Raising capital
Today

Raising capital

- Overview
- Financing patterns and the stock market’s reaction

Reading

- Brealey and Myers, Chapter 14 and 15
Road map

Part 1. Valuation

Part 2. Risk and return

Part 3. Financing and payout decisions
Balance sheet

<table>
<thead>
<tr>
<th>Net Assets</th>
<th>Debt and Equity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Working Capital</td>
<td>Long-Term Debt</td>
</tr>
<tr>
<td>Fixed Assets</td>
<td>Shareholders’ Equity</td>
</tr>
<tr>
<td>1. Tangible</td>
<td></td>
</tr>
<tr>
<td>2. Intangible</td>
<td></td>
</tr>
</tbody>
</table>
Types of questions

➤ Your firm needs capital to finance growth. Should you issue debt or equity or obtain a bank loan? If you choose debt, should the bonds be convertible? Callable? If you choose equity, should you use common or preferred stock? How will the stock market react to your decision?

➤ In 1998, IBM announced that it would repurchase $2.5 billion in stock. How should it structure the stock repurchase? IBM’s price jumped 7% after the announcement. Why? How would the market have reacted if IBM increased dividends instead? Suppose Intel made the same announcement. Would we expect the same price response?
Raising capital

Sources of funds

- **Internal financing**
  Internally generated cashflows (retained earnings)

- **Debt (borrowing)**
  Bonds and commercial paper
  Bank debt (loan commitments, lines of credit)
  Private placements
  Leases

- **New equity**
  Common or preferred stock
  Rights offering
  Private placements
Sources of funds, International 1990 – 1994

% of total financing

US | Japan | UK | Canada | France
---|---|---|---|---
Internal | Debt | Equity
Raising capital

Terminology

➤ Convertible, callable bonds and preferred stock

➤ Zero-coupon, or pure-discount, bonds

➤ Junk bonds

➤ Secured debt vs. unsecured debt (debentures)

➤ Priority / seniority
  Senior debt (60% recovery in bankruptcy)
  Subordinated or junior debt (< 30% recovery in bankruptcy)
## Bond ratings

### Moody’s and Standard and Poor’s

<table>
<thead>
<tr>
<th>Moody’s</th>
<th>Standard and Poor’s</th>
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</thead>
<tbody>
<tr>
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<td>AAA</td>
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<tr>
<td>Aa</td>
<td>AA</td>
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<tr>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Baa</td>
<td>BBB</td>
</tr>
<tr>
<td>Ba</td>
<td>BB</td>
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<td>B</td>
<td>B</td>
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<tr>
<td>Caa</td>
<td>CCC</td>
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<tr>
<td>Ca</td>
<td>CC</td>
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<tr>
<td>C</td>
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</table>

### Investment grade

### Junk bonds
## Bond ratings

**Default probabilities for S&P ratings**

<table>
<thead>
<tr>
<th>Original rating</th>
<th>1 year</th>
<th>5 years</th>
<th>10 years</th>
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<tbody>
<tr>
<td>AAA</td>
<td>0.00</td>
<td>0.06</td>
<td>0.06</td>
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<tr>
<td>AA</td>
<td>0.00</td>
<td>0.67</td>
<td>0.74</td>
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<td>A</td>
<td>0.00</td>
<td>0.22</td>
<td>0.64</td>
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<tr>
<td>BBB</td>
<td>0.03</td>
<td>1.64</td>
<td>2.80</td>
</tr>
<tr>
<td>BB</td>
<td>0.37</td>
<td>8.32</td>
<td>16.37</td>
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<tr>
<td>B</td>
<td>1.47</td>
<td>21.95</td>
<td>33.01</td>
</tr>
<tr>
<td>CCC</td>
<td>2.28</td>
<td>35.42</td>
<td>47.46</td>
</tr>
</tbody>
</table>
## Bond ratings

**Adjusted Key Industrial Financial Ratios**

**U.S. Industrial Long Term Debt**

**Three-Year (1998 to 2000) Medians**

**Source:** Standard and Poor’s

<table>
<thead>
<tr>
<th></th>
<th>AAA</th>
<th>AA</th>
<th>A</th>
<th>BBB</th>
<th>BB</th>
<th>B</th>
<th>CCC</th>
</tr>
</thead>
<tbody>
<tr>
<td>EBIT int. cov. (x)</td>
<td>21.4</td>
<td>10.1</td>
<td>6.1</td>
<td>3.7</td>
<td>2.1</td>
<td>0.8</td>
<td>0.1</td>
</tr>
<tr>
<td>EBITDA int. cov. (x)</td>
<td>26.5</td>
<td>12.9</td>
<td>9.1</td>
<td>5.8</td>
<td>3.4</td>
<td>1.8</td>
<td>1.3</td>
</tr>
<tr>
<td>Free oper. cash flow/total debt (%)</td>
<td>84.2</td>
<td>25.2</td>
<td>15.0</td>
<td>8.5</td>
<td>2.6</td>
<td>(3.2)</td>
<td>(12.9)</td>
</tr>
<tr>
<td>FFO/total debt (%)</td>
<td>128.8</td>
<td>55.4</td>
<td>43.2</td>
<td>30.8</td>
<td>18.8</td>
<td>7.8</td>
<td>1.6</td>
</tr>
<tr>
<td>Return on capital (%)</td>
<td>34.9</td>
<td>21.7</td>
<td>19.4</td>
<td>13.6</td>
<td>11.6</td>
<td>6.6</td>
<td>1.0</td>
</tr>
<tr>
<td>Operating income/sales (%)</td>
<td>27.0</td>
<td>22.1</td>
<td>18.6</td>
<td>15.4</td>
<td>15.9</td>
<td>11.9</td>
<td>11.9</td>
</tr>
<tr>
<td>Long-term debt/capital (%)</td>
<td>13.3</td>
<td>28.2</td>
<td>33.9</td>
<td>42.5</td>
<td>57.2</td>
<td>69.7</td>
<td>68.8</td>
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<tr>
<td>Total debt/capital (incl. STD) (%)</td>
<td>22.9</td>
<td>37.7</td>
<td>42.5</td>
<td>48.2</td>
<td>62.6</td>
<td>74.8</td>
<td>87.7</td>
</tr>
<tr>
<td>Companies</td>
<td>8</td>
<td>29</td>
<td>136</td>
<td>218</td>
<td>273</td>
<td>281</td>
<td>22</td>
</tr>
</tbody>
</table>
Financing decisions

What is the goal?

How can financing decisions create value?
Capital structure decisions

Observations

➤ Pecking order
Firms prefer internal to external financing. If financing is external, firms prefer debt to equity.

➤ Target capital structure
Mean reversion in leverage ratios and systematic differences across industries.
# Capital structure, 1997

<table>
<thead>
<tr>
<th>Industry</th>
<th>Debt / (Debt + Equity)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>High leverage</strong></td>
<td></td>
</tr>
<tr>
<td>Building construction</td>
<td>60.2%</td>
</tr>
<tr>
<td>Hotels and lodging</td>
<td>55.4</td>
</tr>
<tr>
<td>Air transport</td>
<td>38.8</td>
</tr>
<tr>
<td>Primary metals</td>
<td>29.1</td>
</tr>
<tr>
<td>Paper</td>
<td>28.2</td>
</tr>
<tr>
<td><strong>Low leverage</strong></td>
<td></td>
</tr>
<tr>
<td>Drugs and chemicals</td>
<td>4.8</td>
</tr>
<tr>
<td>Electronics</td>
<td>9.1</td>
</tr>
<tr>
<td>Management services</td>
<td>12.3</td>
</tr>
<tr>
<td>Computers</td>
<td>9.6</td>
</tr>
<tr>
<td>Health services</td>
<td>15.2</td>
</tr>
</tbody>
</table>
2: The process

Mechanics

➤ Underwriters

➤ Firm commitment vs. best efforts

➤ Rights offerings
### Direct costs of a public offering, 1990 – 1994

<table>
<thead>
<tr>
<th>Proceeds ($ mill)</th>
<th>IPOs</th>
<th></th>
<th></th>
<th></th>
<th>SEOs</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Gross spread</td>
<td>Other costs</td>
<td>Total direct</td>
<td>Gross spread</td>
<td>Other costs</td>
<td>Total direct</td>
<td>Gross spread</td>
<td>Other costs</td>
</tr>
<tr>
<td>2 – 10</td>
<td>9.05%</td>
<td>7.91%</td>
<td>16.96%</td>
<td></td>
<td>7.72%</td>
<td>5.56%</td>
<td>13.28%</td>
<td></td>
</tr>
<tr>
<td>10 – 20</td>
<td>7.24</td>
<td>4.39</td>
<td>11.63</td>
<td></td>
<td>6.23</td>
<td>2.49</td>
<td>8.72</td>
<td></td>
</tr>
<tr>
<td>20 – 40</td>
<td>7.01</td>
<td>2.69</td>
<td>9.70</td>
<td></td>
<td>5.60</td>
<td>1.33</td>
<td>6.93</td>
<td></td>
</tr>
<tr>
<td>40 – 60</td>
<td>6.96</td>
<td>1.76</td>
<td>8.72</td>
<td></td>
<td>5.05</td>
<td>0.82</td>
<td>5.87</td>
<td></td>
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<tr>
<td>60 – 80</td>
<td>6.74</td>
<td>1.46</td>
<td>8.20</td>
<td></td>
<td>4.57</td>
<td>0.61</td>
<td>5.18</td>
<td></td>
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<tr>
<td>80 – 99</td>
<td>6.47</td>
<td>1.44</td>
<td>7.91</td>
<td></td>
<td>4.25</td>
<td>0.48</td>
<td>4.73</td>
<td></td>
</tr>
<tr>
<td>100 – 200</td>
<td>6.03</td>
<td>1.03</td>
<td>7.06</td>
<td></td>
<td>3.85</td>
<td>0.37</td>
<td>4.22</td>
<td></td>
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<tr>
<td>200 – 500</td>
<td>5.69</td>
<td>0.86</td>
<td>6.53</td>
<td></td>
<td>3.26</td>
<td>0.21</td>
<td>3.47</td>
<td></td>
</tr>
<tr>
<td>500 +</td>
<td>5.21</td>
<td>0.51</td>
<td>5.72</td>
<td></td>
<td>3.03</td>
<td>0.12</td>
<td>3.15</td>
<td></td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td>7.31</td>
<td>3.69</td>
<td>11.00</td>
<td></td>
<td>5.44</td>
<td>1.67</td>
<td>7.11</td>
<td></td>
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</tbody>
</table>
Underpricing of IPOs, 1960 – 1997
# International comparison of underpricing

<table>
<thead>
<tr>
<th>Country</th>
<th>Data Source(s)</th>
<th>Average Initial Return (%)</th>
<th>Sample Size</th>
<th>Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Lee et al.</td>
<td>11.9</td>
<td>266</td>
<td>1976-89</td>
</tr>
<tr>
<td>Belgium</td>
<td>Rogiers et al.</td>
<td>10.1</td>
<td>28</td>
<td>1984-90</td>
</tr>
<tr>
<td>Brazil</td>
<td>Aggarwal et al.</td>
<td>78.5</td>
<td>62</td>
<td>1979-90</td>
</tr>
<tr>
<td>Canada</td>
<td>Jog &amp; Riding; Jog &amp; Srivastava</td>
<td>5.4</td>
<td>258</td>
<td>1971-92</td>
</tr>
<tr>
<td>Chile</td>
<td>Aggarwal et al.</td>
<td>16.3</td>
<td>19</td>
<td>1982-90</td>
</tr>
<tr>
<td>Finland</td>
<td>Keloharju</td>
<td>9.6</td>
<td>85</td>
<td>1984-92</td>
</tr>
<tr>
<td>France</td>
<td>Husson &amp; Jacquillat; Leleux &amp; Muzyka; Palliard &amp; Belletante</td>
<td>4.2</td>
<td>187</td>
<td>1983-92</td>
</tr>
<tr>
<td>Germany</td>
<td>Ljungqvist</td>
<td>10.9</td>
<td>170</td>
<td>1978-92</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>McGuinness</td>
<td>17.6</td>
<td>80</td>
<td>1980-90</td>
</tr>
<tr>
<td>Italy</td>
<td>Cherubini &amp; Ratti</td>
<td>27.1</td>
<td>75</td>
<td>1985-91</td>
</tr>
<tr>
<td>Japan</td>
<td>Fukuda; Dawson &amp; Hiraki; Hebner &amp; Hiraki</td>
<td>32.5</td>
<td>472</td>
<td>1970-91</td>
</tr>
<tr>
<td>Korea</td>
<td>Dhatt et al.</td>
<td>78.1</td>
<td>347</td>
<td>1980-90</td>
</tr>
<tr>
<td>Malaysia</td>
<td>Isa</td>
<td>80.3</td>
<td>132</td>
<td>1980-91</td>
</tr>
<tr>
<td>Mexico</td>
<td>Aggarwal et al.</td>
<td>33.0</td>
<td>37</td>
<td>1987-90</td>
</tr>
<tr>
<td>Netherlands</td>
<td>Wessels; Eigenhuijzen &amp; Buijs</td>
<td>7.2</td>
<td>72</td>
<td>1982-91</td>
</tr>
<tr>
<td>New Zealand</td>
<td>Vos &amp; Cheung</td>
<td>28.8</td>
<td>149</td>
<td>1979-91</td>
</tr>
<tr>
<td>Portugal</td>
<td>Alpalhao</td>
<td>54.4</td>
<td>62</td>
<td>1986-87</td>
</tr>
<tr>
<td>Singapore</td>
<td>Koh &amp; Walter</td>
<td>27.0</td>
<td>66</td>
<td>1973-87</td>
</tr>
<tr>
<td>Spain</td>
<td>Rahnema et al.</td>
<td>35.0</td>
<td>71</td>
<td>1985-90</td>
</tr>
<tr>
<td>Sweden</td>
<td>Ridder; Rydqvist</td>
<td>39.0</td>
<td>213</td>
<td>1970-91</td>
</tr>
<tr>
<td>Switzerland</td>
<td>Kunz &amp; Aggarwal</td>
<td>35.8</td>
<td>42</td>
<td>1983-89</td>
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<tr>
<td>Taiwan</td>
<td>Chen</td>
<td>45.0</td>
<td>168</td>
<td>1971-90</td>
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<tr>
<td>Thailand</td>
<td>Wethyavivorn &amp; Koo-smith</td>
<td>58.1</td>
<td>32</td>
<td>1988-89</td>
</tr>
<tr>
<td>U.K.</td>
<td>Dimson; Levis</td>
<td>12.0</td>
<td>2133</td>
<td>1959-90</td>
</tr>
</tbody>
</table>
3: Price impact

How do stock prices react to security offerings?

➤ Debt issues?

➤ Seasoned equity offerings?
### Stock price reaction

<table>
<thead>
<tr>
<th>Type of security</th>
<th>Industrial</th>
<th>Utility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common stock*</td>
<td>-3.14%</td>
<td>-0.75%</td>
</tr>
<tr>
<td>Preferred stock</td>
<td>-0.19</td>
<td>0.08</td>
</tr>
<tr>
<td>Convertible preferred</td>
<td>-1.44</td>
<td>-1.38</td>
</tr>
<tr>
<td>Straight debt</td>
<td>-0.26</td>
<td>-0.13</td>
</tr>
<tr>
<td>Convertible bonds</td>
<td>-2.07</td>
<td>--</td>
</tr>
<tr>
<td>Private placements of debt</td>
<td>-0.91</td>
<td>--</td>
</tr>
<tr>
<td>Bank loan agreements</td>
<td>1.93</td>
<td>--</td>
</tr>
</tbody>
</table>

*Approximately 30% of issue size
### Stock price reaction

<table>
<thead>
<tr>
<th>Stated purpose</th>
<th>Loan agreement</th>
<th>Private placement</th>
<th>Public straight bonds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repay debt</td>
<td>1.14%</td>
<td>0.51%</td>
<td>-0.35%</td>
</tr>
<tr>
<td>Cap expenditure</td>
<td>1.20</td>
<td>-0.23</td>
<td>0.55</td>
</tr>
<tr>
<td>General purpose</td>
<td>4.67</td>
<td>0.26</td>
<td>0.07</td>
</tr>
<tr>
<td>Repay bank loans</td>
<td>3.10</td>
<td>-2.07</td>
<td>-1.63</td>
</tr>
<tr>
<td>No purpose given</td>
<td>1.74</td>
<td>--</td>
<td>0.69</td>
</tr>
</tbody>
</table>
## Stock price reaction

<table>
<thead>
<tr>
<th>Transaction</th>
<th>Security issued</th>
<th>Security retired</th>
<th>Announce return</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Leverage increasing</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stock repurchase</td>
<td>Debt</td>
<td>Common</td>
<td><strong>21.9%</strong></td>
</tr>
<tr>
<td>Exchange offer</td>
<td>Debt</td>
<td>Common</td>
<td><strong>14.0</strong></td>
</tr>
<tr>
<td>Exchange offer</td>
<td>Preferred</td>
<td>Common</td>
<td><strong>8.3</strong></td>
</tr>
<tr>
<td><strong>No leverage effect</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exchange offer</td>
<td>Debt</td>
<td>Debt</td>
<td><strong>0.3</strong></td>
</tr>
<tr>
<td><strong>Leverage decreasing</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Call exercise</td>
<td>Common</td>
<td>Debt</td>
<td><strong>-2.1</strong></td>
</tr>
<tr>
<td>Exchange offer</td>
<td>Common</td>
<td>Preferred</td>
<td><strong>-2.6</strong></td>
</tr>
<tr>
<td>Exchange offer</td>
<td>Preferred</td>
<td>Debt</td>
<td><strong>-7.7</strong></td>
</tr>
<tr>
<td>Exchange offer</td>
<td>Common</td>
<td>Debt</td>
<td><strong>-9.9</strong></td>
</tr>
</tbody>
</table>
Stock price reaction

Observations

- Stock prices react negatively to stock issues
- Stock prices react positively to bank loans, but very little to public debt issues
- Leverage-increasing transactions are good news, but leverage-decreasing transactions are bad news

Why?
Payout policy

Questions

➢ How do firms payout cash?

➢ What are the advantages and disadvantages of each method?

➢ How much cash should a firm hold?
S&P 500, earnings and dividends

Payout ratio (right scale)

Earnings

Dividends

# Stock price reaction

<table>
<thead>
<tr>
<th>Event</th>
<th>Announcement return</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Increases</strong></td>
<td></td>
</tr>
<tr>
<td>Repurchase: open market</td>
<td>3.6%</td>
</tr>
<tr>
<td>Repurchase: tender offer</td>
<td>16.2</td>
</tr>
<tr>
<td>Dividend increase</td>
<td>0.9</td>
</tr>
<tr>
<td>Dividend initiation</td>
<td>3.7</td>
</tr>
<tr>
<td>Special dividend</td>
<td>2.1</td>
</tr>
<tr>
<td><strong>Decreases</strong></td>
<td></td>
</tr>
<tr>
<td>Dividend omission</td>
<td>-7.0%</td>
</tr>
<tr>
<td>Dividend decrease</td>
<td>-3.6</td>
</tr>
</tbody>
</table>