The Integrated Theory of Business Valuation

2nd International OIV Conference on Business Valuation
Milan, Italy
Z. Christopher Mercer, ASA, CFA, ABAR
MERCER CAPITAL
DCF and the Very Basics of Value

» The Value of a Business today is …
Grapes of Value

Organizing Principles of Business Valuation

G  Growth
R  Risk & Reward
A  Alternative Investments
P  Present Value
E  Expectations
S  Sanity, Rationality, and Consistency
The Basic DCF Model

\[
\text{Value} = V_0 = \left( \frac{CF_1}{(1+r)^1} + \frac{CF_2}{(1+r)^2} + \frac{CF_3}{(1+r)^3} + \frac{CF_4}{(1+r)^4} + \ldots + \frac{CF_n}{(1+r)^n} \right)
\]

Equation 1.1 // p. 2
The Integrated Theory of Business Valuation

The Starting Point for the Integrated Theory

\[ V_o = \frac{CF_1}{r - g} \]

Key Assumptions

» The cash flows are expected to grow at the constant rate of \( g \), and

» All cash flows are either distributed to shareholders or reinvested in the firm at the discount rate, \( g \)
The Integrated Theory of Business Valuation

The Starting Point for the Integrated Theory


Exhibit 3.1 // p. 64
Marketable Minority Interest Level of Value

\[ V_{mm} = \frac{CF_{e(mm)}}{R_{mm} - G_{mm}} \]

Equation 3.2 // p. 65
<table>
<thead>
<tr>
<th></th>
<th>Conceptual Math</th>
<th>Relationships</th>
<th>Value Implications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marketable Minority Value</td>
<td>$\frac{C_{Fe(mm)}}{R_{mm} - G_{mm}}$</td>
<td>$G_v = R_{mm} - \text{Div Yld}$</td>
<td>$V_{mm}$ is the benchmark for the other levels</td>
</tr>
</tbody>
</table>

Marketable Minority Interest Level of Value

Exhibit 3.2 // p. 67
Control Levels of Value

» Financial Control

» Strategic Control


Financial Control Level of Value

The Levels of Value

**Traditional**
- Control Value
  - Control Premium
  - Minority Interest
  - Marketable Minority Value
  - Marketability Discount
  - Nonmarketable Minority Value

**Expanded**
- Strategic Control Value
  - Strategic Control Premium
- Financial Control Value
  - Financial Control Premium (FCP)
  - Minority Interest Discount (MID)
- Marketable Minority Value
  - Marketability Discount
- Nonmarketable Minority Value

Exhibit 3.3 / p. 71
# Financial Control Level of Value

## Conceptual Math

<table>
<thead>
<tr>
<th>Financial Control Value</th>
<th>Marketable Minority Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\frac{CF_{e(c,f)}}{R_f - [G_{mm} + G_f]}$</td>
<td>$\frac{CF_{e(mm)}}{R_{mm} - G_{mm}}$</td>
</tr>
</tbody>
</table>

## Relationships

| | $CF_{e(c,f)} \geq CF_{e(mm)}$ | $G_f \geq 0$ | $R_f = R_{mm}$ (+/- a little) |
| | | | |

## Value Implications

| | $V_{e(c,f)} \geq V_{mm}$ | $V_{mm}$ is the benchmark for the other levels |
| | | | |

Exhibit 3.4 / p. 75
Financial Control Premium

\[ CP_f = \frac{V_{e(c,f)} - V_{e(mm)}}{V_{e(mm)}} \]


Nath’s observation was that, given the relatively low number of acquisitions in any year relative to total number of public companies, the difference, in most instances, must be zero (or not large enough to warrant the interest of financial buyers). This suggests that public market pricing could reflect both marketable minority and financial control pricing. There is a growing consensus among appraisers that there is a difference between financial and strategic control values, and a growing recognition that, to the extent they exist, financial control premiums are likely small.
Prerogatives of Control

» Appoint or change operational management
» Appoint or change members of the board of directors
» Determine management compensation and perquisites
» Set operational and strategic policy and change the course of the business
» Acquire, lease, or liquidate business assets, including plant, property, and equipment
» Select suppliers, vendors, and subcontractors with whom to do business and award contracts
» Negotiate and consummate mergers and acquisitions
» Liquidate, dissolve, sell out, or recapitalize the company
» Sell or acquire treasury shares
» Register the company’s equity securities for an initial or secondary public offering
» Register the company’s debt securities for an initial or secondary public offering

\[ CP_f = \frac{V_{e(c,f)} - V_{e(mm)}}{V_{e(mm)}} \]
Minority Interest Discount (Discount for Lack of Control)

» Minority shareholders of public companies lack control (vested in management and boards of directors)

» But marketable minority and financial control values tend to be approximately same (Nath, Mercer)

» No (or very little discount) for the lack of control in public pricing

» All cash flows of publics are distributed or reinvested and share prices are not diminished because of lack of control

» Minority shareholders of public companies can sell shares and receive present value of all expected future cash flows

» Public securities markets appear to eliminate any discount for lack of control
Minority Interest Discount
(Discount for Lack of Control)

\[
MID_F = \left( 1 - \frac{V_{mm}}{V_{e(c,f)}} \right)
\]
Strategic Control Level of Value

The Levels of Value

### Traditional
- Control Value
  - Control Premium
  - Minority Interest Discount
- Marketable Minority Value
  - Marketability Discount
- Nonmarketable Minority Value

### Expanded
- Strategic Control Value
  - Strategic Control Premium
  - Financial Control Value
  - FCP
  - MID
- Marketable Minority Value
  - Marketability Discount
- Nonmarketable Minority Value
Strategic Control Level of Value

\[ V_{e(c,s)} = \frac{C_{Fe(c,s)}}{[R_s - (G_{mm} + G_s)]} \]
Strategic Control Level of Value

Strategic Control Value > Financial Control Value if:

» CFF\textsubscript{e(c,s)} is greater than CF\textsubscript{e(c,f)}
» G\textsubscript{s} is greater than zero
» R\textsubscript{s} is less than R\textsubscript{f}
Strategic Control Level of Value

Strategic Control Premium

\[ CP_s = \frac{V_{e(c,s)} - V_{e(mm)}}{V_{e(mm)}} \]

Equation 3.7 / p. 86
Strategic Control Level of Value

Strategic Premiums should exist if:

» The strategic buyer expects to be able to enhance cash flows from the normalized, marketable minority level

» The strategic buyer is willing to accept a lower return than that available at the marketable minority level

» There is a single, motivated strategic buyer who is willing to share the expected synergistic or strategic benefits with seller

» There are multiple strategic buyers who will compete in a bidding process

» Elements of motivation or irrationality enter into the bidding process
Strategic Control Level of Value

Strategic Insight

» Which \( r \) do acquirers typically use?
  - Their own or of acquired enterprise

» Newly acquired CF typically riskier than core?

» If use own discount rates, may overpay, even highly
## Strategic Control Level of Value

<table>
<thead>
<tr>
<th>Strategic Control Value</th>
<th>Conceptual Math</th>
<th>Relationships</th>
<th>Value Implications</th>
</tr>
</thead>
<tbody>
<tr>
<td>R_S = [G_mm + G_s]</td>
<td>CF_e(c,s)</td>
<td>CF_e(c,s) ≥ CF_e(c,f)</td>
<td>V_o(c,s) ≥ V_o(c,f)</td>
</tr>
<tr>
<td>Financial Control Value</td>
<td>CF_e(c,f)</td>
<td>CF_e(c,f) ≥ CF_e(mm)</td>
<td>V_e(c,f) ≥ V_mm</td>
</tr>
<tr>
<td>R_f = [G_mm + G_f]</td>
<td>CF_e(c,f)</td>
<td>G_f ≥ 0</td>
<td>V_e(c,f) ≥ V_mm</td>
</tr>
<tr>
<td>Marketable Minority Value</td>
<td>CF_e(mm)</td>
<td>G_v = R_mm - Div Yld</td>
<td>V_mm is the benchmark for the other levels</td>
</tr>
<tr>
<td>R_mm - G_mm</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Enterprise vs. Shareholder Levels of Value

Enterprise Levels
Value is a function of the Expected Cash Flows to equity of the Enterprise (as capitalized by the public markets or controlling buyers)

Shareholder Level
Value is a function of the Cash Flows expected by Shareholders from their Interests in the Enterprise (which are derived from the cash flows of the Enterprise, but may not be the same)
Enterprise vs. Shareholder Levels of Value

Shareholder Level Values Typically Lower:

- \( CF_s \leq CF_e \) (typically less)
- Risks of shareholder of interest intuitively exceeding those of enterprise
- The “change” to value that investors require is the marketability discount
- Other things equal
  
  If one investment has lower cash flows and higher risks than another, its value will be lower
Nonmarketable Minority Level of Value

\[ R_{hp} = R_{mm} + HPP \]
Nonmarketable Minority Level of Value

\[ V_{sh} = \frac{CF_{sh}}{R_{hp} - G_{v}} \]

\[ V_{sh} = \left[ \frac{CF_{sh,1}}{(1+R_{ho})^1} + \frac{CF_{sh,2}}{(1+R_{ho})^2} + \frac{CF_{sh,3}}{(1+R_{ho})^3} + \ldots + \frac{CF_{sh,f}}{(1+R_{ho})^f} \right] + \left[ \frac{CF_{a,f+1}}{R_{mm} - G_{a}} \right] \]

Equation 3.8 / p. 90
Nonmarketable Minority Level of Value

Expected Growth Rate in Value \( (G_v) \)
Function of:

» Dividend policy (and reinvestment rate)
» Actual expectations for reinvestment
» Agency costs
Nonmarketable Minority Level of Value

\[ \text{MD} \quad = \quad 1 - \frac{V_{sh}}{V_{mm}} \]
## Nonmarketable Minority Level of Value

<table>
<thead>
<tr>
<th>Conceptual Math</th>
<th>Relationships</th>
<th>Value Implications</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \frac{C_{Fe(mm)}}{R_{mm} - G_{mm}} )</td>
<td>( G_v = R_{mm} - \text{Div Yld} )</td>
<td>( V_{mm} ) is the benchmark for the other levels</td>
</tr>
<tr>
<td>( \frac{C_{Fs_h}}{R_{hp} - G_v} )</td>
<td>( C_{Fs_h} \leq C_{Fe(mm)} ) ( G_v \leq R_{mm} - \text{Div Yld} ) ( R_{hp} \geq R_{mm} )</td>
<td>( V_{sh} \leq V_{mm} )</td>
</tr>
</tbody>
</table>

---

Exhibit 3.8 / p. 92
The Integrated Theory of Business Valuation

<table>
<thead>
<tr>
<th>Conceptual Math</th>
<th>Relationships</th>
<th>Value Implications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strategic Control Value</strong></td>
<td>( \frac{CF_{e(c,s)}}{R_s - [G_{mm} + G_s]} )</td>
<td>( CF_{e(c,s)} \geq CF_{e(c,f)} ) ( G_s \geq 0 ) ( R_s \leq R_{mm} )</td>
</tr>
<tr>
<td><strong>Financial Control Value</strong></td>
<td>( \frac{CF_{e(c,f)}}{R_f - [G_{mm} + G_f]} )</td>
<td>( CF_{e(c,f)} \geq CF_{e(mm)} ) ( G_f \geq 0 ) ( R_f = R_{mm} (+/- \text{ a little}) )</td>
</tr>
<tr>
<td><strong>Marketable Minority Value</strong></td>
<td>( \frac{CF_{e(mm)}}{R_{mm} - G_{mm}} )</td>
<td>( G_v = R_{mm} - \text{Div Yld} )</td>
</tr>
<tr>
<td><strong>Nonmarketable Minority Value</strong></td>
<td>( \frac{CF_{sh}}{R_{hp} - G_v} )</td>
<td>( CF_{sh} \leq CF_{e(mm)} ) ( G_v \leq R_{mm} - \text{Div Yld} ) ( R_{hp} \geq R_{mm} )</td>
</tr>
</tbody>
</table>
Relevant Valuation Issues in Light of the Integrated Theory
Normalizing Adjustments

» **Type 1 Normalizing Adjustments.** These adjustments eliminate one-time gains or losses, other unusual items, discontinued business operations, expenses of non-operating assets, and the like. Every appraiser employs such income statement adjustments in the process of adjusting (normalizing) historical income statements. Regardless of the name given to them, there is virtually universal acceptance that Type 1 Normalizing Adjustments are appropriate

» **Type 2 Normalizing Adjustments.** These adjustments normalize officer/owner compensation and other discretionary expenses that would not exist in a reasonably well-run, publicly traded company. Type 2 Normalizing Adjustments should not be confused with control adjustments or Type 1 Normalizing Adjustments
Normalizing Adjustments

» Normalizing adjustments are made to develop enterprise values even if valuing a minority interest
  - Normalize to a “well-run publicly traded equivalent” level of earnings
    » Non-recurring items, of course
    » Normal, or market salaries
    » Normalize for unusual owner expenses (agency costs)
  - Develop value at the marketable minority/financial control level of value

» Value the illiquid minority interest in light of its expected cash flows, risks and growth in light of the marketable minority value
  - Hint – the difference is the Marketability Discount
## ABC, Inc. Normalizing Adjustments

<table>
<thead>
<tr>
<th>Non-Recurring Items</th>
<th>Public Equivalent</th>
<th>Normalized</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sales</strong></td>
<td>$10,000</td>
<td>$0</td>
</tr>
<tr>
<td><strong>COGS</strong></td>
<td>$5,800</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Gross Profit</strong></td>
<td>$4,200</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Litigation Settlement</strong></td>
<td>$200</td>
<td>($200)</td>
</tr>
<tr>
<td><strong>Selling (Cousin Joe)</strong></td>
<td>$800</td>
<td>$0</td>
</tr>
<tr>
<td><strong>G&amp;A (Cousin Al)</strong></td>
<td>$1,800</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Owner Comp (Big Daddy)</strong></td>
<td>$900</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Chalet (Big Daddy's Vacation Home)</strong></td>
<td>$200</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$3,900</td>
<td>($200)</td>
</tr>
</tbody>
</table>

### Operating Profit
- **Reported**: $300
- **Normalized**: $1,500

### Operating Margin
- **(No debt)**: 3.0%
- **Normalized**: 15.0%
Control Adjustments

» Financial Control Adjustments
  - Might be considered by typical financial buyer

» Strategic Control Adjustments
  - Might be considered by typical strategic or synergistic buyer
Control Adjustments

Nature of Control Premiums

» Are typical buyers financial buyers?
» Are typical buyers strategic buyers?
» What accounts for control premiums?
Control Adjustments

Control Premiums: Valuation Results, Not Drivers

\[
CV = MMV \times (1 + CP)
\]

\[
CV = (\text{Earnings}_n \times M) \times (1 + CP)
\]

\[
CV = \text{Earnings}_c \times M
\]

\[
(\text{Earnings}_n \times M) \times (1 + CP) = \text{Earnings}_c \times M
\]

\[
\text{Earnings}_n \times (1 + CP) = \text{Earnings}_c
\]
Fundamental Adjustments to Market Capitalization Rates

\[ V = \frac{CF}{r - g} \]

Fundamental Adjustments Relate to:

» Risk Differentials (relative to publics)
» Expected Growth Differentials (relative to publics)
## Fundamental Adjustments

**Compare Publico with Privateco**

**Derive Publico Discount Rate and Adjust for Privateco**

<table>
<thead>
<tr>
<th>Line</th>
<th>Capitalization Rate Components</th>
<th>Publico</th>
<th>Privateco</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Base Discount Rate ($R$)</td>
<td>15.5%</td>
<td>15.5%</td>
</tr>
<tr>
<td>2</td>
<td>Specific Company Risk (SCR)</td>
<td>0.0%</td>
<td>2.0%</td>
</tr>
<tr>
<td>3</td>
<td>Equity Discount Rate ($R$)</td>
<td>15.5%</td>
<td>17.5%</td>
</tr>
<tr>
<td>4</td>
<td>Expected Growth ($G_e$)</td>
<td>-9.6%</td>
<td>-7.0%</td>
</tr>
<tr>
<td>5</td>
<td>Capitalization Rate ($R - G_e$)</td>
<td>5.9%</td>
<td>10.5%</td>
</tr>
<tr>
<td>6</td>
<td>P/E Multiple $1 / (R - G_e)$</td>
<td>17.0</td>
<td>9.5</td>
</tr>
<tr>
<td>7</td>
<td>Effective Fundamental Adjustment</td>
<td>-44.0%</td>
<td></td>
</tr>
</tbody>
</table>

*Observed Multiple*

Derived for Publico
Greater risks
Slower growth expectations
Lower implied P/E for Privateco

Exhibit 5.1 / p. 136
## Fundamental Adjustments

### Determine a Fundamental Adjustment

Use the ACAPM to Narrow the Range of Judgment

Privateco in Relationship to Guideline Company Group

<table>
<thead>
<tr>
<th>Line</th>
<th>Subject Company Analysis</th>
<th>Medians for Public Group</th>
<th>Privateco ACAPM Build-up</th>
<th>GROWTH = Public</th>
<th>RISK = Public</th>
<th>GROWTH = Privateco</th>
<th>RISK = Privateco</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Long-Term Government Bond Yield-to-Maturity</td>
<td>4.9%</td>
<td>4.9%</td>
<td>4.9%</td>
<td>4.9%</td>
<td>4.9%</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>+ Total Equity Premium (Line 6 from Exhibit 5.2)</td>
<td>10.6%</td>
<td>10.6%</td>
<td>10.6%</td>
<td>10.6%</td>
<td>10.6%</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>+ Specific Company Risk Premium</td>
<td><strong>0.0%</strong></td>
<td><strong>2.0%</strong></td>
<td><strong>2.0%</strong></td>
<td><strong>0.0%</strong></td>
<td><strong>2.0%</strong></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>= Discount Rate (required rate of return)</td>
<td>15.5%</td>
<td>17.5%</td>
<td>17.5%</td>
<td>15.5%</td>
<td>17.5%</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>- Growth Rate Estimates</td>
<td><strong>-9.6%</strong></td>
<td><strong>-7.0%</strong></td>
<td><strong>-9.6%</strong></td>
<td><strong>-7.0%</strong></td>
<td><strong>-7.0%</strong></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>= Implied Capitalization Rates</td>
<td>5.9%</td>
<td>10.5%</td>
<td>7.9%</td>
<td>8.5%</td>
<td>10.5%</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Implied P/E Multiples</td>
<td>17.0</td>
<td>9.5</td>
<td>12.7</td>
<td>11.8</td>
<td>9.5</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td><strong>Implied Adjustment from Guideline Median P/E</strong></td>
<td>na</td>
<td></td>
<td><strong>-25.4%</strong></td>
<td><strong>-30.8%</strong></td>
<td><strong>-44.0%</strong></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td><strong>Step 4: Selected Fundamental Adjustment</strong></td>
<td></td>
<td></td>
<td><strong>-35.0%</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Exhibit 5.3 / p. 138
Fundamental Adjustments for Total Capital Methods

- \( \text{FATC} = \text{FAE} \times \text{AF} \)
- \( \text{AF} = \left( \frac{\text{MVE}}{\text{MVSC}} \right) \)
Impact of Fundamental Adjustment on Marketable Minority Level of Value

Impact of Fundamental Adjustment on Marketable Minority Level of Value

Strategic Control Value

Strategic Premium

Control Value

Financial Premium

Marketable Minority Conclusion (Adjusted)

Positive Fundamental Adjustment

Marketable Minority Indication (Unadjusted)

Negative Fundamental Adjustment

Marketability Discount

Nonmarketable Minority

Exhibit 5.6 / p. 143
Analysts “price” a private company by selected appropriate multiples based on fundamental comparisons with the guideline information – here at the median.

Fundamental Adjustments to Market Capitalization Rates

Median Pricing

<table>
<thead>
<tr>
<th>Multiples</th>
<th>Control Value</th>
<th>As-If-Freely-Tradable</th>
<th>Nonmarketable Minority</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Company 1  High Control Value
Company 2
Company 3  Median
Company 4
Company 5  Low Nonmarketable Minority

Exhibit 5.7 / p. 144
Influence of Fundamental Adjustment on the Various Levels of Value

Exhibit 5.11 / p. 146
## The Integrated Theory of Business Valuation

<table>
<thead>
<tr>
<th>Strategic Control Value</th>
<th>Conceptual Math</th>
<th>Relationships</th>
<th>Value Implications</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\frac{CF_{e(c,s)}}{R_s - [G_{mm} + G_s]}$</td>
<td>$CF_{e(c,s)} \geq CF_{e(c,f)}$</td>
<td>$V_{e(c,s)} \geq V_{e(c,f)}$</td>
<td></td>
</tr>
<tr>
<td>$G_s \geq 0$</td>
<td>$R_s \leq R_{mm}$</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Financial Control Value</th>
<th>Conceptual Math</th>
<th>Relationships</th>
<th>Value Implications</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\frac{CF_{e(c,f)}}{R_f - [G_{mm} + G_f]}$</td>
<td>$CF_{e(c,f)} \geq CF_{e(mm)}$</td>
<td>$V_{e(c,f)} \geq V_{mm}$</td>
<td></td>
</tr>
<tr>
<td>$G_f \geq 0$</td>
<td>$R_f = R_{mm}$ (+/- a little)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Marketable Minority Value</th>
<th>Conceptual Math</th>
<th>Relationships</th>
<th>Value Implications</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\frac{CF_{e(mm)}}{R_{mm} - G_{mm}}$</td>
<td>$G_v = R_{mm} - \text{Div Yld}$</td>
<td>$V_{mm}$ is the benchmark for the other levels</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nonmarketable Minority Value</th>
<th>Conceptual Math</th>
<th>Relationships</th>
<th>Value Implications</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\frac{CF_{sh}}{R_{hp} - G_v}$</td>
<td>$CF_{sh} \leq CF_{e(mm)}$</td>
<td>$V_{sh} \leq V_{mm}$</td>
<td></td>
</tr>
<tr>
<td>$G_v \leq R_{mm} - \text{Div Yld}$</td>
<td>$R_{hp} \geq R_{mm}$</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Understanding the QMDM

» The QMDM is a shareholder-level discounted cash flow model consistent with the Integrated Theory

- It is inextricably linked to the enterprise valuation, since the shareholder cash flows are derived from (alternatively, are a subset of) the enterprise cash flows

- The value of any business is a function of its expected cash flows, risks, and expected growth

- The value of an interest in a business is a function of its expected cash flows (derived from the enterprise cash flows), risks (in addition to those of the enterprise), and expected growth (in the value of the enterprise)
Challenges

What are the three most important elements of an income approach to valuing nonmarketable minority interests?

1. 
2. 
3. 

Hint: Think in terms of DCF
The QMDM is a Shareholder Level DCF

<table>
<thead>
<tr>
<th>Enterprise Level DCF Assumptions</th>
<th>Shareholder Level DCF (QMDM) Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Forecast Period</td>
<td>1. Range of Expected Holding Periods</td>
</tr>
<tr>
<td>2. Projected Interim Cash Flows (during forecast period)</td>
<td>2a. Expected Distribution / Dividend Yield</td>
</tr>
<tr>
<td></td>
<td>2b. Expected Growth in Distributions / Dividends</td>
</tr>
<tr>
<td></td>
<td>2c. Timing (Mid-Year or End of Year)</td>
</tr>
<tr>
<td>3. Projected Terminal Value (at end of forecast period)</td>
<td>3a. Growth in Value over Holding Period</td>
</tr>
<tr>
<td></td>
<td>3b. Premium or Discount to Projected Enterprise Value</td>
</tr>
<tr>
<td>4. Discount Rate</td>
<td>4. Range of Required Holding Period Returns</td>
</tr>
</tbody>
</table>
## Components of Marketability Discounts

<table>
<thead>
<tr>
<th>1. Expected Holding Period</th>
<th>Years</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2a. Expected Distribution / Dividend Yield</td>
<td>Yield</td>
<td>10.0%</td>
<td>10.0%</td>
<td>10.0%</td>
<td>10.0%</td>
</tr>
<tr>
<td>2b. Expected Growth in Distribution / Div. Yield</td>
<td>Growth</td>
<td>6.0%</td>
<td>5.0%</td>
<td>6.0%</td>
<td>5.0%</td>
</tr>
<tr>
<td>2c. Timing (Mid-Year or End of Year)</td>
<td>Timing</td>
<td>E</td>
<td>E</td>
<td>E</td>
<td>E</td>
</tr>
<tr>
<td>3a. Growth in Value over Holding Period</td>
<td>$G_v$</td>
<td>6.0%</td>
<td>5.0%</td>
<td>6.0%</td>
<td>5.0%</td>
</tr>
<tr>
<td>3b. Premium or Discount to Marketable Value</td>
<td>Prem/Disc.</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>4. Required Holding Period Returns</td>
<td>Low</td>
<td>16.0%</td>
<td>16.0%</td>
<td>20.0%</td>
<td>20.0%</td>
</tr>
</tbody>
</table>

### Marketability Discount

- **(1)** Enterprise Value (Figure 7-6)
- **(2)** Suboptimal Reinvestment Only (Figure 7-7)
- **(3)** Incremental Risk Only (Figure 7-8)
- **(4)** Suboptimal Reinvestment and Incremental Risk (Figure 7-5)
Marketability Discounts: Controlling Interests

Hypothetical Level of Value for “Freely Tradable Controlling Interests”

- "Freely Tradable" Value of Entire Public Companies: Not Observable
- Controlling Interest Value: Observable when Public Companies are sold. What we observe is net of any "marketability discount"
- Freely Tradable Pricing ( Marketable Minority): Inferred from observable control sale price and unaffected freely tradable price (net of any "marketability" considerations)
- Control Premium: Observable in the public securities markets

Not derivable from available data
Marketability Discounts

<table>
<thead>
<tr>
<th>Base Value?</th>
<th>Not Observable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategic Control</td>
<td>Observable when public companies sell (&quot;net value observed&quot;)</td>
</tr>
<tr>
<td>Financial Control</td>
<td>Observable in public securities markets</td>
</tr>
<tr>
<td>Marketable Minority</td>
<td></td>
</tr>
</tbody>
</table>

Strategic Control Premium
Marketability Discounts Conclusion

» Marketability discount (DLOM)

- The largest valuation discount
- Consider how methods employed treat the “factors influencing marketability”
- Consider the implied rate of return based on any marketability discount conclusion

» Marketability discount for controlling interests

- A discount of “convenience” until someone shows otherwise with credibility
Last Look: The Integrated Theory of Business Valuation

| Strategic Control Value | Conceptual Math: $\frac{CF_{e(c,s)}}{R_s - [G_{mm} + G_s]}$ | Relationships: $CF_{e(c,s)} \geq CF_{e(c,f)}$  
$G_s \geq 0$  
$R_s \leq R_{mm}$ | Value Implications: $V_{e(c,s)} \geq V_{e(c,f)}$ |
|------------------------|-------------------------------------------------|-----------------------------------------------------------------|-------------------------------------------------|
| Financial Control Value | Conceptual Math: $\frac{CF_{e(c,f)}}{R_f - [G_{mm} + G_f]}$ | Relationships: $CF_{e(c,f)} \geq CF_{e(mm)}$  
$G_f \geq 0$  
$R_f = R_{mm} (+/- \ a \ little)$ | Value Implications: $V_{e(c,f)} \geq V_{mm}$ |
| Marketable Minority Value | Conceptual Math: $\frac{CF_{e(mm)}}{R_{mm} - G_{mm}}$ | Relationships: $G_v = R_{mm} - Div \ Yld$ | Value Implications: $V_{mm}$ is the benchmark for the other levels |
| Nonmarketable Minority Value | Conceptual Math: $\frac{CF_{sh}}{R_{hp} - G_v}$ | Relationships: $CF_{sh} \leq CF_{e(mm)}$  
$G_v \leq R_{mm} - Div \ Yld$  
$R_{hp} \geq R_{mm}$ | Value Implications: $V_{sh} \leq V_{mm}$ |
Last Look: Levels of Value

The Levels of Value

Traditional

Control Value

Marketable Minority Value

Marketability Discount

Nonmarketable Minority Value

Control Premium

Minority Interest Discount

Expanded

Strategic Control Value

Financial Control Value

Marketable Minority Value

Marketability Discount

Nonmarketable Minority Value

Strategic Control Premium

? FCP

MID

Exhibit 3.5 / p. 83
An Integrated Theory of Business Valuation
Z. Christopher Mercer, ASA, CFA, ABAR

MERCER CAPITAL
5100 Poplar Avenue, Suite 2600
Memphis, Tennessee 38119
0011-1-901-685-2120
mercerc@mercercapital.com

www.linkedin.com/in/zchristophermercer
www.mercercapital.com