Equity Analysis and Capital Structure

A New Venture’s Perspective
# Venture’s Capital Structure

## Assets

<table>
<thead>
<tr>
<th>Short-term Assets</th>
<th>Long-term Assets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>Plant and Equipment</td>
</tr>
<tr>
<td>A/R</td>
<td>Intellectual Property</td>
</tr>
<tr>
<td>Inventories</td>
<td></td>
</tr>
</tbody>
</table>

## Capital Structure

- **Debt**
- **Preferred Equity**
- **Common Equity**
The Capital Structure
Claims on a Company’s Assets and Income

- **Bonds and Loans (Debt):**
  - Obligation to pay interest and principal
  - Lien against the assets of the company
  - Right to force bankruptcy

- **Preferred Stock (Hybrid Equity/Debt):**
  - Fixed dividend payment is common
  - Paid second after debt
  - Paid before common stock

- **Common Stock (Equity):**
  - No obligation to pay
  - Opportunity to share in profits of company
  - Rights of ownership control through board of directors
Managing Venture’s Capital Structure

1) Minimize cost of Capital
   - Achieving the optimal mix of Debt, Equity and internal Capital
   - Accessing low cost capital maximizes venture’s value

2) Raising capital is key to Growth
   - New ventures have large working capital and Capex needs

3) Maintain Financial Flexibility
   - Cash Burn rate
   - Be prepared to take advantage of opportunities

4) For early stage ventures, raising equity is key
   - Early stage investors want equity upside
   - Debt financing comes with maturity and stable CFs
Common Equity Analysis

1) Growth
   - Growth in Sales and Net Income
   - Growth in Earnings per Share = annual % increase in EPS

2) Value
   - Price Earnings Ratio = Price per share / EPS

3) Profitability
   - Profit Margins, Net Income, EBIT and EBITDA
   - Return on Assets, Equity and Capital

4) Risk
   - Beta
   - Volatility of earnings and cash flows

5) Income
   - Dividend Yield and Payout Ratio
Equity Valuation Methods

- Discounted FCF
- Multiples of:
  - EBIT or EBITDA
  - Sales (Price-to-sales ratio)
  - Book Value of Equity (Price-to-book ratio)
  - Earnings (P/E)
- Dividend Growth or Perpetuity Model
Determining value

Value = \sum_{t=0}^{N} \frac{CF_t}{(1+r)^t}

- There are various methods for determining enterprise and equity valuations for new ventures but they all go back to the same basic theme
  - Determine cash flow (CF_t)
  - Discount cash flow based on risk (r)
Valuation Cash Flow Alternatives

- Sales
- Net Income, Earnings or EPS
- Unlevered Free Cash Flow
- EBITDA
- Levered Free Cash Flow to equity
- Adjusted FCF
  - FCF to equity stripping out capex for growth

*Note: It is critical to define exactly what is incorporated in your CF number because this will determine what you are valuing. FCF to equity holders will value equity. CF to all investors (both debt and equity) will value the enterprise. Moreover, consider what adjustments have been made to CFs?*
Valuation Discount Rate Alternatives

- **After-tax WACC:**
  \[
  \text{WACC} = [(1 - \text{tax rate}) \times \text{(before-tax cost of debt)} \times (\text{debt/}(\text{debt+equity}))] + [(\text{cost of equity}) \times (\text{equity/}(\text{debt+equity})]
  \]

- **CAPM from comparable firm:**
  \[
  k_{cs} = k_{rf} + \beta \cdot (k_m - k_{rf})
  \]

*Note: CAPM and P/E rates are best for equity valuations while the WACC makes more sense for total enterprise valuations because it incorporates the cost of debt and equity.*
Valuing Equity (Method 1)
Price / Earnings Ratio

- What is the appropriate multiple (P/E) to trade at?
- Calculate the most accurate Earnings estimate.
Valuing Equity (Method 1)
Price / Earnings Ratio

\[
\frac{\text{Share Price}}{\text{Earnings Per Share}} = \text{P/E}
\]

\[
\text{EPS} \times \frac{\text{P/E}}{} = \text{Share Price}
\]

\[
\text{Net Income} \times \frac{\text{P/E}}{} = \text{Venture’s Total Equity Value}
\]
Valuing Equity (Method 1)
Price / Earnings Ratio

- Use the P/E ratio from a comparable (“comp”) publicly traded company to determine the equity value of your venture

- Value Per Share = Industry comp P/E x Venture’s EPS

- Some analyst use next year’s projected EPS since that is what a new investor will receive

- Multiply per share value by number of shares to determine the firm’s total equity value (market cap)
Valuing Equity (Method 1)
Price / Earnings Ratio

- What determines/drives P/E Ratios?
  - Potential Growth in Earnings (ROE x RR)
  - Risk/Volatility in Sales, Earnings, FCF, etc
Valuing Equity (Method 1)  
Price / Earnings Ratio

- Advantages of using P/E valuation:
  - P/E comps are readily available
  - P/E is a market driven number and ultimately investors’ bids determine a corporation’s value

- Problems using P/E to value venture businesses: What is the right risk adjusted P/E??
  - Overvalue because the Venture firm may be significantly riskier than the industry comp P/E taken from a publicly traded company
  - Undervalue because the early Ventures may not yet show earnings but hold large profit potential
Valuing Equity (Method 2)
EBITDA Multiple

- Several valuation methods are based on simple multiples of a firm’s sales, book value of equity, EBIT or Free Cash Flow. Out of these, EBITDA multiple is probably most popular.

- EBITDA is an estimate of cash flow that is prior to making interest payments, therefore it is valuing the entire enterprise (both debt and equity)

- To carve out the firm’s equity value from an EBITDA multiple valuation, subtract market value of debt and add back cash.
Valuing Equity (Method 2)
EBITDA Multiple

- Venture’s EBITDA x (industry comp multiple) = Venture’s total Enterprise value

- Equity Value = Venture’s Enterprise value – venture’s debt value + cash on venture’s B/S

- Share value = Equity Value / number of shares outstanding
Valuing Equity (Method 2)  
EBITDA Multiple

● Advantages

- Calculating comps is not difficult and EBITDA numbers for most companies are readily available
- Removes some noise (capex, etc) found in venture Earnings or FCF based valuations

● Problems using EBITDA multiple:

- What is the right EBITDA multiple?? The Venture firm may be significantly riskier than the industry comp and therefore should receive a lower multiple
- Early venture may have low profitability, therefore using current EBITDA would underestimate it’s future potential value
Valuing Equity (Model 3)
Discounted FCF Model

1) Project FCFs for period in which reasonable growth rates and other financial factors can be estimated (e.g. 5 years) and PV these FCFs using the firm’s WACC

2) Estimate the residual value at the beginning of year 6 by using an annuity like valuation (e.g. $\frac{FCF_6}{WACC - \text{Sustainable growth rate}}$) and then PV this residual value

3) Add the FCF PVs and the residual value PV to get total Firm Value

4) Subtract PV of debt and add Cash on the B/S to Firm Value to determine shareholder’s Equity Value

5) Divide Equity Value by number of common shares outstanding to calculate Value Per Share.
## Valuing Equity (Model 3) Discounted FCF Model Example

<table>
<thead>
<tr>
<th></th>
<th>Actual (in millions US$)</th>
<th>Projected</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FREE CASH FLOWS AND TERMINAL VALUE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EBIT</td>
<td>$314</td>
<td>$1,078</td>
</tr>
<tr>
<td>Tax Rate</td>
<td>30.00%</td>
<td>30.00%</td>
</tr>
<tr>
<td>EBIT (1-t)</td>
<td>$220</td>
<td>$755</td>
</tr>
<tr>
<td>+ Depreciation</td>
<td>$87</td>
<td>$87</td>
</tr>
<tr>
<td>- Capital Expenditures</td>
<td>$18</td>
<td>$53</td>
</tr>
<tr>
<td>- Change in WC</td>
<td>$(224)</td>
<td>$293</td>
</tr>
<tr>
<td>= FCF</td>
<td>$513</td>
<td>$496</td>
</tr>
<tr>
<td>Terminal Value (in '15)</td>
<td></td>
<td></td>
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</tbody>
</table>

### COSTS OF EQUITY AND CAPITAL

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of Equity</td>
<td>10.73%</td>
<td>10.73%</td>
<td>10.73%</td>
<td>10.73%</td>
<td>10.73%</td>
</tr>
<tr>
<td>Proportion of Equity</td>
<td>90.73%</td>
<td>90.73%</td>
<td>90.73%</td>
<td>90.73%</td>
<td>90.73%</td>
</tr>
<tr>
<td>After-tax Cost of Debt</td>
<td>3.23%</td>
<td>3.23%</td>
<td>3.23%</td>
<td>3.23%</td>
<td>3.23%</td>
</tr>
<tr>
<td>Proportion of Debt</td>
<td>9.27%</td>
<td>9.27%</td>
<td>9.27%</td>
<td>9.27%</td>
<td>9.27%</td>
</tr>
<tr>
<td>Cost of Capital</td>
<td>10.03%</td>
<td>10.03%</td>
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<tr>
<td>Present Value FCF</td>
<td>$513</td>
<td>$451</td>
<td>$647</td>
<td>$617</td>
<td>$466</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$8,563</td>
<td></td>
<td></td>
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</tr>
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### Equity Valuation

- Value of Firm | $10,744 |
- Value of Debt | $746 |
- Cash from B/S | $200 |
- Value of Equity | $10,198 |
- Number of Shares (millions) | 200 |

Value of Equity per Share | $50.99 |

FCF is discounted at WACC
Valuing Equity (Method 3)
Discounted FCF Model

● Advantages
  ● Theoretically strong model, incorporates future growth projections, FCF, TVM and Risk-adjustments.

● Problems using a FCF Model to value venture businesses:
  • Large Capex to fuel a venture’s future growth make FCF artificially low. To compensate for this some analysts will remove the growth portion of Capex from their FCF calculation.
  • What is the appropriate constant growth rate?? Ventures may be growing at high, unsustainable rates in early years so current growth rates may over-value the venture.
Valuing Equity (Method 4)
Pro Forma Valuation

- The biggest problem in valuing new ventures is they often generate minimal current sales, earnings or cash flow to value. The company’s potential value is in the future.

- One method of estimating future value is to create pro forma financial statements to project what the company will look like after it achieves rapid grow in sales and realizes cost benefits of scaled operations.

- Based on EBITDA, Earnings or FCF projections 4-7 years from now, we can get a better idea of the company’s value as a mature enterprise.
Valuing Equity (Method 4)
Pro Forma Valuation Steps

- Using projections for sales growth, margins, asset size, etc, create pro forma financial statements for the period until the firm has reached a relatively constant state of growth and profitability.
- Use valuation methods (P/E, EBITDA multiple, FCF, etc.) to estimate the future value of the equity or enterprise.
- Discount the FV of the equity or enterprise to its PV.
Valuing Equity (Method 4)
Pro Forma Valuation Issues

- What is an appropriate discount rate to PV the pro forma FV of the company and dividends??
  - Because these are purely projections, the venture firm’s future profitability is a very risky cash flow. Accordingly discount rates from 20% to 50% are not uncommon. The exact discount rate used would be based on how confident investors are the projections are reasonable.

- What are the appropriate EBITDA and Earnings multiples to value the future pro forma company??
  - The high discount rate to PV the FV of the firm incorporates the risk of realizing the venture’s potential. Therefore, when valuing the pro forma company, using industry comps for traded companies is arguably OK. Using an extremely conservative EBITDA multiple, for example, and a high discount rate would potentially double count the risk.
Adjusting Valuation for Equity Investments

- **Pre-Money Valuation:** present value of a venture prior to new money investment

- **Post-Money Valuation:** pre-money valuation of venture + money injected by new investors

<table>
<thead>
<tr>
<th></th>
<th>Pre-Money Valuation</th>
<th>Equity Investment</th>
<th>Post-Money Valuation</th>
<th>Percentage of Company Sold</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Example: Selling $25 million of Equity</strong></td>
<td>100</td>
<td>25</td>
<td>125</td>
<td>20%</td>
</tr>
<tr>
<td><strong>(Equity Investment / Post-Money Valuation)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Issues in Valuing new Venture Companies

- Lack historical track record and financial information
- Handling low profitability and cash flow resulting from high Capex and lumpy investment requirements, yet to be realized scale advantages and sales growth
- “Beauty is the eye of the beholder”, ultimately a venture is worth what an investor will pay
- Market conditions have a major impact – in periods of low liquidity there is often no bid for startup ventures
- Valuation in acquisition scenario