1. (11 points) You are valuing a firm using a discounted cash flow model based on consolidated financial statements. Based on a free cash flow to the firm (FCFF) model, you estimate the value of operating cash flows for this firm to be $1.9 billion. The firm has no debt and has 120 million outstanding shares of common stock. The firm also has the following non-operating assets:

(i) cash (T-Bills) valued at $350 million.
(ii) a 5% holding in company ABC, classified as a minority passive investment
(iii) an 80% holding in company XYZ, classified as a majority active investment

The minority interest associated with company XYZ is listed on the balance sheet at $165 million. Company ABC has 10 million shares outstanding and its stock is currently trading at $50 per share. Company XYZ has 50 million shares outstanding and its stock is currently trading at $23 per share.

Based on this information, estimate the total value of equity and the price per share for your firm.

Income from a minority holding, such as that in company ABC, is not included in operating income. As a result, the value of our holding in ABC will not show up in the firm value we estimated based on FCFF. We need to add 5% ABC’s market value to our estimate of firm value.

For a majority holding, such as that in XYZ, our the reported financial statements are consolidated. As a result, 100% of the income from XYZ is included in operating income and 100% of the value of XYZ will show up in the firm value we estimated based on FCFF. We must subtract therefore subtract the 20% of XYZ’s market value that someone else owns.

The market value of ABC equals: 10m shares x $50 = $500m
The market value of XYZ equals: 50m shares x $23 = $1150m

Equity value equals: $1900m + $350m + (0.05)($500) – (0.20)($1150) = $2045m
Estimated stock price equals: $2045/120m shares = $17.04
2. (14 points) You are valuing Home Depot based on a free cash flow to equity (FCFE) model. Based on the FCFE model, you estimate the value of equity to be $85 billion. However, this estimate ignores employee stock options outstanding. The firm’s 10K provides the following description of outstanding employee stock options.

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shares outstanding</td>
<td>1,970 mil</td>
</tr>
<tr>
<td>Employee options outstanding</td>
<td>66 mil</td>
</tr>
<tr>
<td>Current stock price</td>
<td>$40.00</td>
</tr>
<tr>
<td>Average option exercise price</td>
<td>$38.00</td>
</tr>
<tr>
<td>Black-Scholes option price</td>
<td>$5.50</td>
</tr>
<tr>
<td>Marginal tax rate</td>
<td>38.0%</td>
</tr>
</tbody>
</table>

a) (7 points) Calculate the estimated price per share for Home Depot using the Treasury-Stock method to account for existing employee stock options.

\[
P = \frac{85000 + 66(38)}{1970 + 66} = \$42.98
\]

b) (7 points) Calculate the estimated price per share for Home Depot using the Black-Scholes model to account for existing employee stock options.

\[
P = \frac{85000 - (66)(5.5)(1-.38)}{1970} = \$43.03
\]