Quiz 3: Equity Instruments

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

1. You are analyzing Durasteel Products Inc., a steel company. The firm has 150 million shares outstanding, trading at $20 per share, and it reports $2 billion in debt on its consolidated balance sheet. On its consolidated income statement, Durasteel reported $700 million in EBITDA in the most recent year. The firm has two cross holdings:
   - It holds 20% of Coleman Enterprises, a consumer product company, and accounts for these as minority passive investments. Coleman has 50 million shares outstanding, trading at $50 per share and $500 million in debt outstanding. Coleman Enterprises reported $400 million in EBITDA in the most recent year.
   - It holds 60% of Silicon Technologies, a software firm, and accounts for these as majority, active investments (which are consolidated with Durasteel). Silicon Technologies has 80 million shares outstanding, trading at $25 per share, and $500 million in debt outstanding. Silicon Technologies reported EBITDA of $300 million in the most recent year.

None of the firms have significant cash balances. Estimate the enterprise value to EBITDA multiple of Durasteel Products’ steel business. (In other words, clean up the EV to EBITDA multiple for cross holdings). (4 points)
2. You are trying to estimate the value of Sephra Inc., a private company in the chemical business, for sale in a private transaction. The firm reported a loss of $25 million on revenues of $100 million last year. You decide to value the company by forecasting revenues five years from now and applying a multiple to these revenues and come up with the following estimates:

- Sephra is expected to earn $50 million in net income on $500 million in revenues in year 5.
- You run a regression of price to sales ratios against net profit margins across chemical companies and come up with the following result:
  \[ PS = 1.5 + .20 \text{ (Net Margin)} \]
  (The net margin is entered as an absolute value. For example a net margin is 5%, would lead to \( PS = 1.5 + .20 \times 5 \) = 2.5)
- The unlevered beta of publicly traded chemical companies is 0.90 and the average correlation with of these firms with the market is 0.40. Sephra has no debt outstanding.
- The riskfree rate is 5% and the market risk premium is 4%.

a. Estimate the value of equity for Sephra in year 5. (2 points)
b. Estimate the cost of equity for Sephra. (2 points)

c. Estimate the value of equity for Sephra today, assuming that there is only a 40% chance that Sephra will survive 5 years and that the equity will be worth nothing if the firm does not survive. (2 points)