Corporate Finance, Module 12: “Corporate Financing and Market Efficiency”

Homework Assignment

(The attached PDF file has better formatting.)

Brealey and Myers have six lessons of market efficiency. For each scenario below:

A. Identify one or more lessons that Joseph’s perspective violates.
B. Explain why Joseph’s perspective violates these lessons of market efficiency.

The lessons are described in the textbook. This homework assignment applies the lessons to actuarial work.

Scenario A: From an extensive study of 200 insurers, Joseph concludes that a chain ladder reserve analysis of Schedule P data can identify reserve deficiencies and redundancies. Joseph plans to analyze insurers’ 20X6 Annual Statements in March 20X7, buy stock in those companies with redundant reserves, and sell short the stock of those companies with deficient reserves. To judge Joseph’s plan, consider the following questions:

- Is a chain ladder reserve analysis of Schedule P data easy to perform? (One can buy half a dozen software applications that do all sorts of reserve analyses.)
- Is Joseph’s idea obvious or subtle? If it is obvious, what is the chance that no one is now doing it? What is the probability that *everyone* is already doing it?
- Investment analysts are paid to spot over-valued and under-valued stocks. Some of these investment analysts are trained in mathematical finance, including options pricing and bond valuation. Does Joseph have any competitive advantage over other analysts?

Jacob: What is a chain ladder reserve analysis? What is Schedule P?

Rachel: A chain ladder reserve analysis of Schedule P data is a statistical and financial analysis of accounting data of property-casualty insurers.

Jacob: Is this a complex analysis?

Rachel: The analysis is elementary. It is routinely done by actuaries, regulators, claims department personnel, stock analysts, underwriters, and accountants.

Jacob: What is Joseph’s idea?

Rachel: Joseph examines the accounting data of 200 insurers. He finds that some insurers under-state their liabilities and some over-state their liabilities.

- Insurers may under-state liabilities to make earnings look better, so their managers earn higher bonuses.
- Insurers may over-state liabilities to reduce their tax liabilities and avoid public criticism that they are charging high rates.

Jacob: Is Joseph correct?

Rachel: Joseph’s analysis is correct; this homework assignment asks about Joseph’s plan to making money. Joseph reasons: “Insurer XYZ over-states its liability and under-states its equity. I will buy shares of Insurer XYZ, which will appreciate. Insurer ABC under-states its liability and over-states its equity. I will sell short shares of Insurer ABC, which will depreciate.” Will Joseph make money or is he wasting his time?

Scenario B: Joseph’s firm, a large stock insurance company, plans a new stock offering in May 20X7. The insurer’s reserving practices are dubious, and its reserve adequacy has been questioned by some analysts.

Joseph intends to write a strongly favorable *Statement of Actuarial Opinion*, with no suggestion of potential reserve deficiencies, to ensure a high price for the stock offering. To judge Joseph's plan, consider the following:

- Most insurers have clean *Statements of Actuarial Opinion*, but many of these insurers later announce reserve deficiencies. Investment analysts (and actuaries) estimate that industry reserves are $25 billion deficient. What is the chance that Joseph's *Statement of Actuarial Opinion* will change the opinion of investment analysts?

{The homework assignment is to explain why Joseph's *Statement of Actuarial Opinion* has no effect on the stock price if the market is efficient. You may also post on the discussion forum why a strongly favorable *Statement of Actuarial Opinion* should have no effect on the stock price but *does open Joseph to a lawsuit if the stock price falls*.}

Jacob: If I work for a life insurer, can I change the words for my practice area?

Rachel: Instead of Statement of Actuarial Opinion, use asset adequacy analysis.

Jacob: If the actuary's report has no effect, why do regulators require it?

Rachel: If the insurer is financially distressed and its assets are not sufficient to fund its liabilities, the insurer may not find an actuary to write a favorable report. Regulators rely on the professional code of conduct of the SOA and CAS to ensure that only solvent insurers have favorable statements.

Scenario C: Joseph's employer, a large workers' compensation insurer, is seeking to acquire either a commercial auto insurer or a personal auto insurer.

- Dina, Vice President of underwriting, recommends buying the commercial auto insurer, since the same underwriters who review the workers' compensation application can review the commercial auto application.
- Joseph, Chief Actuary, recommends buying the personal auto insurer, since the correlation of workers' compensation and personal auto is nil, thereby diversifying the company, providing smoother earnings, and raising the stock price.

To analyze this scenario, consider the following issues:

- Some people believe that firms with smooth earnings have higher stock prices because shareholders want diversification. Why is it more efficient for shareholders to diversify on their own?
- Some managers seek to diversify among unrelated businesses. How has the stock market reacted to conglomerates that combine unrelated businesses? Why do the best CEO's seek to build firms with synergies among their parts? (Cf R. Murdoch)
- If diversification among unrelated businesses doesn't raise the stock price, why do some managers seek such diversification? Explain how diversification can help a CEO's job security even if it does not help shareholders. Explain why some CEO's might want to double a firm's size even if it reduces the wealth of their owners.

[NEAS: The homework assignment was not written to use all six lessons. This summary is good; we point out several items.

Lesson 1: Loss reserves are not an efficient market. Past data are good indicators of future figures.

Lesson 2: Correct. Stock analysts have been using chain ladder development for thirty years to analyze insurers' profitability. Jacob's suggestion is simple. It is done by many stock analysts and is embedded in the market price.

Some actuaries presume that actuaries are better than stock analysts at reserve estimates. This is the common wisdom in the actuarial community, but it is unlikely to be true.

Actuaries have little financial incentive to properly value an insurer. The actuary's salary is not ties to the accuracy of his or her estimates. If the actuary's estimate are completely misguided, he or she won't stay employed too long. But for most actuaries, advancement and bonuses are based on other management skills, not on the accuracy of their reserve estimates.

Stock analysts have enormous incentive to properly value insurers. If their estimates are incorrect, they may lose their clientele.

Lessons 3 and 4: The NAIC and the actuarial community place great weight on the Statement of Actuarial Opinion. Investors consider Jacob's statement like that of any other market analyst's.

Lessons 5 and 6: Well stated. From the shareholders' perspective, Dina is right. Synergies are valid justification for mergers; diversification is not a valid justification. These are the first two bullet points at the end of the homework assignment.

From management's perspective, diversification is a justification for mergers. This is the third bullet point at the end of the homework assignment.