Business Finance Basics

- Equity Financing
- Debt Financing
- Finances and Firm Stage
- Empirical Data on Use of Debt & Equity
- Business Finance Examples
Equity Financing

- Definition of equity
- Governance and financial rights
- Financial return: dividends and capital gains
- Forms of equity: preferred stock, common stock, partnership interest, “project equity”
- Key equity terms
  - Company valuation
  - Voting rights & board representation
  - Registration rights
  - Anti-dilution covenants
Key Formulas: Equity Finance

- **Company valuation:**
  - Discounted cash flow: Value = $\sum \frac{CF_i}{(1+r)^i}$
  - Price/earnings ratio: Value = PER * stabilized earnings

- **Private investor’s ownership share**
  - % of ownership = investment / (pre-investment company value + investment)

- **Company valuation is inexact**
  - Valuation and ownership share is negotiated
Debt Financing

• Definition of debt
• Financial terms:
  ○ Principal
  ○ Interest rate
  ○ Loan term or maturity
  ○ Amortization period
• Non-financial terms
  ○ Collateral and security position
  ○ Guarantees
  ○ Financial covenants
• Debt service coverage ratio (cash flow/P + I)
• Loan-to-value ratio (loan prin. /appraised value)
Selected Types of Debt

- Trade credit
- Lines of credits
- Construction loans
- Equipment leases
- Term loans
- Mini-perm loans
- Long-term mortgage loans
- Bonds
Annual Returns to Stocks and Bonds, 1928-2014

Data source: http://www.stern.nyu.edu/~adamodar/pc/datasets/histretSP.xls
Debt Examples

Figure 2-1: Comparison of Principal Balance Over Time, for Interest Only and Amortizing Loans

![Graph showing comparison of principal balance over time for interest only and amortizing loans.](image-url)
<table>
<thead>
<tr>
<th>Loan Terms</th>
<th>Industrial</th>
<th>Office</th>
<th>Lodging</th>
<th>Restaurant</th>
<th>Retail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest Rate</td>
<td>4.92%</td>
<td>5.18%</td>
<td>5.62%</td>
<td>6.57%</td>
<td>5.06%</td>
</tr>
<tr>
<td>DSCR</td>
<td>1.49</td>
<td>1.70</td>
<td>1.57</td>
<td>1.66</td>
<td>1.41</td>
</tr>
<tr>
<td>LTV</td>
<td>.70</td>
<td>.73</td>
<td>.67</td>
<td>.64</td>
<td>.71</td>
</tr>
<tr>
<td>Amortization (years)</td>
<td>25</td>
<td>30</td>
<td>22</td>
<td>21</td>
<td>25</td>
</tr>
<tr>
<td>Term (years)</td>
<td>11.46</td>
<td>8.0</td>
<td>7.8</td>
<td>7.45</td>
<td>6.20</td>
</tr>
</tbody>
</table>
Key Formulas: Debt Financing

- **Principal amount from monthly cash flow**
  - \( pv \) (monthly interest rate \( i \), \# of months in amortization period \( n \), monthly cash flow for debt service \( cf \))

- **Monthly payment for a loan amount**
  - \( Pmt \) (monthly interest rate, \# of months in amortization period \( n \), loan principal amount)

- **Outstanding principal balance**
  - \( pv \) (monthly \( i \), \# of months left in amortization period \( n \), monthly loan payment)
## Small Firm Capital Sources

<table>
<thead>
<tr>
<th>Capital Source</th>
<th>All Small Businesses</th>
<th>Small Firms &lt; 20 workers, sales &lt; $1 mm</th>
<th>Small Firms &gt; 20 workers, sales &gt; $1 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Principal Owner Equity</strong></td>
<td>31.33%</td>
<td>44.53%</td>
<td>27.22%</td>
</tr>
<tr>
<td>Angel Finance</td>
<td>3.59%</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>Venture Capital</td>
<td>1.85%</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>Other Equity</td>
<td>12.86%</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>Total Equity</td>
<td>49.63</td>
<td>56.00%</td>
<td>47.67%</td>
</tr>
<tr>
<td><strong>Commercial Banks</strong></td>
<td>18.75%</td>
<td>14.88%</td>
<td>19.94%</td>
</tr>
<tr>
<td>Finance Companies</td>
<td>4.91%</td>
<td>3.08%</td>
<td>5.47%</td>
</tr>
<tr>
<td>Other Fin. Institution</td>
<td>3.00%</td>
<td>3.53%</td>
<td>2.83%</td>
</tr>
<tr>
<td><strong>Trade Credit</strong></td>
<td>15.78%</td>
<td>11.81%</td>
<td>17.01%</td>
</tr>
<tr>
<td><strong>Principal Owner Debt</strong></td>
<td>4.10%</td>
<td>5.59%</td>
<td>3.63%</td>
</tr>
<tr>
<td>Other Sources</td>
<td>3.83%</td>
<td>5.11%</td>
<td>3.45%</td>
</tr>
<tr>
<td>Total Debt</td>
<td>50.37%</td>
<td>44.00%</td>
<td>52.33%</td>
</tr>
</tbody>
</table>
Firm Stages

Seed Stage
1 to 3 years
Very small size
Pre-growth
Limited finance needs
Few assets
No revenue

Start-up Stage
1 to 5 years
Small size
Slow to moderate growth
More finance needs
Some assets
Unpredictable earnings

Maturity Stage
10 + years
Largest size
Modest growth
Renewal investment needs
Sizeable assets;
may be outdated
Earnings predictable

Growth Stage
5 to 10 years
Medium size
Rapid growth
High investment needs
Sizeable assets
Some earnings predictability
## Capital Sources by Firm Age

<table>
<thead>
<tr>
<th>Capital Source</th>
<th>0-2 Years</th>
<th>3-4 Years</th>
<th>5-25 Years</th>
<th>25+ Years</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Principal Owner Equity</strong></td>
<td>19.61%</td>
<td>17.37%</td>
<td>31.94%</td>
<td>35.42%</td>
</tr>
<tr>
<td>Total Equity</td>
<td>47.90%</td>
<td>39.37%</td>
<td>48.00%</td>
<td>56.50%</td>
</tr>
<tr>
<td>Commercial Banks</td>
<td>15.66%</td>
<td>30.84%</td>
<td>17.86%</td>
<td>17.25%</td>
</tr>
<tr>
<td>Finance Companies</td>
<td>8.33%</td>
<td>2.51%</td>
<td>5.85%</td>
<td>3.28%</td>
</tr>
<tr>
<td>Other Fin. Institution</td>
<td>3.84%</td>
<td>2.36%</td>
<td>2.87%</td>
<td>3.38%</td>
</tr>
<tr>
<td>Trade Credit</td>
<td>13.40%</td>
<td>13.42%</td>
<td>17.10%</td>
<td>13.86%</td>
</tr>
<tr>
<td>Principal Owner Debt</td>
<td>6.02%</td>
<td>6.19%</td>
<td>3.91%</td>
<td>3.68%</td>
</tr>
<tr>
<td>Other Sources</td>
<td>4.85%</td>
<td>5.31%</td>
<td>4.41%</td>
<td>2.05%</td>
</tr>
<tr>
<td><strong>Total Debt</strong></td>
<td><strong>52.10%</strong></td>
<td><strong>60.63%</strong></td>
<td><strong>52.00%</strong></td>
<td><strong>33.50%</strong></td>
</tr>
</tbody>
</table>
Empirical Data and Growth Stage Theory

- High reliance on debt finance (> 50%) at start-up and early stages
- Heavy use of external institutional debt (40%) at start-up
- Growth in principle owner equity and total equity after 4 years
- Owner’s personal assets are important to raising external capital
## Small Business Credit Use 2009 to 2011

<table>
<thead>
<tr>
<th>Type of Credit</th>
<th>2009 (%)</th>
<th>2010 (%)</th>
<th>2011 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Line of Credit (all)</td>
<td>45.6%</td>
<td>46.8%</td>
<td>45.4%</td>
</tr>
<tr>
<td>Line of Credit (&lt;4 yrs)</td>
<td>30.6%</td>
<td>37.5%</td>
<td>26.0%</td>
</tr>
<tr>
<td>Business Loan (all)</td>
<td>35.9%</td>
<td>31.4%</td>
<td>29.1%</td>
</tr>
<tr>
<td>Business Loan (&lt;4 yrs)</td>
<td>20.4%</td>
<td>36.2%</td>
<td>14.5%</td>
</tr>
<tr>
<td>Bus. Credit Card (all)</td>
<td>63.8%</td>
<td>57.5%</td>
<td>58.8%</td>
</tr>
<tr>
<td>Bus. Credit Card (&lt;4 yrs)</td>
<td>No data</td>
<td>49.3%</td>
<td>51.8%</td>
</tr>
<tr>
<td>Trade Credit (all)</td>
<td>No data</td>
<td>57.8%</td>
<td>47.1%</td>
</tr>
<tr>
<td>Trade Credit (&lt;4 yrs)</td>
<td>No data</td>
<td>42.8%</td>
<td>43.8%</td>
</tr>
</tbody>
</table>

BOGFRS, Availability of Credit to Small Businesses, April 2012
Small Business Credit Sources

Figure 28: Online Loan Market is Small, But Growing Fast
Total Debt Capital Outstanding as of 4Q13 for Small Businesses ($ Billions)

Source: Bank loans data taken from FDIC Call Reports; SBA data sourced from SBA publicly available information; Credit card data sourced from creditcards.com; remainder sourced from interviews with industry experts, and authors’ analysis.

Courtesy of Karen G. Mills and Brayden McCarthy. Used with permission.
Business Finance Example 1

- A neighborhood hardware store is planning to add an equipment rental service to its business. It needs $30,000 to $40,000 to buy the rental equipment and expects rental sales of $3,000 to $3,500 per month. It rents its building with ten years remaining on its lease and has had stable total sales over the past several years.
Business Example 2

- The owner of a small furniture manufacturer is retiring and is interested in selling the business to her fifteen employees. The firm owns all its building and equipment and has inventory of wood, finished products it values at $50,000, and an existing mortgage loan with a $100,000 balance. The owner is asking $1,000,000 for the business and all its assets.
11.437 Financing Economic Development
Fall 2016

For information about citing these materials or our Terms of Use, visit: https://ocw.mit.edu/terms.