FM2020 Quiz 1 – Solutions

Question 1

Consider companies A, B and C, which are all expected to pay the same amount of dividend in exactly 1-year from now and have the same exact expected growth rate. When looking up their beta you find that: $\beta_A > \beta_B = \beta_C$. These three companies stock prices must then satisfy:

Correct answer: $P_A < P_B$

Solution: All other things being equal (as D_1 and g are the same across companies A, B, C) higher β means higher k, which means more discounting in the CGDDM (Gordon's) Model, so rank prices accordingly. For ex., if $\beta_A > \beta_B = \beta_C$, then $P_A < P_B = P_C$

Question 2

Next year's earnings of FitCat Corp are €4 per share. FitCat's stockholders require a rate of return of 15% per year on their shares, whereas the company can invest in a new project whose expected return is 12% per year. What must be FitCat's stock price per share according to the Dividend Discount Model if it consistently distributes 100% of its earning to its shareholders?

Correct answer: € 26.67

Solution: If FitCat distributes all of its earnings, then b=0, which means g=0 (since $g=bxROE^{new\ projects}$), which means $P_0 = E_1 / k$.
For ex., if $E_1 = 4$ €/share ➔ $P_0 = E_1 / k = 4 / 0.15 = 26.67$ €/share.

Question 3

ABC Corp has a stock price of 60 € per share, a required rate of return on its stock of 7% per year, and the Present Value of its Growth Opportunities is 10 € per share. What must be next year's expected earnings per share for ABC Corp?

Correct answer: 3.50 €

Solution: $P_0 = \frac{E_1}{k} + PVGO_0 \Rightarrow E_1 = k \times (P_0 - PVGO_0)$. For ex., if P_0 = 60 €/share, given that $PVGO_0$ = 10€/share, then: $E_1 = 0.07 \times (60 - 10) = 3.5€/share$

Question 4

Last night, the President of United States announced on his Twitter account that the new app of TipTop Company will have to comply to strict national security rules. This morning, when the stock market opens, the stock price of TipTop *does not change compared to yesterday*. If the stock market is informationally efficient, the stock price reaction implies that stock market investors

Correct answer: perfectly anticipated the President's move.

Other versions: if stock price jumps up (down) it means that the stock market participants expected a softer (harsher) stance from the president compared to what he Twitted.

Question 5

Company X, whose shares have a required rate of return of 10% per year, pays a constant expected dividend of 1.5 € per share forever and the next dividend will be paid in exactly one year from now. It is also expected to pay an extraordinary one-time only dividend of 11 € per share (on top of the regular dividend) in exactly 1-year from now. What must be the value of X's shares as of today?

Correct answer: 25 € per share

Solution: $P_0 = D_1^{regular}/(k - g) + D_1^{extra} / (1 + k) = D_1^{regular}/(k - 0) + D_1^{extra} / (1 + k)$
$P_0 = 1.5 / 0.10 + 11 / (1+0.10) = 15 + 10 = 25$ €/share