you do in daily life. You could lose your job or your spouse, or suffer damage to your house from a storm. That doesn't necessarily mean you should quit your job, get a divorce, or sell your house. If we accept that our world is risky, then we must accept that asset values fluctuate as new information emerges. Moreover, if capital markets are functioning properly, then stock price changes will follow a random walk. The random walk of values is the *result* of rational investors coping with an uncertain world.

b) To make the example clearer, assume that everyone believes in the same chart. What happens when the chart shows a downward movement? Are investors going to be willing to hold the stock when it has an expected loss? Of course not. They start selling, and the price will decline until the stock is expected to give a positive return. The trend will 'self-destruct.'

c. Random-walk theory as applied to efficient markets means that fluctuations from the *expected* outcome are random. Suppose there is an 80 percent chance of rain tomorrow (because it rained today). Then the local umbrella store's stock price will respond *today* to the prospect of high sales tomorrow. The store's *sales* will not follow a random walk, but its stock price will, because each day the stock price reflects all that investors know about future weather and future sales.

Exercise 11: Which of the following observations appear to indicate market inefficiency? Explain whether the observation appears to contradict the weak, semistrong, or strong form of the efficient-market hypothesis.

a. Tax-exempt municipal bonds offer lower pretax returns than taxable government bonds.

b. Managers make superior returns on their purchases of their company's stock.

- c. There is a positive relationship between the return on the market in one quarter and the change in aggregate profits in the next quarter.*
- d. There is disputed evidence that stocks that have appreciated unusually in the recent past continue to do so in the future.*
- e. The stock of an acquired firm tends to appreciate in the period before the merger announcement.*
- f. Stocks of companies with unexpectedly high earnings appear to offer high returns for several months after the earnings announcement.*
- g. Very risky stocks on average give higher returns than safe stocks.*

One of the ways to think about market inefficiency is that it implies there is easy money to be made. The following appear to suggest market inefficiency:

- (b) strong form
- (d) weak form
- (f) semi-strong form

Exercise 12 See BMA for the question text

The estimates are first substituted in the market model. Then the result from this expected return equation is subtracted from the actual return for the month to obtain the abnormal return.

Abnormal return (Intel) = Actual return – $[(-0.87) + (2.02 \square \text{Market return})]$

Abnormal return (Conagra) = Actual return – $[0.40 + (0.40 \square \text{Market return})]$

Exercise 16: What does the efficient-market hypothesis have to say about these two statements?

- a. “I notice that short-term interest rates are about 1% below long-term rates. We should borrow short-term.”*
- b. “I notice that interest rates in Japan are lower than rates in the United States. We would do better to borrow Japanese yen rather than U.S. dollars.”*

The efficient-market hypothesis says that there is no easy way to make money. Thus, when such an opportunity seems to present itself, we should be very skeptical. For example:

- In the case of short- versus long-term rates, and borrowing short-term versus long-term, there are different risks involved. For example, suppose that we need the money long-term but we borrow short-term. When the short-term note is due, we must somehow refinance. However; this may not be possible, or may be possible only at a very high interest rate.

- In the case of Japanese versus United States interest rates, there is the risk that the Japanese yen - U.S. dollar exchange rate will change during the period of time for which we have borrowed.

Exercise 17: See BMA for the question text

a. Unidentified Risk Factor: From an economic standpoint, given the information available and the number of participants, it is hard to believe that any securities market in the U.S is not very efficient. Thus, the most likely explanation for the small-firm effect is that the model used to estimate expected returns is incorrect, and that there is some as-yet-unidentified risk factor.

b. Coincidence: In statistical inference, we never prove an affirmative fact. The best we can do is to accept or reject a specified hypothesis with a given degree of confidence. Thus, no matter what the outcome of a statistical test, there is always a possibility, however slight, that the small-firm effect is simply the result of statistical chance or, in other words, a coincidence.

c. Market Inefficiency: One key to market efficiency is the high level of competition among participants in the market. For small stocks, the level of competition is relatively low because major market participants (e.g., mutual funds and pension funds) are biased toward holding the securities of larger, well-known companies. Thus, it is likely that the market for small stocks is fundamentally different from the market for larger stocks and, hence, it is quite plausible that the small-firm effect is simply a reflection of market inefficiency.

Exercise 19: On May 15, 1997, the government of Kuwait offered to sell 170 million BP shares, worth about \$2 billion. Goldman Sachs was contacted after the stock market closed in London and given one hour to decide whether to bid on the stock. They decided to offer 710.5 pence (\$11.59) per share, and Kuwait accepted. Then Goldman Sachs went looking for buyers. They lined up 500 institutional and individual investors worldwide, and resold all the shares at 716 pence (\$11.70). The resale was complete before the London Stock Exchange opened next morning. Goldman Sachs made \$15 million overnight.

What does this deal say about market efficiency? Discuss.

The market is most likely efficient. The government of Kuwait is not likely to have non-public information about the BP shares. Goldman Sachs is providing an intermediary service for which they should be remunerated. Stocks are bought by investors at (higher) ask prices and sold at (lower) bid prices. The spread between the two (\$0.11) is revenue for the broker. In the U.S., at that time, a bid-ask spread of 1/8 (\$0.125) was not uncommon. The ‘profit’ of \$15 million reflects the size of the order more than any mispricing.

Exercise 20: “The strong-form of the efficient-market hypothesis is nonsense. Look at mutual fund X; it has had superior performance for each of the last 10 years.” Does the

speaker have a point? Suppose that there is a 50% probability that X will obtain superior performance in any year simply by chance.

a. If X is the only fund, calculate the probability that it will have achieved superior performance for each of the past 10 years.

The probability that mutual fund X achieved superior performance in any one year is 0.50. The probability that mutual fund X achieved superior performance in each of the past ten years is:

$$0.5^{10} = 0.00097656$$

b. Now recognize that there are over 10,000 mutual funds in the United States. What is the probability that by chance there is at least 1 out of 10,000 funds that obtained 10 successive years of superior performance?

The probability that, out of 10,000 mutual funds, none of them obtained ten successive years of superior performance is:

$$(1 - 0.00097656)^{10,000} = 0.00005712$$

Therefore, the probability that at least one of the 10,000 mutual funds obtained ten successive years of superior performance is:

$$1 - 0.00005712 = 0.99994288$$