Problem Set 10: Valuation and Market Efficiency.

I.  *Equity Valuation, Asset Composition and Leverage.* A large computer manufacturer IBX has $1M of riskless debt and assets with a market value of $6M. The assets of IBX have a Beta of 1.3. Assume the CAPM holds. The riskless rate is 10% and the expected return on the market is 18%. IBX has just paid a dividend of $3.76 per share and IBX’s dividend per share is expected to grow at 6.48% per year.

A. What was price of IBX stock on the exdate?
B. How many shares of IBX stock were outstanding on the exdate?

II.  *Equity Valuation, the Dividend Discount Model and ROE.*

A. MF Corp has an ROE of 16%, a plowback ratio of 50% and no debt. The market requires a return on MF Corp of 12% and the coming year’s earnings are expected to be $2 per share.

1. At what price will the stock sell today?
2. What price do you expect MF shares to sell for in three years?

B. Assume:

\[ 20 = \text{price of the ZW stock today} \]
\[ 8\% = \text{the expected growth rate of ZW dividends} \]

\[ 0.60 = \text{the annual ZW dividend one year forward} \]

Using only this data and the constant growth dividend discount model, compute the expected long-term total return of ZW stock?

C. The FI Corporation’s dividends per share are expected to grow indefinitely by 5% per year.

1. If this year’s year-end dividend is $8 and the market requires a 10% return per annum on FI stock, what must the current stock price be according to the DDM?
2. If the expected earnings per share are $12, what is the implied value of the ROE on future investment opportunities?
3. How much is the market paying per share for growth opportunities (i.e., for an ROE on future investments that exceeds the market’s required return on equity)?

III.  *Market Efficiency.* Suppose it is possible to use IBM’s annual report after its release date to detect mispricing of IBM’s stock.

A. Does this indicate that the market is weak form inefficient? Why or why not?
B. Does this indicate that the market is semi strong form inefficient? Why or why not?
C. Does this indicate that the market is strong form inefficient? Why or why not?