Homework Solutions - Lecture 3

1. Operating Lease Adjustments:
Future operating lease commitments for Nike, as listed in the 2010 10K, are shown below. Use this information to answer the questions below.

<table>
<thead>
<tr>
<th>Year</th>
<th>Operating Lease Commitments ($ millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>334.0</td>
</tr>
<tr>
<td>2012</td>
<td>264.0</td>
</tr>
<tr>
<td>2013</td>
<td>220.0</td>
</tr>
<tr>
<td>2014</td>
<td>177.0</td>
</tr>
<tr>
<td>2015</td>
<td>148.0</td>
</tr>
<tr>
<td>&gt;2015</td>
<td>466.0</td>
</tr>
<tr>
<td>Total</td>
<td>1,609.0</td>
</tr>
</tbody>
</table>

a) In the Lecture 2 homework, we found the cost of debt for Nike to be 4.24%. Using this cost of debt, calculate the value of the operating lease debt and operating lease asset for Nike as of FY 2010. Use these values and any necessary information from Nike's financial statements to estimate the adjusted book values of debt and assets for Nike.

I will assume that Nike continues to pay 148.0 per year after 2015. Based on this assumption, lease payments after 2015 can be approximated as an annuity of $148.0 per year for 3.15 years, since 466.0/148.0 = 3.15. The present value of lease obligations is then given by:

\[
PV = \frac{334.0}{(1.0424)^1} + \frac{264.0}{(1.0424)^2} + \frac{220.0}{(1.0424)^3} + \frac{177.0}{(1.0424)^4} + \frac{148.0}{(1.0424)^5} \left(\frac{1 - (1.0424)^{-3.15}}{0.0424}\right) = \$1,375.5 \text{ mil}
\]

As of FY 2010, Nike's total assets are $14,419.3 million and total (short-term plus long-term) debt equals $591.8 million. As discussed in the solutions to homework 2-2, the market value of debt prior to operating leases is 591.6 million. Adjusted values are then given by:

\[
Adjusted \text{ Debt}(bk) = 591.8 + 1,375.5 = 1,967.3
\]
\[
Adjusted \text{ Debt}(mv) = 591.6 + 1,375.5 = 1,967.1
\]
\[
Adjusted \text{ Assets} = 14,419.3 + 1,375.5 = 15,794.8
\]
b) Using your answers above and any necessary information from Nike's financial statements, calculate the value of after-tax operating income and Net Income in FY 2010 both before and after adjusting for operating leases. Assume a tax rate of 24.2%. Also, note that the firm paid operating lease expenses in 2010 of $416.1 million.

The income statement gives operating income of $2,474.0 million (= 8800.4 - 6326.4). There are no one-time charges or other adjustments. Based on the firm's effective tax rate of 24.2%, adjusted after-tax operating income equals:

\[ 2474.0(1-.242) = 1,875.29 \]

The operating lease adjustment can then be applied in one of two ways:

\[ \text{Adjusted EBIT(1-T)} = 1875.29 + \left( 416.1 - \left( \frac{1375.5}{5 + 3.15} \right) (1-.242) \right) = 2062.76 \]

OR

\[ \text{Adjusted EBIT(1-T)} = 1875.29 + (1375.5)(.0424)(1-.242) = 1,919.50 \]

Note that in both cases, the operating lease adjustment is multiplied by (1-T). I have used the firm's effective tax rate for the adjustment, but it may make sense to use the firm's marginal tax rate.

Reported Net Income equals $1,906.7 prior to any adjustments. Since Net Income is unaffected by the operating lease adjustment, no adjustment for operating leases is necessary. The adjusted value of Net Income is therefore equal to $1,906.7.

Note that for the purposes of calculating FCFE, we may want to remove the effects of non-operating income from Net Income. This would allow us to value non-operating assets separately from the operating cash flows of the firm. However, we will not make this adjustment here.
2. **Capitalization of Advertising**
   Advertising expenses for Nike in each of the past four years are listed below. Use this information to answer the subsequent questions.

<table>
<thead>
<tr>
<th>Year</th>
<th>Advertising Expense ($ millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>1,740.2</td>
</tr>
<tr>
<td>2007</td>
<td>1,912.4</td>
</tr>
<tr>
<td>2008</td>
<td>2,308.3</td>
</tr>
<tr>
<td>2009</td>
<td>2,351.3</td>
</tr>
<tr>
<td>2010</td>
<td>2,356.4</td>
</tr>
</tbody>
</table>

a) Assuming a three-year life for advertising, calculate the Advertising Amortization for Nike in FY 2010 and the unamortized value of Nike's Advertising asset in FY 2010. Use your answers and any necessary information from Nike's financial statements to calculate the adjusted book values of equity and assets.

The R&D amortization for FY 2010 and the remaining unamortized amount of R&D can be determined as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Mktg Expense ($ 000)</th>
<th>Current Year Amortization</th>
<th>Unamortized Amount Remaining in Current Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>1,912.4</td>
<td>33.33%</td>
<td>637.47</td>
</tr>
<tr>
<td>2008</td>
<td>2,308.3</td>
<td>33.33%</td>
<td>769.43</td>
</tr>
<tr>
<td>2009</td>
<td>2,351.3</td>
<td>33.33%</td>
<td>783.77</td>
</tr>
<tr>
<td>2010</td>
<td>2,356.4</td>
<td>0.00%</td>
<td>2356.40</td>
</tr>
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</table>

Equity was unaffected by the operating lease adjustment, so we begin with the book value of equity from the balance sheet (9753.7). Total assets have already been adjusted to reflect the operating lease asset, so we begin with the adjusted value of assets from question #1a (15794.8).

Adjusted Equity = 9753.7 + 4693.37 = $14,447.07
Adjusted Assets = 15794.8 + 4693.37 = $20,488.17
Using your answer above and any necessary information from Nike's financial statements, calculate the value of after-tax operating income and Net Income for Nike in FY 2010 after adjusting for the both operating lease and the capitalization of Advertising.

Operating Income will be affected by both the operating lease adjustment and the Advertising adjustment. As a result, we will begin with the adjusted value of after-tax operating income from question (1b). We will then add back the reported Advertising Expense and instead subtract the amortization of Advertising (I will base my answer on the second of the two possible answers to question #2b). Again, no tax adjustment is required.

Adjusted EBIT(1-T) = 1919.50 + (2356.4 - 2190.67) = $2,085.23

Note that Net Income was unaffected by the operating lease adjustment. As a result, we will begin with the reported Net Income of 1,906.7 from question (1b). We will then add back the reported Advertising Expense and instead subtract the amortization of Advertising. No tax adjustment is required.

Adjusted Net Income = 1906.7 + (2356.4 - 2190.67) = $2,072.43

Again, note that for the purposes of calculating FCFE, we may want to remove the effects of non-operating income from Net Income. This would allow us to value non-operating assets separately from the operating cash flows of the firm. However, we will not make this adjustment here.
3. **Taxes:**

Answer the questions below using any necessary information from Nike’s financial statements and 10K.

a) Calculate Nike’s effective tax rate and marginal tax rate for the fiscal year ending May 31, 2010.

We can define Nike’s effective tax rate based on reported taxes and pre-tax income, or:

\[
\text{Effective Tax Rate} = \frac{610.2}{2516.9} = 24.24\%
\]

To get Nike’s marginal tax rate, we can simply add the federal and state tax rates listed in the reconciliation discussion of the tax footnote, or:

\[
\text{Marginal Tax Rate} = 35.0\% + 1.3\% = 36.3\%
\]

b) McKinsey & Co. recommend estimating the taxes actually paid on the operating income of the firm. They refer to this as operating cash taxes. Estimate the operating cash taxes for Nike in FY 2010, using the following steps: (1) start with reported taxes, (2) subtract the taxes paid on non-operating income, (3) add back the tax shield related to interest expenses on the firm's debt (including debt listed on the balance sheet and operating lease debt), and (4) subtract (add) any increase (decrease) in deferred tax liabilities. For steps (2) and (3), estimate the taxes effects using the firm's marginal tax rate.

To estimate the operating cash tax rate, we begin with Nike's reported taxes of $610.2 million. Nike had non-operating income totaling $49.2 million and interest expenses of $6.3 million. Using the firm's marginal tax rate (36.3%) to make adjustments, Nike's operating taxes are then calculated as:

\[
610.2 - 49.2(.363) + 6.3(.363) = 594.63
\]

To get operating cash tax rate, we then add reductions in deferred tax liabilities or subtract reductions in deferred tax assets. The balance sheet shows three categories of deferred tax assets and liabilities. Based on the these accounts, the firm's net deferred tax assets decreased by $60.3 from 2009 to 2010. However, these balance sheet categories include items unrelated to deferred taxes and additional deferred tax items can be included in other asset and liability categories. To get a better estimate of the change in deferred taxes, we can examine the discussion of deferred taxes in the tax footnote. This note suggests that net deferred tax assets decreased from $519.9 in 2009 to $517.1 in 2010, a decrease of $2.8 million. As a result, Nike's operating cash taxes equal:

\[
594.63 - 2.8 = 591.83 \text{ million}
\]

and the firm's operating cash tax rate equals this amount divided by pre-tax operating income, or:

\[
\text{Operating Cash Tax Rate} = \frac{591.83}{2474} = 23.92\%
\]

Note that McKinsey also ignores non-operating deferred tax items. We will not get into that much detail here.
4. **Estimating Cash Flows:**
Answer the questions below using your answers to questions (1) and (2) and any necessary
information from Nike's financial statements.

a) Calculate FCFF for Nike in FY 2010.

To calculate FCFF, we begin with the adjusted value of after-tax EBIT as calculated in
question #2b (2085.23). We then subtract net capex and increases in working capital, where
net capex will include expenditures on acquisitions, capitalized advertising (or R&D), and
increases in the operating lease asset.

From the statement of cash flows, we find that CapEx net of asset divestitures in 2010 equals
325.0 (335.1 - 10.1). In addition, depreciation equals 323.7.

The footnotes reveal that the firm spent no money on acquisitions in 2009.

In problem 2, we determined that the 2010 advertising expense was 2356.4 and the 2010
amortization of Advertising was 2190.67.

The value of operating lease assets did not increase from 2009 to 2010 (and actually
decreased slightly). As a result, we will not include any additional capex related to the
increase in operating lease assets.

To define working capital, I exclude cash, investments, and deferred taxes from current
assets, and I exclude all debt items from current liabilities. The resulting non-cash working
capital decreased from 3104.4 in 2009 to 2346.3 in 2010. This is a decrease in non-cash
working capital of 758.1.

FCFF is then defined as:

<table>
<thead>
<tr>
<th>Term</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjusted EBIT(1-T)</td>
<td>2085.23</td>
</tr>
<tr>
<td>- (Capex - Depr)</td>
<td>- (325.0 - 323.7)</td>
</tr>
<tr>
<td>- Acquisition Costs</td>
<td>- 0.0</td>
</tr>
<tr>
<td>- (Advertising - Amort)</td>
<td>- (2356.4 - 2190.67)</td>
</tr>
<tr>
<td>- Increase in WC</td>
<td>+ 758.1</td>
</tr>
<tr>
<td><strong>= FCFF</strong></td>
<td><strong>$2,676.3</strong></td>
</tr>
</tbody>
</table>
b) Calculate FCFE for Nike in FY 2010. Note that the cash flow statement shows that the firm repaid a net amount of debt equal to $237.6 million (205.4 + 32.2).

To calculate FCFE, we begin with the adjusted value of Net Income as calculated in question #2b (2072.43). We then subtract the portion of capex and working capital reinvestment that must be funded by equity holders. I will use the method where we subtract net payments to debtholders (or, equivalently, add back money raised from debt issues). An alternative would be to multiply the total amount of reinvestment by 1 minus a specified debt ratio.

FCFE is then defined as:

\[
\text{Adjusted Net Income} - (\text{Capex - Depr}) - \text{Acquisition Costs} - (\text{Advertising - Amort}) - \text{Increase in WC} + \text{Net Debt Repayments} = \text{FCFE}
\]

\[
\begin{align*}
\text{Adjusted Net Income} & \quad 2072.43 \\
- \text{Capex - Depr} & \quad -(325.0 - 323.7) \\
- \text{Acquisition Costs} & \quad - 0.0 \\
- \text{Advertising - Amort} & \quad -(2356.4 - 2190.67) \\
+ \text{Increase in WC} & \quad + 758.1 \\
- \text{Net Debt Repayments} & \quad - 237.6 \\
\end{align*}
\]

\[
\text{FCFE} = 2425.9
\]