

## Security Analysis and Portfolio Management

### Problem Set #2

#### Section I. Basic Accounting

1. Explain the difference between: a) accrual basis and cash basis accounting; b) percentage-of-completion and completed contracts method of revenue recognition; c) cash flow from operations and free cash flow; d) primary earnings per share and fully diluted earnings per share.
2. Explain briefly how each of the following transactions would affect a company's balance sheet, income statement and cash flow statement: a) purchase of a new building for \$1 million internal cash; b) purchase of a new \$1 million building, financed 60% with debt and 40% with cash; c) receipt of a \$100,000 payment from a customer on an account receivable; d) repurchase of \$10 million in company stock using internal cash.
3. XYZ Corporation earns a 12% profit margin on sale of its high-technology electronic calibrators. The manager of the calibrator division strongly opposes introduction of a new mass-market calibrator because its anticipated profit margin is only 6%, arguing that the new calibrator can only lower division returns. Is this a valid argument against the introduction of the new calibrator? Explain the various factors which have to be taken into account in making the decision.
4. Describe three ways in which a company could manipulate earnings within the framework of GAAP (generally accepted accounting principles).
5. There are certain accounting signals that can be used to identify deteriorating earnings capacity. Explain how the following could be used in this process: a) increase in accounts receivable; b) changes in accounting policies; c) increases in intangible assets; d) increase in non-recurring income; e) manipulation of reserve accounts.

#### Section II. Equity Valuation: Basic Concepts

1. Explain each of the following: a) blue chips; b) growth stocks; c) defensive stocks; d) preferred stocks; e) income stocks; f) cyclical stocks; g) speculative stocks; h) short selling; i) brokers and dealers; j) underwriters
2. In the event of bankruptcy and liquidations in what order (from first to last) will the contributors of capital be repaid? What types of claims will be settled prior to payments made to the contributors of capital?
3. Could Singapore business executives incorporate a corporation in Delaware and cause it to do all its business in Colorado? If this is possible, which state laws would govern the corporation with respect to

its power to pay dividends, repurchase its stock or merge with another corporation? Which state laws would apply to the meaning of its contracts for the sale of merchandise?

4. What are the advantages and disadvantages of trading on margin?
5. What is wrong with this statement: "Even if the market is efficient, there's no need to lose money unnecessarily. I can still reduce my losses by making sure I always buy after a fall in price rather than after a price rise."
6. Which in principle is safer: the bond of a non-operating, holding company or the preferred stock of its subsidiary?
7. Discuss the difference between: a) primary and secondary markets; b) brokers and dealers; c) the SES Main Board, SESDAQ and CLOB; d) OTC and exchange trading

### **Section III. Equity Valuation: Stock Valuation Models**

1. If the rapid growth of a company seems assured, can the investor ever pay too much for the company's common stock?
2. Discuss the limitations of using the growth rate in dividends per share as a measure of the growth rate of a firm.
3. Assuming: \$40 = the current price of stock XYZ; 4% = the expected growth rate of dividends; 8% = the expected return on stocks similar to XYZ; and, \$1.50 = the expected (annualized) dividend to be received in one year. Using the constant growth dividend discount model evaluate whether XYZ is over or under priced.
4. Burnaby Air Cleaners has announced it intends to pay a \$12 common stock dividend next year. In order to support expansion plans, the dividend will be suspended for the following three years at which time the \$12 dividend payment will be resumed. It is anticipated that the dividend will grow at 8% per year thereafter. If stocks of similar risk are currently priced to provide an expected return of 9%, what is the intrinsic value of Burnaby Air Cleaner common stock?
5. "The search for the 'correct' way to value common stocks, or even one that works, has occupied a huge amount of effort over a long period of time....the implementation of a system to selectively value or select common stocks is a difficult task. This is a task that a valuation model purports to accomplish."

Describe some of the discounted cash flow valuation models conventionally used to analyze common stocks. What are the limitations of these models? What is the appropriate accounting variable to use for the cash flow which is to be discounted?

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### Problem Set #3

#### Section I: Portfolio Management

1. Assuming the market model holds, explain why unsystematic risk is diversifiable while systematic risk is not diversifiable.
2. Explain why the portfolio expected return is a weighted average of the expected returns of the individual securities while the risk or standard deviation of the portfolio is less than the weighted average of the risks of the individual securities.
3. "Mean-variance analysis... has serious shortcomings that are too often ignored.... Perhaps the most serious defect is the poor out-of-sample performance of the optimal portfolios.... Another problem is the instability in the optimal portfolio: the proportions allocated to each asset are extremely sensitive to variations in expected returns, and adding a few observations may change the portfolio distribution completely. Also, optimal portfolios are not necessarily well diversified." (Jorion, 1985)

Comment on the implications of this statement for the management of both domestic and internationally diversified portfolios. In particular, be sure to address the implications of: different possible specifications of the optimization problem and different possible techniques for estimating the relevant parameters.

4. The appropriate measure for portfolio performance depends on the role of the portfolio to be evaluated. Three different measures that have been suggested are: Sharpe, Treynor, Jensen and the Appraisal Ratio. Identify how each of these measures are specified and discuss some of the strengths and weaknesses of each approach.

#### Section II: Derivative Securities

1. What are some differences between a warrant and a call option on the same corporation's stock?
2. Explain the appropriate adjustments required to use the Black-Scholes call option pricing formula for pricing warrants.
3. A firm has 100,000 shares of common stock outstanding priced at \$35 and no debt on the balance sheet. The firm issues 10,000 warrants, allowing for the purchase of one share of stock at a price of \$50. The warrants expire in 5 years. The estimated standard deviation of the stock's return is .34 (34%) per year and the riskfree rate is estimated to be 5.2%.
  - a) Provide an estimate for the value (price) of the one of the warrants.
  - b) Determine the price of the stock at expiration assuming that the warrants are exercised and the value of the firm is \$5.2 million (with no debt on the balance sheet).