Financial Management: Fall 2007

Aswath Damodaran
Ponderous Thoughts… (or maybe not)

- There are few facts and lots of opinions…
- The real world is a messy place…
- Definitions matter…
- The model is your tool… You are not the model’s tool…
- Change is the only constant…
The Breakdown in the Classical Objective Function

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

Bondholders
Lend Money
Bondholders can get ripped off

Managers
Delay bad news or provide misleading information

Society
Markets make mistakes and can over react
Some costs cannot be traced to firm

Financial Markets
Significant Social Costs

Aswath Damodaran
I. Where does the power lie?
II. Who is your marginal investor? Results from Spring 2007
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

Top-Down
- \( \beta = \frac{R_m - R_f}{R_j - R_f} \)
- \( R^2 \): Proportion of risk that is not diversifiable
- Slope = Beta
- Intercept - \( R_f (1-\beta) \) = Jensen’s Alpha

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:
   \( \beta_1 = \beta_u \frac{1 + (1-tax \ rate)(Debt/Equity)}{1 + (1-tax \ rate)(Debt/Equity)} \)
Regression Estimation Approaches

Typical reasons given
1. My company is unique
2. My company is in only one line of business
3. My bottom-up beta is too different from my regression beta
Jensen’s Alpha Distribution
R Squared

![Bar Chart]

- 0-5%
- 5-10%
- 10-20%
- 20-30%
- 30-40%
- 40-50%
- >50%
Cost of Capital

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

- **Cost of Equity**
  - Riskfree Rate + Default Spread
  - Rating
    - Actual Rating
    - Synthetic Rating

- **Cost of Debt**
  - Market-value Weights of Debt & Equity
    - Equity includes Options
    - Debt includes all fixed commitments
Distribution of Current Market Value Debt Ratios

![Bar chart showing the distribution of current market value debt ratios. The x-axis represents different debt ratio ranges: 0%, 0.01% - 10%, 10% - 20%, 20% - 30%, 30% - 40%, 40% - 50%, 50% - 60%, 60% - 70%, 70% - 80%, 80% - 90%, and >90%. The y-axis represents the number of observations in each range. The chart shows a concentration of debt ratios between 10% - 30%.]
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)

Cost of Capital = Cost of Equity ($E/(D+E)$) + After-tax cost of debt ($D/(D+E)$)

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
ROC versus Cost of Capital

![ROC - Cost of Capital](image_url)
ROE versus Cost of Equity
VI. The Optimal Financing Mix

![Debt Ratios Graph](image-url)
Under versus Over Levered Firms

Degree of Under/OverLeverage
Change in Cost of Capital

Drop in WACC

Number of Firms

WACC Drop

0% or less 0-0.20% 0.20-0.40% 0.40-0.60% 0.60%-0.80% 0.80%-1.00% >1.0%

Aswath Damodaran
VIII. The Right Kind of Financing

- Sensitivity of Firm Value to Changes in Interest Rates
  - Duration of Assets
    - Duration of Debt
  - Cyclicality of Firm
    - Margin for Error
  - Pricing Power
    - Fixed versus Floating Rate
- 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
  - Foreign Currency Exposure
    - 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

Dividends as % of FCFE

<table>
<thead>
<tr>
<th>Percent</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td>60</td>
</tr>
<tr>
<td>0 - 10%</td>
<td>10</td>
</tr>
<tr>
<td>10 - 20%</td>
<td>10</td>
</tr>
<tr>
<td>20 - 30%</td>
<td>10</td>
</tr>
<tr>
<td>30 - 40%</td>
<td>10</td>
</tr>
<tr>
<td>40 - 50%</td>
<td>10</td>
</tr>
<tr>
<td>50 - 60%</td>
<td>10</td>
</tr>
<tr>
<td>60 - 70%</td>
<td>10</td>
</tr>
<tr>
<td>70 - 80%</td>
<td>10</td>
</tr>
<tr>
<td>80 - 90%</td>
<td>10</td>
</tr>
<tr>
<td>90 - 100%</td>
<td>50</td>
</tr>
<tr>
<td>&gt;100%</td>
<td>50</td>
</tr>
</tbody>
</table>
X. Valuation: Firm versus Equity

**EQUITY VALUATION WITH FCFE**

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

- **Expected Growth**
  - Retention Ratio * Return on Equity

- Firm is in stable growth: Grows at constant rate forever

- Terminal Value = FCFE \(_{n+1}/(k_e-g_n)\)

**DISCOUNTED CASHFLOW VALUATION**

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

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

- Firm is in stable growth: Grows at constant rate forever

- Terminal Value = FCFF \(_{n+1}/(r-g_n)\)

**Discount at Cost of Capital (WACC)**

\[ \text{Discount at Cost of Capital (WACC)} = \text{Cost of Equity } \left( \frac{\text{Equity}}{\text{Debt} + \text{Equity}} \right) + \text{Cost of Debt } \left( \frac{\text{Debt}}{\text{Debt} + \text{Equity}} \right) \]
Valuing Deutche Bank: 2003

**Dividends**
- EPS = 0.433 EUR
- *Payout Ratio 34.64%
- DPS = 1.50 EUR

**Expected Growth**
- 65.36% * 11.26% = 7.36%

** terminal value**
- EPS \( 6^t \) * Payout / (r - g)
- \( = \frac{6.18 \times 1.04 \times 0.549}{0.0887 - 0.04} = 72.41 \)

**PV of dividends during first 5 years**
- 7.22 Euros

**Cost of Equity**
- 4.05% + 0.977 (4.82%) = 8.76%

**Risk-Free Rate**
- Long term bond rate in Euros
  - 4.05%

**Beta**
- 0.977

**Risk Premium**
- 4.82%

**Weighted beta of commercial and investment banking businesses**

**Use industry average rather than Deutsche’s own ROE of 4.55%**
Tsingtao Breweries: A FCFE valuation (2001)

Last Year
Net Income = 72.36 CY
- (Cap Ex - Deprec'n)(1-DR) = 77.39
- Chg in Wkg Cap (1-DR) = 30.89
FCFE = 35.82 CY
Reinvestment Rate = 149.97%
Current Return on Capital = 2.80%

Expected Reinvestment Rate = 149.97%
Return on capital will improve to 12%
Stable growth rate = 10%
Return on Equity = 20%
Equity Reinv. Rate = 10%/20% = 50%
Cost of equity = 13.96%

Expected Growth rate over next 5 years
= 1.4997 * 0.12 + [((0.12-0.028)/0.028)^{1/5}-1]
= 44.91%

<table>
<thead>
<tr>
<th>Year</th>
<th>Expected Growth Rate</th>
<th>Net Income</th>
<th>Equity Reinvestment Rate</th>
<th>FCFE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>44.91%</td>
<td>$104.85</td>
<td>149.97%</td>
<td>($52.40)</td>
</tr>
<tr>
<td>2</td>
<td>44.91%</td>
<td>$151.93</td>
<td>149.97%</td>
<td>($75.92)</td>
</tr>
<tr>
<td>3</td>
<td>44.91%</td>
<td>$220.16</td>
<td>149.97%</td>
<td>($110.02)</td>
</tr>
<tr>
<td>4</td>
<td>44.91%</td>
<td>$319.03</td>
<td>149.97%</td>
<td>($159.43)</td>
</tr>
<tr>
<td>5</td>
<td>44.91%</td>
<td>$462.29</td>
<td>149.97%</td>
<td>($231.02)</td>
</tr>
<tr>
<td>6</td>
<td>37.93%</td>
<td>$637.61</td>
<td>129.98%</td>
<td>($191.14)</td>
</tr>
<tr>
<td>7</td>
<td>30.94%</td>
<td>$834.92</td>
<td>109.98%</td>
<td>($83.35)</td>
</tr>
<tr>
<td>8</td>
<td>23.96%</td>
<td>$1,034.98</td>
<td>89.99%</td>
<td>$103.61</td>
</tr>
<tr>
<td>9</td>
<td>16.88%</td>
<td>$1,210.74</td>
<td>69.99%</td>
<td>$383.29</td>
</tr>
<tr>
<td>10</td>
<td>10.00%</td>
<td>$1,331.81</td>
<td>50.00%</td>
<td>$665.91</td>
</tr>
</tbody>
</table>

Terminal value of Equity = $1,331.81 (1.1)^10 / (0.1396 - 0.10) = 18497

PV of FCFE during high growth = -187
+ PV of Terminal price = 4783
= Value of Equity = 4596
Value per share = 7.04

Cost of Equity = 10% + 0.75 (6.28%) = 14.71%

Riskfree Rate in CY = 10.00%
Beta = 0.75
Risk Premium = 6.28%

Mature market premium = 4%
Country Risk Premium = 2.28%
Default Spread for country = 0.95%
Equity Mkt std dev / Country bond std dev = 2.40

Beta goes from 0.75 to 0.80
Country premium drops to 0.95%
Cost of equity drops to 13.96%
### Disney: Inputs to Valuation

<table>
<thead>
<tr>
<th></th>
<th>High Growth Phase</th>
<th>Transition Phase</th>
<th>Stable Growth Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Length of Period</strong></td>
<td>5 years</td>
<td>5 years</td>
<td>Forever after 10 years</td>
</tr>
<tr>
<td><strong>Tax Rate</strong></td>
<td>37.3%</td>
<td>37.3%</td>
<td>37.3%</td>
</tr>
<tr>
<td><strong>Return on Capital</strong></td>
<td>12% (last year’s return on capital was 4.42%)</td>
<td>Declines linearly to 10%</td>
<td>Stable ROC of 10%</td>
</tr>
<tr>
<td><strong>Reinvestment Rate</strong></td>
<td>53.18% (last year’s reinvestment rate)</td>
<td>Declines to 40% as ROC and growth rates drop: Reinvestment Rate = g/ROC</td>
<td>40% of after-tax operating income, estimated from stable growth rate of 4% and return on capital of 10%. Reinvestment rate = 4/10 = 40%</td>
</tr>
<tr>
<td><strong>Expected Growth Rate in EBIT</strong></td>
<td>ROC * Reinvestment Rate = 12%*0.5318 = 6.38%</td>
<td>Linear decline to Stable Growth Rate of 4%</td>
<td>4%: Set to riskfree rate</td>
</tr>
<tr>
<td><strong>Debt/Capital Ratio</strong></td>
<td>21% (Existing debt ratio)</td>
<td>Increases linearly to 30%</td>
<td>Stable debt ratio of 30%</td>
</tr>
<tr>
<td><strong>Risk Parameters</strong></td>
<td>Beta = 1.25, k_e = 10%</td>
<td>Beta decreases linearly to 1.00; Cost of debt stays at 5.25%</td>
<td>Beta = 1.00; k_e = 8.82%</td>
</tr>
<tr>
<td></td>
<td>Cost of Debt = 5.25%</td>
<td>Cost of capital drops to 7.16%</td>
<td>Cost of debt stays at 5.25%</td>
</tr>
<tr>
<td></td>
<td>Cost of capital = 8.59%</td>
<td></td>
<td>Cost of capital = 7.16%</td>
</tr>
</tbody>
</table>
Disney: FCFF Estimates

<table>
<thead>
<tr>
<th>Year</th>
<th>Expected Growth</th>
<th>EBIT</th>
<th>EBIT (1−t)</th>
<th>Reinvestment Rate</th>
<th>Reinvestment</th>
<th>FCFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td></td>
<td>$2,805</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>6.38%</td>
<td>$2,984</td>
<td>$1,871</td>
<td>53.18%</td>
<td>$994.92</td>
<td>$876.06</td>
</tr>
<tr>
<td>2</td>
<td>6.38%</td>
<td>$3,174</td>
<td>$1,990</td>
<td>53.18%</td>
<td>$1,058.41</td>
<td>$931.96</td>
</tr>
<tr>
<td>3</td>
<td>6.38%</td>
<td>$3,377</td>
<td>$2,117</td>
<td>53.18%</td>
<td>$1,125.94</td>
<td>$991.43</td>
</tr>
<tr>
<td>4</td>
<td>6.38%</td>
<td>$3,592</td>
<td>$2,252</td>
<td>53.18%</td>
<td>$1,197.79</td>
<td>$1,054.70</td>
</tr>
<tr>
<td>5</td>
<td>6.38%</td>
<td>$3,822</td>
<td>$2,396</td>
<td>53.18%</td>
<td>$1,274.23</td>
<td>$1,122.00</td>
</tr>
<tr>
<td>6</td>
<td>5.90%</td>
<td>$4,047</td>
<td>$2,538</td>
<td>50.54%</td>
<td>$1,282.59</td>
<td>$1,255.13</td>
</tr>
<tr>
<td>7</td>
<td>5.43%</td>
<td>$4,267</td>
<td>$2,675</td>
<td>47.91%</td>
<td>$1,281.71</td>
<td>$1,393.77</td>
</tr>
<tr>
<td>8</td>
<td>4.95%</td>
<td>$4,478</td>
<td>$2,808</td>
<td>45.27%</td>
<td>$1,271.19</td>
<td>$1,536.80</td>
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<tr>
<td>9</td>
<td>4.48%</td>
<td>$4,679</td>
<td>$2,934</td>
<td>42.64%</td>
<td>$1,250.78</td>
<td>$1,682.90</td>
</tr>
<tr>
<td>10</td>
<td>4.00%</td>
<td>$4,866</td>
<td>$3,051</td>
<td>40.00%</td>
<td>$1,220.41</td>
<td>$1,830.62</td>
</tr>
</tbody>
</table>
## Disney: Costs of Capital and Present Value

<table>
<thead>
<tr>
<th>Year</th>
<th>Cost of capital</th>
<th>FCFF</th>
<th>PV of FCFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8.59%</td>
<td>$876.06</td>
<td>$806.74</td>
</tr>
<tr>
<td>2</td>
<td>8.59%</td>
<td>$931.96</td>
<td>$790.31</td>
</tr>
<tr>
<td>3</td>
<td>8.59%</td>
<td>$991.43</td>
<td>$774.21</td>
</tr>
<tr>
<td>4</td>
<td>8.59%</td>
<td>$1,054.70</td>
<td>$758.45</td>
</tr>
<tr>
<td>5</td>
<td>8.59%</td>
<td>$1,122.00</td>
<td>$743.00</td>
</tr>
<tr>
<td>6</td>
<td>8.31%</td>
<td>$1,255.13</td>
<td>$767.42</td>
</tr>
<tr>
<td>7</td>
<td>8.02%</td>
<td>$1,393.77</td>
<td>$788.91</td>
</tr>
<tr>
<td>8</td>
<td>7.73%</td>
<td>$1,536.80</td>
<td>$807.42</td>
</tr>
<tr>
<td>9</td>
<td>7.45%</td>
<td>$1,682.90</td>
<td>$822.90</td>
</tr>
<tr>
<td>10</td>
<td>7.16%</td>
<td>$1,830.62</td>
<td>$835.31</td>
</tr>
<tr>
<td></td>
<td>PV of cashflows during high growth =</td>
<td>$7,894.66</td>
<td></td>
</tr>
</tbody>
</table>
### Disney: Valuation

**Current Cashflow to Firm**
- EBIT(1-t) : 1,759
- Nt CpX 481
- Chg WC $454
- FCFF $824

Reinvestment Rate = (481 + 454) / 1759 = 53.18%

**Expected Growth in EBIT (1-t)**
- \(0.5318 \times 0.12 = 0.0638\)

**Reinvestment Rate**
- Stable Growth: \(g = 4\%\); \(\text{Beta} = 1.00\); \(\text{Cost of capital} = 7.16\%\)
- Reinvestment Rate = \(g / \text{ROC} = 4 / 10 = 40\%\)

**Terminal Value**
- \(10 = 1,904 / (0.0716 - 0.04) = 60,219\)

**Cashflows**
- EBIT (1-t) 
  - $1,871
  - $1,990
  - $2,117
  - $2,252
  - $2,396
  - $2,538
  - $2,675
  - $2,808
  - $2,934
  - $3,051
- Reinvestment 
  - $995
  - $1,058
  - $1,126
  - $1,198
  - $1,274
  - $1,328
  - $1,283
  - $1,282
  - $1,271
  - $1,251
  - $1,220
- FCFF 
  - $876
  - $932
  - $991
  - $1,055
  - $1,122
  - $1,255
  - $1,394
  - $1,537
  - $1,683
  - $1,831

**Discount at Cost of Capital (WACC) = 10.00\% (.79) + 3.29\% (0.21) = 8.59**

**Cost of Equity**
- 10\%

**Cost of Debt**
- \((4.00\% + 1.25\%) (1 - 0.373) = 3.29\%\)

**Weights**
- \(E = 79\%\), \(D = 21\%\)

**Riskfree Rate**
- Riskfree Rate = 4\%

**Beta**
- 1.2456

**Mature market premium**
- 4\%

**Unlevered Beta for Sectors**
- 1.0674

**Firm's D/E Ratio**
- 24.77\%

**Operational Assets**
- 35,373
  - Cash + Other Inv: 3,432
  - Debt: 14,668
  - Equity: 24,136
  - Options: 1,335
  - Equity CS: 22,802

**Value/Sh**
- $11.14

**In transition phase, debt ratio increases to 30\% and cost of capital decreases to 7.16\%**

**Disney was trading at about $26 at the time of this valuation.**
### The Investment Decision
Invest in projects that earn a return greater than a minimum acceptable hurdle rate.

### The Dividend Decision
If you cannot find investments that earn more than the hurdle rate, return the cash to the owners of the business.

### The Financing Decision
Choose a financing mix that minimizes the hurdle rate and match your financing to your assets.

#### Existing Investments
- **Return on Capital (ROC):** 4.22%

#### Current EBIT (1-t)
$1,759

#### Expected Growth Rate
- Year 1: 6.38%
- Year 2: 6.38%
- Year 3: 6.38%
- Year 4: 6.38%
- Year 5: 5.90%
- Year 6: 5.43%
- Year 7: 4.95%
- Year 8: 4.48%
- Year 9: 4.00%
- **Terminal Value:** 3.48%

#### Expected Growth Rate = 12% * 53.18% = 6.38%

#### Reinvestment Rate
53.18%

#### Reinvestment
- Year 1: $994.92
- Year 2: $1,058.41
- Year 3: $1,125.94
- Year 4: $1,197.79
- Year 5: $1,274.23
- Year 6: $1,282.59
- Year 7: $1,281.71
- Year 8: $1,271.19
- Year 9: $1,250.78
- Year 10: $1,220.41

#### FCFE
- Year 1: $876.06
- Year 2: $931.96
- Year 3: $991.43
- Year 4: $1,054.70
- Year 5: $1,122.00
- Year 6: $1,255.13
- Year 7: $1,393.77
- Year 8: $1,536.80
- Year 9: $1,682.90
- Year 10: $1,830.62

#### Cost of capital
10% (.79) + 3.29% (.21) = 8.59%

#### PV of FCFE
- Year 1: $806.74
- Year 2: $790.31
- Year 3: $774.22
- Year 4: $758.45
- Year 5: $743.00
- Year 6: $767.42
- Year 7: $788.92
- Year 8: $807.43
- Year 9: $822.90
- Year 10: $835.31
- Terminal Value: $27,477.93

#### Value of Operating Assets:
- Value of Operating Assets = Value of Operating Assets + Cash + Non-op Assets
- Value of firm = $35,372.62 + $3,432.00
- Debt = $14,668.22
- Options = $1,334.57
- Value of equity in stock = $22,801.73
- Value per share = $11.14

#### Disney: Corporate Financing Decisions and Firm Value
Value versus Price

Valuation Results

- Undervalued > 50%
- Undervalued 10-50%
- Undervalued < 10%
- Overvalued less than 10%
- Overvalued between 10-50%
- Overvalued 50-100%
- Overvalued >100%
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>PTSX</td>
<td>10.62</td>
<td>5.00%</td>
<td>2.12</td>
</tr>
<tr>
<td>Fox Entmt 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>25.65</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>JRN</td>
<td>27.94</td>
<td>10.00%</td>
<td>2.79</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>VIA/B</td>
<td>29.38</td>
<td>13.50%</td>
<td>2.18</td>
</tr>
<tr>
<td>Pixar</td>
<td>PIXR</td>
<td>29.80</td>
<td>16.50%</td>
<td>1.81</td>
</tr>
<tr>
<td>Disney (Walt)</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 Ent.</td>
<td>WWE</td>
<td>33.52</td>
<td>20.00%</td>
<td>1.68</td>
</tr>
<tr>
<td>Cox Radio 'A' Inc</td>
<td>CXR</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>Entercom Comm. Corp</td>
<td>ETM</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>Ballantyne of Omaha Inc</td>
<td>BTNE</td>
<td>55.17</td>
<td>17.10%</td>
<td>3.23</td>
</tr>
<tr>
<td>Regent Communications Inc</td>
<td>RGCI</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>4.05</td>
</tr>
<tr>
<td>Univision Communic.</td>
<td>UVN</td>
<td>122.76</td>
<td>24.50%</td>
<td>5.01</td>
</tr>
<tr>
<td>Salem Communications Corp</td>
<td>SALM</td>
<td>145.67</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 Under Valued Stocks

<table>
<thead>
<tr>
<th>Company</th>
<th>Value per share</th>
<th>Price/Share</th>
<th>Undervalued by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lions Gate</td>
<td>$27.81</td>
<td>$9.21</td>
<td>66.88%</td>
</tr>
<tr>
<td><strong>Drinks Americas Holdings</strong></td>
<td>$1.04</td>
<td>$0.39</td>
<td>62.50%</td>
</tr>
<tr>
<td>Hess</td>
<td>$193.42</td>
<td>$76.68</td>
<td>60.36%</td>
</tr>
<tr>
<td>JCP</td>
<td>$113.12</td>
<td>$45.73</td>
<td>59.57%</td>
</tr>
<tr>
<td>DDS</td>
<td>$46.03</td>
<td>$20.62</td>
<td>55.20%</td>
</tr>
<tr>
<td>M</td>
<td>$58.46</td>
<td>$29.09</td>
<td>50.24%</td>
</tr>
<tr>
<td>Pacific Ethanol</td>
<td>$11.99</td>
<td>$6.10</td>
<td>49.12%</td>
</tr>
<tr>
<td>Jet Blue</td>
<td>18.14</td>
<td>9.52</td>
<td>47.52%</td>
</tr>
<tr>
<td>Rolls Royce</td>
<td>£10.70</td>
<td>£5.65</td>
<td>47.20%</td>
</tr>
<tr>
<td>Coldwater Creek</td>
<td>$14.09</td>
<td>$7.45</td>
<td>47.13%</td>
</tr>
<tr>
<td>Allis-Chalmers Energy</td>
<td>$30.78</td>
<td>$16.63</td>
<td>45.97%</td>
</tr>
<tr>
<td>Alaska Air Group</td>
<td>$48.24</td>
<td>$26.50</td>
<td>45.07%</td>
</tr>
<tr>
<td>Crown Holdings</td>
<td>$32.69</td>
<td>$18.09</td>
<td>44.66%</td>
</tr>
<tr>
<td>British Airways (GBP)</td>
<td>6.12</td>
<td>3.42</td>
<td>44.12%</td>
</tr>
<tr>
<td>Halliburton</td>
<td>$67.09</td>
<td>$37.87</td>
<td>43.55%</td>
</tr>
</tbody>
</table>
The Triple Whammy: Underlevered, Cash Build-up and Under valued?

<table>
<thead>
<tr>
<th>Company</th>
<th>ROE - COE</th>
<th>ROC - WACC</th>
<th>Current Debt ratio</th>
<th>Optimal Debt Ratio</th>
<th>Dividends</th>
<th>FCFE</th>
<th>Value/share</th>
<th>Price/Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rolls Royce</td>
<td>37.10%</td>
<td>24.61%</td>
<td>26.98%</td>
<td>40.00%</td>
<td>$98.60</td>
<td>$145.60</td>
<td>£10.70</td>
<td>£5.65</td>
</tr>
<tr>
<td>Allis-Chalmers Energy</td>
<td>14.10%</td>
<td>6.16%</td>
<td>50.51%</td>
<td>70.00%</td>
<td>$0.00</td>
<td>$55.56</td>
<td>$30.78</td>
<td>$16.63</td>
</tr>
<tr>
<td>Domino's</td>
<td>16.20%</td>
<td>3.14%</td>
<td>58.21%</td>
<td>70.00%</td>
<td>$29.84</td>
<td>$114.23</td>
<td>$22.78</td>
<td>$13.73</td>
</tr>
<tr>
<td>K-Swiss</td>
<td>14.53%</td>
<td>6.67%</td>
<td>0.83%</td>
<td>50.00%</td>
<td>$7.84</td>
<td>$84.55</td>
<td>$29.90</td>
<td>$18.05</td>
</tr>
<tr>
<td>Vivendi</td>
<td>15.03%</td>
<td>2.03%</td>
<td>21.57%</td>
<td>70.00%</td>
<td>$2,255.00</td>
<td>$8,077.00</td>
<td>$52.40</td>
<td>$32.12</td>
</tr>
<tr>
<td>Darden Restaurants</td>
<td>10.48%</td>
<td>12.18%</td>
<td>21%</td>
<td>50.00%</td>
<td>$69.20</td>
<td>$181.3</td>
<td>$114.20</td>
<td>$39.26</td>
</tr>
<tr>
<td>Cadbury Schweppes</td>
<td>29.51%</td>
<td>9.73%</td>
<td>22.82%</td>
<td>40.00%</td>
<td>$239.60</td>
<td>$623.60</td>
<td>£9.03</td>
<td>£5.76</td>
</tr>
<tr>
<td>UPS</td>
<td>17.62%</td>
<td>4.17%</td>
<td>7.93%</td>
<td>70.00%</td>
<td>$1,196.20</td>
<td>$1663.00</td>
<td>$102.29</td>
<td>$52.12</td>
</tr>
<tr>
<td>Timberland</td>
<td>10.47%</td>
<td>12.40%</td>
<td>14.09%</td>
<td>70%</td>
<td>$0.00</td>
<td>$130.8</td>
<td>$21.44</td>
<td>$15.11</td>
</tr>
<tr>
<td>CBS Corporation</td>
<td>-2.41%</td>
<td>-2.32%</td>
<td>34.99%</td>
<td>50.00%</td>
<td>$519.10</td>
<td>$1911.40</td>
<td>$37.60</td>
<td>$26.51</td>
</tr>
<tr>
<td>Viacom</td>
<td>9.32%</td>
<td>-6.97%</td>
<td>16.44%</td>
<td>50.00%</td>
<td>$1,136.00</td>
<td>$2071.17</td>
<td>$56.73</td>
<td>$43.67</td>
</tr>
<tr>
<td>Movado</td>
<td>1.64%</td>
<td>-2.34%</td>
<td>15.31%</td>
<td>40.00%</td>
<td>$6.16</td>
<td>$30.8</td>
<td>$29.61</td>
<td>$23.29</td>
</tr>
<tr>
<td>FedEx</td>
<td>7.03%</td>
<td>1.57%</td>
<td>29.50%</td>
<td>50.00%</td>
<td>$110.00</td>
<td>$225.8</td>
<td>$123.48</td>
<td>$97.67</td>
</tr>
<tr>
<td>Kraft</td>
<td>2.46%</td>
<td>-0.34%</td>
<td>16.58%</td>
<td>30.00%</td>
<td>$199.26</td>
<td>$3245.80</td>
<td>$40.71</td>
<td>$32.51</td>
</tr>
<tr>
<td>Valero</td>
<td>17.02%</td>
<td>-2.23%</td>
<td>20.18%</td>
<td>60.00%</td>
<td>$369.63</td>
<td>$863.52</td>
<td>$56.73</td>
<td>$43.67</td>
</tr>
<tr>
<td>Harley-Davidson</td>
<td>18.34%</td>
<td>11.58%</td>
<td>43.52%</td>
<td>60.00%</td>
<td>$74.41</td>
<td>$189.00</td>
<td>$57.26</td>
<td>$46.53</td>
</tr>
<tr>
<td>Choice Hotels</td>
<td>-181.00%</td>
<td>83.55%</td>
<td>12.04%</td>
<td>40.00%</td>
<td>$98.68</td>
<td>$354.59</td>
<td>$44.06</td>
<td>$36.23</td>
</tr>
<tr>
<td>Nordstrom</td>
<td>23.37%</td>
<td>12.53%</td>
<td>12.63%</td>
<td>40.00%</td>
<td>$110.16</td>
<td>$347.90</td>
<td>$46.52</td>
<td>$38.45</td>
</tr>
<tr>
<td>Qualcomm</td>
<td>8.50%</td>
<td>8.50%</td>
<td>0.00%</td>
<td>30.00%</td>
<td>$459.00</td>
<td>$1350.35</td>
<td>$23.85</td>
<td>$20.18</td>
</tr>
<tr>
<td>Wal-Mart</td>
<td>9.17%</td>
<td>2.76%</td>
<td>21.18%</td>
<td>60.00%</td>
<td>$5,193.83</td>
<td>$5,287.17</td>
<td>$57.57</td>
<td>$49.03</td>
</tr>
<tr>
<td>TV Guide</td>
<td>5.70%</td>
<td>1.10%</td>
<td>1.27%</td>
<td>20.00%</td>
<td>$0.00</td>
<td>$88.77</td>
<td>$5.78</td>
<td>$4.99</td>
</tr>
<tr>
<td>Pactiv</td>
<td>24.27%</td>
<td>9.44%</td>
<td>26%</td>
<td>70.00%</td>
<td>$0.00</td>
<td>$293.01</td>
<td>$30.65</td>
<td>$26.56</td>
</tr>
<tr>
<td>Genentech</td>
<td>18.52%</td>
<td>13.45%</td>
<td>3.95%</td>
<td>30.00%</td>
<td>$559.18</td>
<td>$924.00</td>
<td>$78.39</td>
<td>$68.89</td>
</tr>
</tbody>
</table>
**Investment Decision**

- Invest in projects that earn a return greater than a minimum acceptable hurdle rate.

**Dividend Decision**

- If you cannot find investments that earn more than the hurdle rate, return the cash to the owners of the business.

**Financing Decision**

- Choose a financing mix that minimizes the hurdle rate and match your financing to your assets.

---

**Disco: The Value of Control**

<table>
<thead>
<tr>
<th>Year</th>
<th>Expected Growth Rate</th>
<th>EBIT (1-t)</th>
<th>Reinvestment Rate</th>
<th>Reinvestment Rate</th>
<th>FCFF</th>
<th>Cost of capital</th>
<th>PV of FCFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>7.98%</td>
<td>$5,752</td>
<td>53.18%</td>
<td>$1,918</td>
<td>$1,688</td>
<td>8.40%</td>
<td>$1,558</td>
</tr>
<tr>
<td>2</td>
<td>7.98%</td>
<td>$6,211</td>
<td>53.18%</td>
<td>$2,071</td>
<td>$1,823</td>
<td>8.40%</td>
<td>$1,551</td>
</tr>
<tr>
<td>3</td>
<td>7.98%</td>
<td>$6,706</td>
<td>53.18%</td>
<td>$2,236</td>
<td>$1,969</td>
<td>8.40%</td>
<td>$1,545</td>
</tr>
<tr>
<td>4</td>
<td>7.98%</td>
<td>$7,241</td>
<td>53.18%</td>
<td>$2,414</td>
<td>$2,126</td>
<td>8.40%</td>
<td>$1,539</td>
</tr>
<tr>
<td>5</td>
<td>7.98%</td>
<td>$7,819</td>
<td>53.18%</td>
<td>$2,607</td>
<td>$2,295</td>
<td>8.40%</td>
<td>$1,533</td>
</tr>
<tr>
<td>6</td>
<td>7.98%</td>
<td>$8,380</td>
<td>50.54%</td>
<td>$2,659</td>
<td>$2,599</td>
<td>8.16%</td>
<td>$1,605</td>
</tr>
<tr>
<td>7</td>
<td>6.35%</td>
<td>$8,915</td>
<td>47.91%</td>
<td>$2,673</td>
<td>$2,912</td>
<td>7.91%</td>
<td>$1,667</td>
</tr>
<tr>
<td>8</td>
<td>5.59%</td>
<td>$9,414</td>
<td>45.27%</td>
<td>$2,672</td>
<td>$3,230</td>
<td>7.66%</td>
<td>$1,717</td>
</tr>
<tr>
<td>9</td>
<td>4.80%</td>
<td>$9,865</td>
<td>42.64%</td>
<td>$2,637</td>
<td>$3,548</td>
<td>7.41%</td>
<td>$1,756</td>
</tr>
<tr>
<td>10</td>
<td>4.00%</td>
<td>$10,260</td>
<td>40.00%</td>
<td>$2,573</td>
<td>$3,860</td>
<td>7.16%</td>
<td>$1,783</td>
</tr>
<tr>
<td></td>
<td><strong>Terminal Value</strong></td>
<td></td>
<td></td>
<td></td>
<td>$126,967</td>
<td></td>
<td>$58,645</td>
</tr>
</tbody>
</table>

- **Value of Operating Assets** = $74,900
- **Cash & Non-op Assets** = $3,432
- **Value of Firm** = $78,332
- **Debt** = $14,649
- **Options** = $1,335
- **Value of Equity in Stock** = $62,349
- **Value per Share** = $30.45
First Principles

- Invest in projects that **yield a return greater than the minimum acceptable hurdle rate**.
  - The hurdle rate should be **higher for riskier projects** and reflect the **financing mix** used - owners’ funds (equity) or borrowed money (debt).
  - Returns on projects should be measured based on **cash flows generated and the timing of these cash flows**; they should also consider both **positive and negative side effects** of these projects.

- Choose a **financing mix** that **minimizes the hurdle rate** and **matches the assets** being financed.

- If there are not enough investments that earn the hurdle rate, **return the cash to stockholders**.
  - The **form of returns** - dividends and stock buybacks - will depend upon the stockholders’ characteristics.

**Objective: Maximize the Value of the 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 fun!!!
And don’t forget your CFEs…

1. This course was mentally challenging/intellectually stimulating.
   1 2 3 4 5 6 7
   No-brainer! Brilliant insights!

2. This course was demanding of my time.
   1 2 3 4 5 6 7
   What work? Haven’t slept all semester.

3. This course provided me with tools and information that I will find useful in the future.
   1 2 3 4 5 6 7
   Only in prison Completely relevant

4. Overall evaluation of the course
   1 2 3 4 5 6 7
   Horrible! (I want my money back) Stupendous!

5. The instructor was organized and well prepared for class.
   1 2 3 4 5 6 7
   Had trouble finding classroom Scarily efficient!

6. The instructor communicated his/her ideas and material well.
   1 2 3 4 5 6 7
   Garbled gobbledygook! Should have own TV show

7. The instructor was enthusiastic about his/her subject matter.
   1 2 3 4 5 6 7
   Dead man talking! I am a convert

8. Overall evaluation of the instructor
   1 2 3 4 5 6 7
   Dog! Star!