FIN 521: Problem Set #4

Due on Sunday, May 6, 2018

Wanbae Park

Question 1

a. Let x denote the current price per share. Then market capitalization of the firm is equal to $x\times$ 8 million dollars before the investment. After investment, market capitalization of the firm will be $8x+1$ million dollars, and the portion of venture capitalist will be $\frac{1}{8x+1}$, which will be equal to 0.2. Therefore, by solving the equation, current price of share is equal to 0.5 dollars, and the venture capitalist will get 2 million shares.

b. Since there are 10 million shares after investent and price per share is \$0.5, the value of firm is equal to $0.5 \times 2 = 1$ million dollars.

Question 2

a. Since the IPO price was \$20 per share and there is 7% underwriting spread, the amount of capital raise is equal to $(1-0.07)\times 20\times 5 = 93$ million dollars.

b. After IPO, since 5 million shares are added, there are 15 million shares of the firm. Because the share price increased to \$50, market value of equity of the firm is equal to $50 \times 15 = 750$ million dollars.

c. Since market is perfect, the current share price of firm must be equal to \$50. Therefore, because there is 10 million shares before issuing stock, pre-money value of the equity is equal to $50 \times 10 = 500$ million dollars. Under perfect market, because the firm will issue stock at the fair price: \$50, if the firm issues 5 million shares, the amount of capital risen is equal to $50\times 5 = 250$ million dollars. Therefore, post-money value of equity is equal to 750 million dollars. Under this circumstances, in order to raise 93 million dollars as in question a, it needs to issue $93/50 = 1.86$ million shares, which is quite less than the amount of issuance at question a.

d. Due to underpricing and underwriting spread, the firm can only raise 93 million dollars for issuing 5 million shares, comparing 250 million dollars when market is perfect. Therefore, it can be concluded that $250-93 = 157$ million dollars are left on the table due to market imperfection.

Question 3

a.

b.

Question 4

a.

b.

c.

d.

Question 5

Question 6

a.

b.

Question 7

Question 8