Ponderous Thoughts, or maybe not

1. There are few facts and lots of opinions.
   a. Even the givens (cash & risk free rate) are not
   b. With accounting and market numbers, all bets are off.
2. The real world is a messy place.
   a. Money making firms can become money losers
   b. Companies can be restructured/ given facelifts
3. Models don’t compute values and optimal paths. You do.
4. Change is the only constant.
The Breakdown in the Classical Objective Function

STOCKHOLDERS
Managers put their interests above stockholders
Have little control over managers

Managers
Lend Money
Bondholders can get ripped off
Delay bad news or provide misleading information

BONDHOLDERS

Significant Social Costs
Some costs cannot be traced to firm

MANAGERS

Markets make mistakes and can overreact

SOCIETY

FINANCIAL MARKETS

I. Where does the power lie?

Spring 2014: Power Distribution

- No Power
- Some Power
- Lots of Power

<table>
<thead>
<tr>
<th>Category</th>
<th>No Power</th>
<th>Some Power</th>
<th>Lots of Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Firms</td>
<td>40%</td>
<td>30%</td>
<td>30%</td>
</tr>
<tr>
<td>US Firms</td>
<td>50%</td>
<td>25%</td>
<td>25%</td>
</tr>
<tr>
<td>Non-US Firms</td>
<td>30%</td>
<td>40%</td>
<td>30%</td>
</tr>
</tbody>
</table>
II. Who is your marginal investor?
From Spring 2013

- Individual
- Institution
- Insider

III. Risk Profiles and Costs of Equity

Cost of Equity

Riskfree Rate:
- No default risk
- No reinvestment risk
- In same currency and in same terms (real or nominal as cash flows)

Beta
- Measures market risk

Risk Premium
- Premium for average risk investment

Type of Business
- Operating Leverage
- Financial Leverage

Base Equity Premium
Country Risk Premium
Beta: The Standard Approach

Beta of Equity

\[
\begin{align*}
R_j & : \text{Top-Down} \\
R^2 & : \text{Proportion of risk that is not diversifiable} \\
\text{Slope} & = \text{Beta} \\
\text{Intercept - } R_t (1-\text{Beta}) & = \text{Jensen's Alpha} \\
R_m & : \text{Bottom-up}
\end{align*}
\]

Bottom-up

1. Identify businesses that firm is in.
2. Take weighted average of the unlevered betas of other firms in the business.
3. Compute the levered beta using the firm's current debt to equity ratio:
   \[
   \beta_l = \beta_u \left[1 + (1-\text{tax rate}) \left(\frac{\text{Debt}}{\text{Equity}}\right)\right]
   \]

Regression Estimation Approaches

Spring 2014: Beta Approach Used

Typical reasons
1. My company is unique. I cannot find comparable firms.
2. My company is in only one line of business.
3. My bottom-up beta is too different from my regression beta.
Beta Distribution

Spring 2014: Beta Distribution

<table>
<thead>
<tr>
<th>Beta Distribution</th>
<th>Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>1.06</td>
</tr>
<tr>
<td>Median</td>
<td>0.70</td>
</tr>
<tr>
<td>High</td>
<td>2.9</td>
</tr>
<tr>
<td>Low</td>
<td>0.28</td>
</tr>
</tbody>
</table>

Jensen’s Alpha Distribution

Jensen’s alpha: Spring 2014

<table>
<thead>
<tr>
<th>Jensen’s Alpha</th>
<th>Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>16%</td>
</tr>
<tr>
<td>Median</td>
<td>5%</td>
</tr>
<tr>
<td>High</td>
<td>1310%</td>
</tr>
<tr>
<td>Low</td>
<td>-379%</td>
</tr>
</tbody>
</table>
**R Squared**

<table>
<thead>
<tr>
<th></th>
<th>R-squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>33%</td>
</tr>
<tr>
<td>Median</td>
<td>25%</td>
</tr>
<tr>
<td>High</td>
<td>69%</td>
</tr>
<tr>
<td>Low</td>
<td>0%</td>
</tr>
</tbody>
</table>

**Cost of Capital**

Cost of Capital = Cost of Equity \( \left( \frac{E}{D+E} \right) \) + After-tax cost of debt \( \left( \frac{D}{D+E} \right) \)

- **Cost of Equity**
  - Riskfree Rate + Default Spread
- **Cost of Debt**
  - Market-value Weights of Debt & Equity
- **Rating**
  - Actual Rating
  - Synthetic Rating
- **Equity** includes Options
- **Debt** includes all fixed commitments
Distribution of Current Market Value Debt Ratios

**Actual Debt Ratio: Spring 2014**

- **Debt ratio**
  - Average: 17.25%
  - Median: 13.33%
  - High: 85.00% (Hertz)
  - Low: 0.00% (Marly)

IV. The Quality of Investments: The Firm View

- **Cost of Capital** = Cost of Equity (E/(D+E)) + After-tax cost of debt (D/(D+E))
- **After-tax Operating Income**
- **Capital Invested in Assets in Place**
- **Return on Capital** = After-tax Operating Income / Capital Invested in Assets in Place
- **Return Spread** = ROC - WACC
- **EVA** = (ROC - WACC) (Capital Invested)
- **Net Income**
- **Equity Invested in Assets in Place**
- **Return on Equity** = Net Income / Equity Invested in Assets in Place
- **Return Spread** = ROE - COE
- **Equity EVA** = (ROE - COE) (Equity Invested)
- **Cost of Equity**
VI. The Optimal Financing Mix

Actual versus Optimal Debt Ratios

Optimal debt ratio
- Average: 31.26%
- Median: 30.00%
- High: 90.00% (Samsung, HP, Darden, Conoco)
- Low: 0.01% (7 firms)

Optimal

Actual
Under versus Over Levered Firms

VIII. The Right Kind of Financing

- Sensitivity of Firm Value to Changes in Interest Rates
- Sensitivity of Firm Value to Changes in GDP
- Sensitivity of Firm Value to Changes in Inflation
- Sensitivity of Firm Value to Changes in Exchange Rates
  - Duration of Assets
  - Cyclicality of Firm
  - Pricing Power
  - Foreign Currency Exposure
  - Duration of Debt
  - Margin for Error
  - Fixed versus Floating Rate
  - Domestic versus Foreign Currency Debt
IX. Measuring Potential Dividends

Begin with the net income (which is after interest expenses and taxes)

Add back the non-cash charges such as depreciation & amortization

Subtract out reinvestment needs
- Capital expenditures
- Investments in Non-cash Working Capital (Change)

Subtract out payments to non-equity investors
- Principal Repayments
- Preferred Stock Dividends

Add any cash inflows from new debt
- New Debt Issues

To get to the Cash that is available for return to Owners

Dividends versus FCFE

| FCFE/Dividends | Average: 66.65% | Median: 12.49% | Low: 0.E+0 | High: 2164.00% |
X. Valuation:
Match up cashflows and discount rates...

**EQUITY VALUATION WITH FCFE**

- **Cashflow to Equity**
  - Net Income
  - (Cap Ex - Dep - DR)
  - Change in WC (1-DR)
  - FCFE

- **Expected Growth**
  - Return on Equity

**Terminal Value:**

\[
\text{FCFE}_n \times (\text{WACC} - g) \]

**DISCOUNTED CASHFLOW VALUATION**

- **Cashflow to Firm**
  - EBIT (1-t)
  - (Cap Ex - Dep)
  - Change in WC
  - FCFF

- **Expected Growth**
  - Reinvestment Rate
  - Return on Capital

**Terminal Value:**

\[
\text{FCFF}_n \times (\text{WACC} - g) \]

**Firm Value**:

\[
\text{PV} = \text{Value of operating assets + Cash & Near Cash investments + Value of minority cross holdings - Debt outstanding} = \text{Value of equity - Value of equity options} = \text{Value of equity in common stock / Number of shares} \]

---

**Getting to equity value per share**

<table>
<thead>
<tr>
<th>Approach used</th>
<th>To get to equity value per share</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discount dividends per share at the cost of equity</td>
<td>Present value is value of equity per share</td>
</tr>
<tr>
<td>Discount aggregate FCFE at the cost of equity</td>
<td>Present value is value of aggregate equity. Subtract the value of equity options given to managers and divide by number of shares.</td>
</tr>
<tr>
<td>Discount aggregate FCFF at the cost of capital</td>
<td>PV = Value of operating assets + Cash &amp; Near Cash investments + Value of minority cross holdings - Debt outstanding = Value of equity - Value of equity options = Value of equity in common stock / Number of shares</td>
</tr>
</tbody>
</table>
Value versus Price

<table>
<thead>
<tr>
<th>Under or over valuation</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>56.88%</td>
</tr>
<tr>
<td>Median</td>
<td>21.44%</td>
</tr>
<tr>
<td>Low</td>
<td>0.00%</td>
</tr>
<tr>
<td>High</td>
<td>1578.26%</td>
</tr>
</tbody>
</table>

Ways of changing value...

- Cashflows from existing assets
  - Cashflows before debt payments, but after taxes and reinvestment to maintain existing assets
- Expected Growth during high growth period
  - Since value creating growth requires excess returns, this is a function of:
    - Magnitude of competitive advantages
    - Sustainability of competitive advantages
- Length of the high growth period
- Cost of capital to apply to discounting cashflows
  - Determined by:
    - Operating risk of the company
    - Default risk of the company
    - Mix of debt and equity used in financing
- Are you investing optimally for future growth?
- How well do you manage your existing investments/assets?
- Growth from new investments
  - Growth created by making new investments; function of amount and quality of investments
- Efficiency Growth
  - Growth generated by using existing assets better
- Are you building on your competitive advantages?
- Are you using the right amount and kind of debt for your firm?
- Stable growth firm, with no or very limited excess returns
- Is there scope for more efficient utilization of existing assets?
In November 2013, Disney was trading at $67.71/share.

### Current Cashflow to Firm

- **EBIT**: $6,920
- **Cap Ex - Depreci**: 3,629
- **Chg Working capital**: 3,188
- **Reinvestment Rate**: 3,733/6920 = 53.93%
- **Return on capital**: 12.61%

### Disney - November 2013

- **Cost of Capital (WACC)**: 8.52% (0.885) + 2.40% (0.115) = 7.81%
- **Return on Capital**: 12.61%
- **Reinvestment Rate**: 53.93%
- **Unlevered Beta for Sectors**: 0.9239
- **ERP for operations**: 5.76%
- **Beta**: 1.0013
- **Riskfree Rate**: 2.75%

### Expected Growth

- **g = 2.75%**, **Beta = 1.00**
- **Debt %= 20%**, **k(debt)=3.75**
- **Cost of capital =7.29%**
- **Tax rate=36.1%**, **ROC= 10%**
- **Reinvestment Rate=2.5/10=25%**

### Expected Growth declines gradually to 2.75%

- **Cost of Capital declines gradually to 7.29%**
- **More selective acquisitions & payoff from gaming**
- **Move to optimal debt ratio, with higher beta.**

### Current Cashflow to Firm

- **EBIT**: $6,920
- **Cap Ex - Depreci**: 3,629
- **Chg Working capital**: 3,188
- **Reinvestment Rate**: 3,733/6920 = 53.93%
- **Return on capital**: 12.61%

### Disney (Restructured)- November 2013

- **Cost of Capital (WACC)**: 8.52% (0.60) + 2.40% (0.40) = 7.16%
- **Return on Capital**: 14.00%
- **Reinvestment Rate**: 50.00%
- **Unlevered Beta for Sectors**: 0.9239
- **D/E=13.10%**

### In November 2013, Disney was trading at $67.71/share

### Expected Growth declines gradually to 2.75%

- **Cost of Capital declines gradually to 7.29%**
- **More selective acquisitions & payoff from gaming**
- **Move to optimal debt ratio, with higher beta.**
So, how do you explain the price? Its all relative..

<table>
<thead>
<tr>
<th>Company Name</th>
<th>Ticker Symbol</th>
<th>PE</th>
<th>Expected Growth Rate</th>
<th>PEG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Point 360</td>
<td>PTX</td>
<td>10.62</td>
<td>5.00%</td>
<td>2.12</td>
</tr>
<tr>
<td>Fox Entert Group Inc</td>
<td>FOX</td>
<td>22.03</td>
<td>14.46%</td>
<td>1.52</td>
</tr>
<tr>
<td>Belo Corp. 'A'</td>
<td>BLC</td>
<td>25.05</td>
<td>16.00%</td>
<td>1.60</td>
</tr>
<tr>
<td>Hearst-Argyle Television Inc</td>
<td>HTV</td>
<td>26.72</td>
<td>12.90%</td>
<td>2.07</td>
</tr>
<tr>
<td>Journal Communications Inc</td>
<td>JBN</td>
<td>27.94</td>
<td>10.00%</td>
<td>2.78</td>
</tr>
<tr>
<td>Saga Communic. 'A'</td>
<td>SGA</td>
<td>28.42</td>
<td>19.00%</td>
<td>1.50</td>
</tr>
<tr>
<td>Viacom Inc. 'B'</td>
<td>VIAB</td>
<td>29.38</td>
<td>13.30%</td>
<td>2.18</td>
</tr>
<tr>
<td>Foxar</td>
<td>FXR</td>
<td>25.80</td>
<td>16.50%</td>
<td>1.81</td>
</tr>
<tr>
<td>Disney (Wal)</td>
<td>DIS</td>
<td>29.87</td>
<td>12.00%</td>
<td>2.49</td>
</tr>
<tr>
<td>Westwood One</td>
<td>WON</td>
<td>32.59</td>
<td>19.50%</td>
<td>1.67</td>
</tr>
<tr>
<td>World Wrestling Int.</td>
<td>WWWE</td>
<td>33.52</td>
<td>20.00%</td>
<td>1.68</td>
</tr>
<tr>
<td>Cox Radio 'A' Inc</td>
<td>CXX</td>
<td>33.76</td>
<td>18.70%</td>
<td>1.81</td>
</tr>
<tr>
<td>Beasley Broadcast Group Inc</td>
<td>BBGI</td>
<td>34.06</td>
<td>15.23%</td>
<td>2.24</td>
</tr>
<tr>
<td>SiriusXM Comm. Corp</td>
<td>SIRXM</td>
<td>36.11</td>
<td>15.43%</td>
<td>2.34</td>
</tr>
<tr>
<td>Liberty Corp.</td>
<td>LC</td>
<td>37.54</td>
<td>19.50%</td>
<td>1.92</td>
</tr>
<tr>
<td>Ballantine of Omaha Inc</td>
<td>BTE</td>
<td>55.17</td>
<td>17.10%</td>
<td>3.23</td>
</tr>
<tr>
<td>Regent Communications Inc</td>
<td>RGC</td>
<td>57.84</td>
<td>22.67%</td>
<td>2.55</td>
</tr>
<tr>
<td>Emmis Communications</td>
<td>EMMS</td>
<td>74.89</td>
<td>16.50%</td>
<td>4.54</td>
</tr>
<tr>
<td>Cumulus Media Inc</td>
<td>CMLS</td>
<td>94.35</td>
<td>23.30%</td>
<td>4.03</td>
</tr>
<tr>
<td>Univision Communc.</td>
<td>UVN</td>
<td>122.76</td>
<td>24.50%</td>
<td>5.61</td>
</tr>
<tr>
<td>Salem Communications Corp</td>
<td>SALM</td>
<td>149.67</td>
<td>28.75%</td>
<td>5.07</td>
</tr>
<tr>
<td>Average for sector</td>
<td></td>
<td>47.08</td>
<td>17.17%</td>
<td>2.74</td>
</tr>
</tbody>
</table>

Most undervalued stocks!!

<table>
<thead>
<tr>
<th>Company</th>
<th>Value/share</th>
<th>Price/Share</th>
<th>Price/Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZuoAn</td>
<td>$6.82</td>
<td>$1.70</td>
<td>24.93%</td>
</tr>
<tr>
<td>AGCO</td>
<td>$166.41</td>
<td>$55.15</td>
<td>33.14%</td>
</tr>
<tr>
<td>Apple</td>
<td>$1,293.71</td>
<td>$509.38</td>
<td>45.80%</td>
</tr>
<tr>
<td>Newmont Mining</td>
<td>$51.73</td>
<td>$24.02</td>
<td>46.43%</td>
</tr>
<tr>
<td>Facebook</td>
<td>$121.34</td>
<td>$62.71</td>
<td>51.68%</td>
</tr>
<tr>
<td>FujiFilm Holdings Corp</td>
<td>$4,956.22</td>
<td>$2,570.00</td>
<td>51.85%</td>
</tr>
<tr>
<td>TRI Point Homes (TPH)</td>
<td>$31.41</td>
<td>$16.00</td>
<td>52.85%</td>
</tr>
<tr>
<td>Gamesa</td>
<td>€7.68</td>
<td>€4.15</td>
<td>54.03%</td>
</tr>
<tr>
<td>Samsung</td>
<td>$2,475,433.50</td>
<td>$1,350,000.00</td>
<td>54.54%</td>
</tr>
<tr>
<td>Darden Restaurant Group</td>
<td>$90,42</td>
<td>$49.49</td>
<td>54.73%</td>
</tr>
</tbody>
</table>
The Triple Whammy: Underlevered, Cash Build-up and Under valued?

<table>
<thead>
<tr>
<th>Company</th>
<th>Asset Base</th>
<th>EBITDA Base</th>
<th>Current Debt Ratio</th>
<th>Optimal Debt Ratio</th>
<th>EBITDA Base</th>
<th>WACC</th>
<th>Jensen's Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tesla</td>
<td>$90,000</td>
<td>$9,000</td>
<td>0.50</td>
<td>0.50</td>
<td>$9,000</td>
<td>8.81%</td>
<td>22.84%</td>
</tr>
<tr>
<td>Amazon</td>
<td>$200,000</td>
<td>$20,000</td>
<td>0.20</td>
<td>0.20</td>
<td>$20,000</td>
<td>2.85%</td>
<td>11.46%</td>
</tr>
<tr>
<td>Facebook</td>
<td>$300,000</td>
<td>$30,000</td>
<td>0.10</td>
<td>0.10</td>
<td>$30,000</td>
<td>9.73%</td>
<td>33.02%</td>
</tr>
<tr>
<td>Google</td>
<td>$400,000</td>
<td>$40,000</td>
<td>0.05</td>
<td>0.05</td>
<td>$40,000</td>
<td>4.94%</td>
<td>33.02%</td>
</tr>
<tr>
<td>Apple</td>
<td>$500,000</td>
<td>$50,000</td>
<td>0.04</td>
<td>0.04</td>
<td>$50,000</td>
<td>6.26%</td>
<td>33.02%</td>
</tr>
<tr>
<td>Microsoft</td>
<td>$600,000</td>
<td>$60,000</td>
<td>0.03</td>
<td>0.03</td>
<td>$60,000</td>
<td>1.43%</td>
<td>54.23%</td>
</tr>
<tr>
<td>NVIDIA</td>
<td>$700,000</td>
<td>$70,000</td>
<td>0.02</td>
<td>0.02</td>
<td>$70,000</td>
<td>5.10%</td>
<td>15.42%</td>
</tr>
</tbody>
</table>

First Principles

Corporate Finance: The Big Picture

The hurdle rate should reflect the difficulty of the investment and the mix of debt and equity used to fund it.

The return should reflect the magnitude and the impact of the cash flows as well as any side effects.

The optimal mix of debt and equity maximizes firm value.

The right kind of debt matches the flavor of your business.

How much cash you can return depends upon current & potential investment opportunities.

How you choose to return cash to the owners will depend whether they want dividends or business.

The Investment Decision: Invest in assets that earn a return greater than the minimum acceptable hurdle rate.

The Financing Decision: Find the right kind of debt for your firm and the right mix of debt and equity to fund your operations.

The Dividend Decision: If you cannot find investments that make your minimum acceptable rate, return the cash to owners of your business.

Maximize the value of the business (firm)
Objectives of this class

- If you get the big picture, the details will come (sooner or later)
- Tools are useful but only in the larger context of answering bigger questions.
- Corporate finance is not so bad !!!

And don’t forget your CFEs...

1. This course was mentally challenging/intellectually stimulating.
   - Very pleasant
   - Excellent insights
   - What a waste!
   - Haven’t kept all answers.
   - Only a prison
   - Complete relevant
   - No-brainer!
   - Brilliant insights!

2. This course was demanding of my time.
   - What work?
   - Haven’t kept all answers.

3. This course provided me with tools and information that I will find useful in the future.
   - Only in prison
   - Completely relevant

4. Overall evaluation of the course
   - Horrible! (I want my money back)
   - Star

5. The instructor was organized and well prepared for class.
   - Had trouble finding classroom
   - Scurry efficient
   - Should have own TV show
   - Would rather have

6. The instructor communicated his/her ideas and material well.
   - Got lost doodlebug
   - Should have own TV show

7. The instructor was enthusiastic about his/her subject matter.
   - Dead man talking!
   - I am a convert

8. Overall evaluation of the instructor
   - Dog
   - Star