Quiz 3: Valuation

Answer all questions and show necessary work. Please be brief. This is an open books, open notes exam.

1. Stryker Inc. is a farm equipment firm with a financing arm. In the most recent year, the firm reported the following breakdown of key operating items (in millions):

	Sales	EBITDA	EBIT	Net Income	BV of equity	BV of Debt	Cash	Cost of equity	Cost of capital
Farm Equipment	$10,000	$1,500	$1,000	$400	$3,000	$2,000	$500	9%	7.50%
Financing	$ 2,000	$ 650	$ 650	$100	$1,000	$3,000	$500	8%	6.20%
Entire firm	$12,000	$2,150	$1,650	$500	$4,000	$5,000	$1000	8.8%	7.00%

The company faces a 40% tax rate and is in stable growth, growing 3% a year. You have run a regression for the EV/EBITDA multiple across just farm equipment companies
EV/EBITDA = 3.5 + 26.5 (After-tax return on capital) + 41.3 (Expected growth) -31.5 (Cost of capital)
You also have a regression of Price to Book equity ratios across financial service firms:
P/BV = 0.70 + 9.0 (Return on equity) – 5.0 (Cost of equity)
The firm has 800 million shares outstanding. Estimate the value of equity per share in the firm, using relative valuation. (All percentages are entered as decimals in the regression. Thus, 15% would be 0.15) (3 points)

2. You are examining the pricing of banks by the market. The current return on equity, based on aggregate net income and book equity, is 12.5% and the cost of equity for banks is 10%. Collectively, banks are in stable growth, growing 2.5% year. Banks are trading at a <u>discount of 10% on book value</u> and you believe that the main reason for the discount is that investors are expecting capital requirements to be increased for banks. If the net income, cost of equity and expected growth rate remain unchanged, estimate how much of a capital increase investors are expecting for banks. (3 points)

3. Mendenhall Inc. is a privately owned software company that is expected to generate the cash flows (in millions) shown in the table below:

	1	2	3	4	5
Revenues	$5.00	$7.50	$10.00	$12.00	$12.50
After-tax operating income	$2.50	$0.75	$1.25	$1.80	$2.00
FCFF	$0.05	$0.25	$0.50	$0.90	$1.20

The market beta for software companies is 1.20 and the average correlation of software companies with the market is 0.40; the risk free rate is 3% and the equity risk premium is 6%. The company is fully owned by its founder who has all his wealth invested in the company. The founder expects to raise capital from a VC at the end of year 2; the VC is diversified across technology companies and <u>the correlation of her portfolio with the market is 0.60</u>. At the end of year 5, the company will be in stable growth, growing 3% a year in perpetuity (with a 12% return on capital) and <u>will be taken public</u>. (The firm plans to stay all equity funded in perpetuity.)

a. What is the value of equity in the firm today? (2 points)

b. Now assume that Symbiosis, a publicly traded firm, has offered to buy Mendenhall for $14 million. If the transaction is completed at that price, how much value will be gained or lost by the stockholders in Symbiosis? (2 points)