The Integrated Theory of Business Valuation

2nd International OIV Conference on Business Valuation
Milan, Italy
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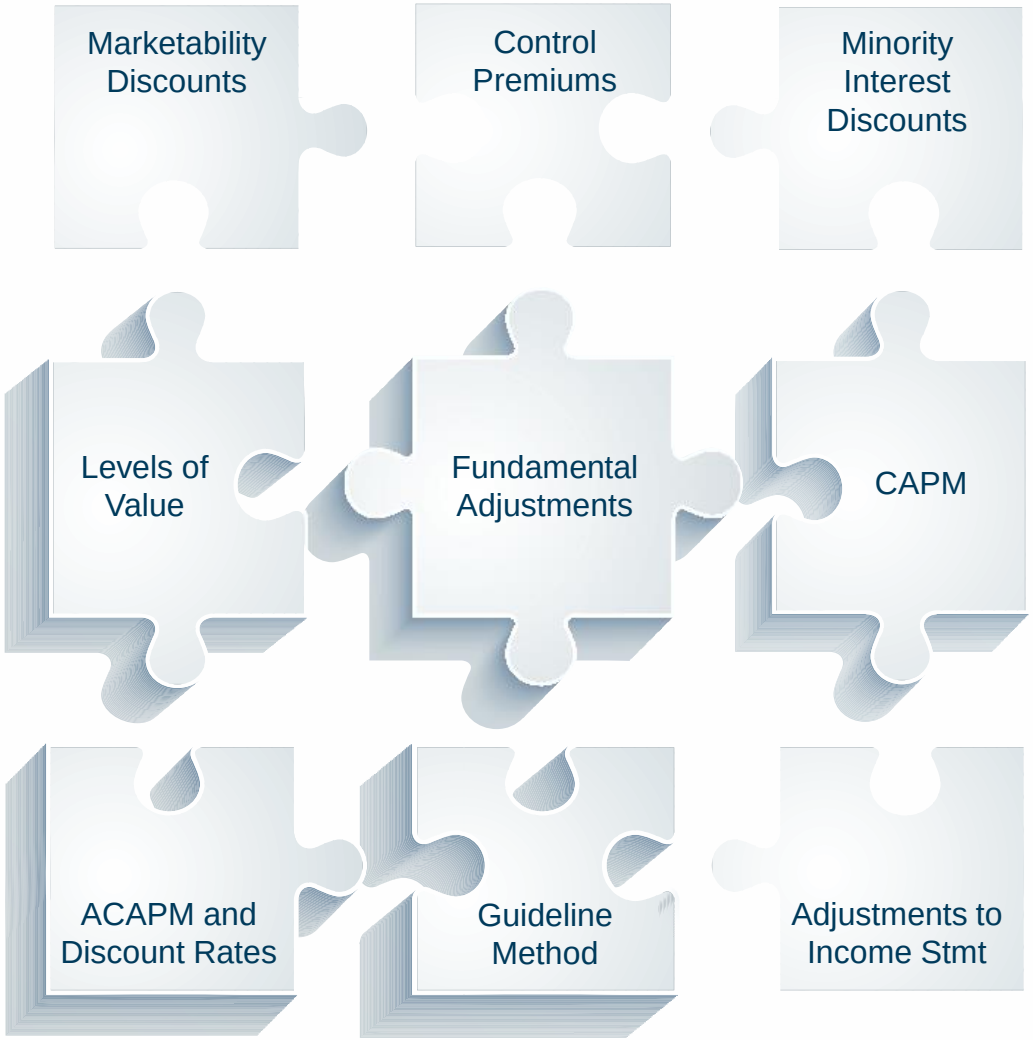
MERCER CAPITAL



So Many Questions

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

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

Equation 1.1 // p. 2

The Integrated Theory of Business Valuation

The Starting Point for the Integrated Theory

$$V_0 = \frac{CF_1}{r - g}$$

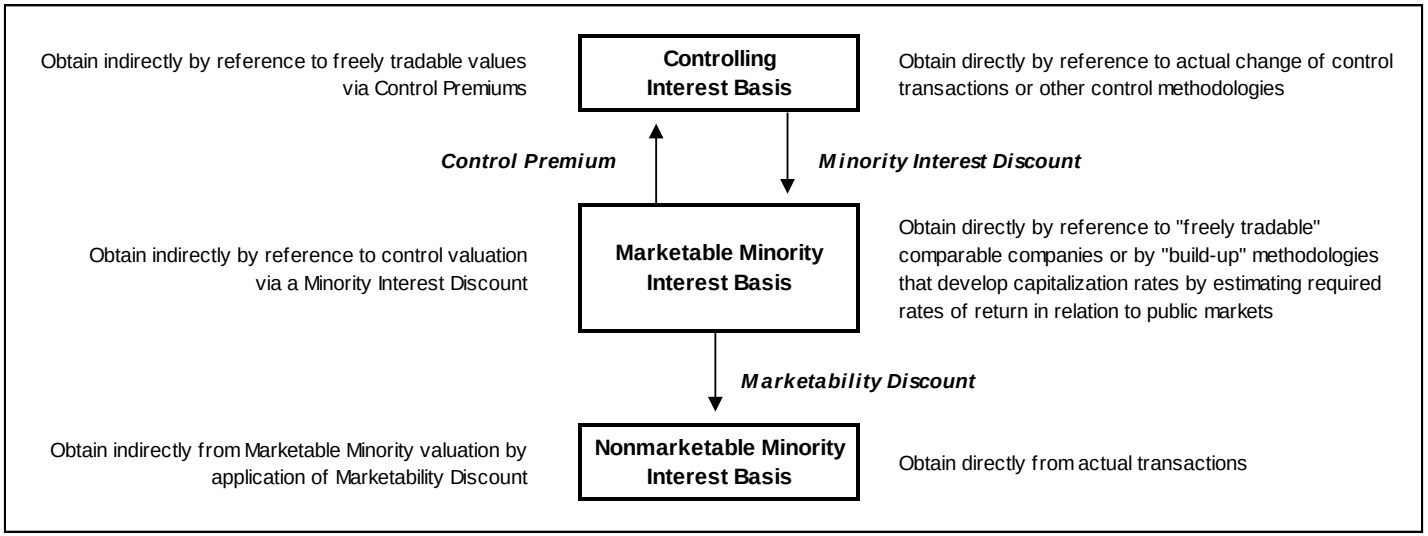
Key Assumptions

- 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*

Equation 3.1 // p. 63

The Integrated Theory of Business Valuation

The Starting Point for the Integrated Theory



Eric W. Nath, "Control Premiums and Minority Interest Discounts in Private Companies," Business Valuation Review, Vol. 9, No. 2 (1990).

Z. Christopher Mercer, "The Adjusted Capital Asset Pricing Model for Developing Capitalization Rates: An Extension of Previous 'Build-Up' Methodologies Based Upon the Capital Asset Pricing Model," Business Valuation Review, Vol. 8, No. 4 (1989): pp. 147–156.

Exhibit 3.1 // p. 64

Marketable Minority Interest Level of Value

$$\mathbf{V_{mm}} = \frac{CF_{e(mm)}}{R_{mm} - G_{mm}}$$

Equation 3.2 // p. 65

Marketable Minority Interest Level of Value

	Conceptual Math	Relationships	Value Implications
Marketable Minority Value	$\frac{CF_{e(mm)}}{R_{mm} - G_{mm}}$	$G_v = R_{mm} - \text{Div Yld}$	V_{mm} is the benchmark for the other levels

Exhibit 3.2 // p. 67

Control Levels of Value

- Financial Control
- Strategic Control

Steven D. Garber, "Control vs. Acquisition Premiums: Is There a Difference?" (Presentation at the American Society of Appraisers International Appraisal Conference, Maui, HI, June 23, 1998).

Z. Christopher Mercer, "A Brief Review of Control Premiums and Minority Interest Discounts," *The Journal of Business Valuation*, (Toronto: Carswell Thomas, 1997), pp. 365–387.

M. Mark Lee, "Premiums and Discounts for the Valuation of Closely Held Companies: The Need for Specific Economic Analysis," *Shannon Pratt's Business Valuation Update*, August 2001.

Financial Control Level of Value

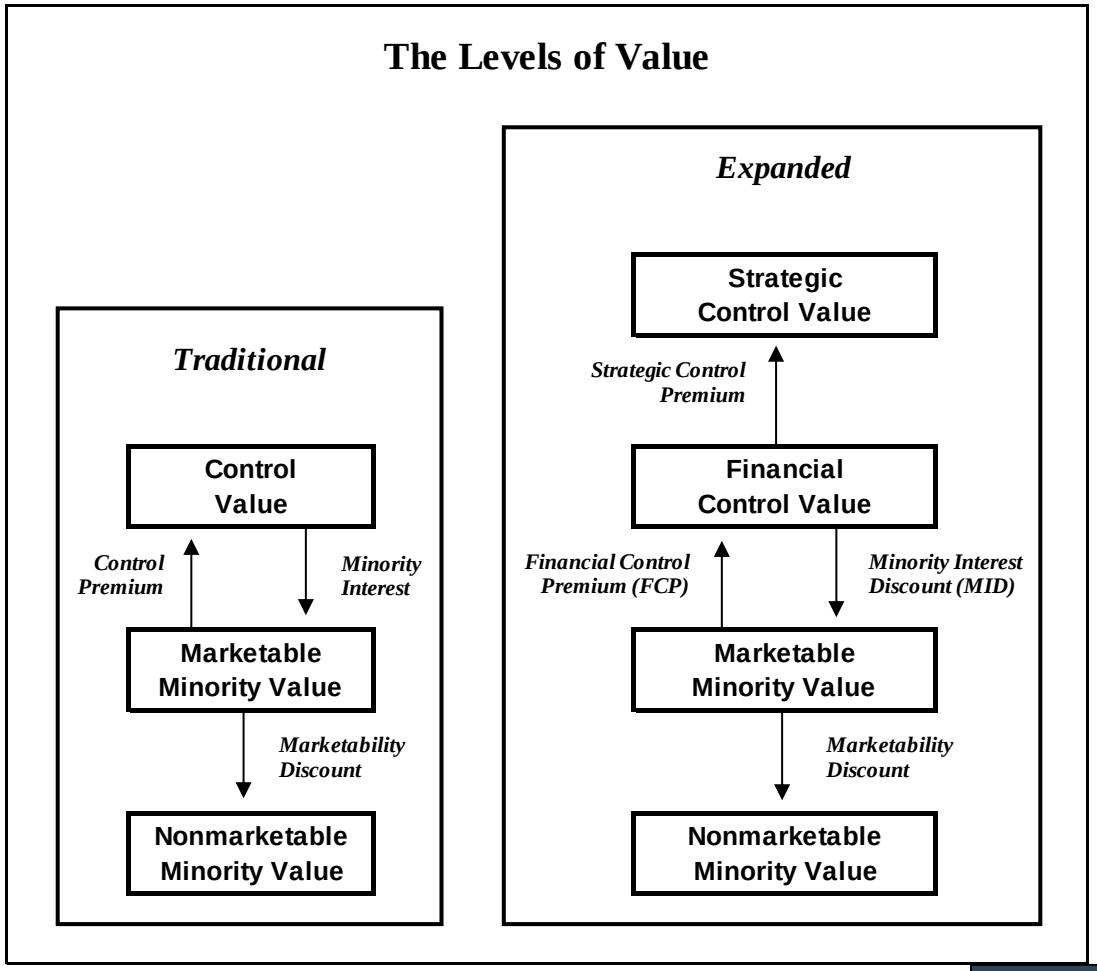


Exhibit 3.3 / p. 71

Financial Control Level of Value

	Conceptual Math	Relationships	Value Implications
Financial Control Value	$\frac{CF_{e(c,f)}}{R_f - [G_{mm} + G_f]}$	$CF_{e(c,f)} \geq CF_{e(mm)}$ $G_f \geq 0$ $R_f = R_{mm}$ (+/- a little)	$V_{e(c,f)} \geq V_{mm}$
Marketable Minority Value	$\frac{CF_{e(mm)}}{R_{mm} - G_{mm}}$	$G_v = R_{mm}$ - Div Yld	V_{mm} is the benchmark for the other levels

Exhibit 3.4 / p. 75

Financial Control Premium

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

Eric W. Nath, "Control Premiums and Minority Interest Discounts in Private Companies," Business Valuation Review, Vol. 9, No. 2 (1990): pp. 39–46.

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.

Equation 3.4 / p. 76

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)

$$MID_F = \left(1 - \frac{V_{mm}}{V_{e(c,f)}}\right)$$

Equation 3.5 / p. 82

Strategic Control Level of Value

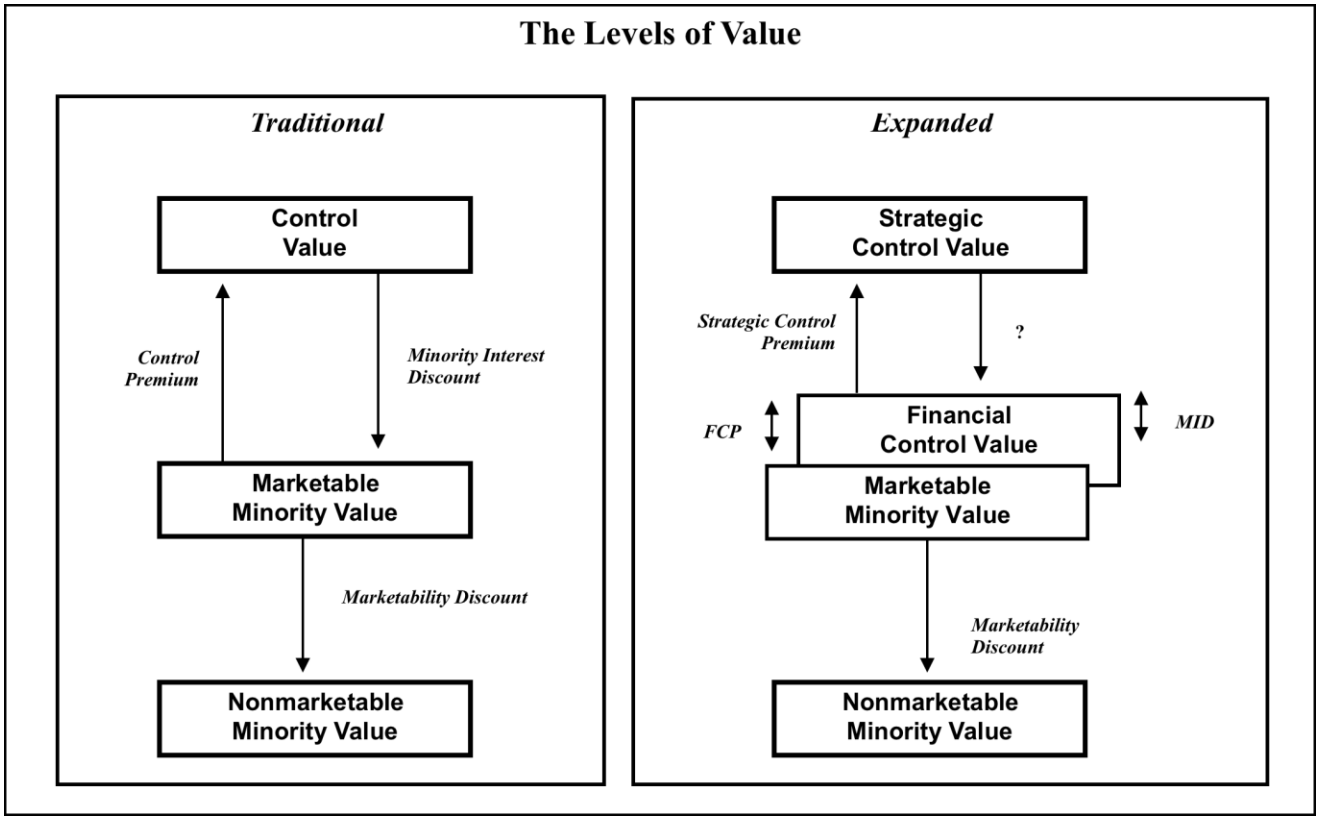


Exhibit 3.5 / p. 83

Strategic Control Level of Value

$$\mathbf{V_{e(c,s)}} = \frac{CF_{e(c,s)}}{[\ R_s - (G_{mm} + G_s)\ ]}$$

Equation 3.6 / p. 82

Strategic Control Level of Value

Strategic Control Value > Financial Control Value if:

- $CFF_{e(c,s)}$ is greater than $CF_{e(c,f)}$
- G_s is greater than zero
- R_s is less than R_f

Strategic Control Level of Value

Strategic Control Premium

$$\mathbf{CP_s} = \frac{V_{e(c,s)} - V_{e(mm)}}{V_{e(mm)}}$$

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

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

Exhibit 3.6 / p. 85

Enterprise vs. Shareholder Levels of Value

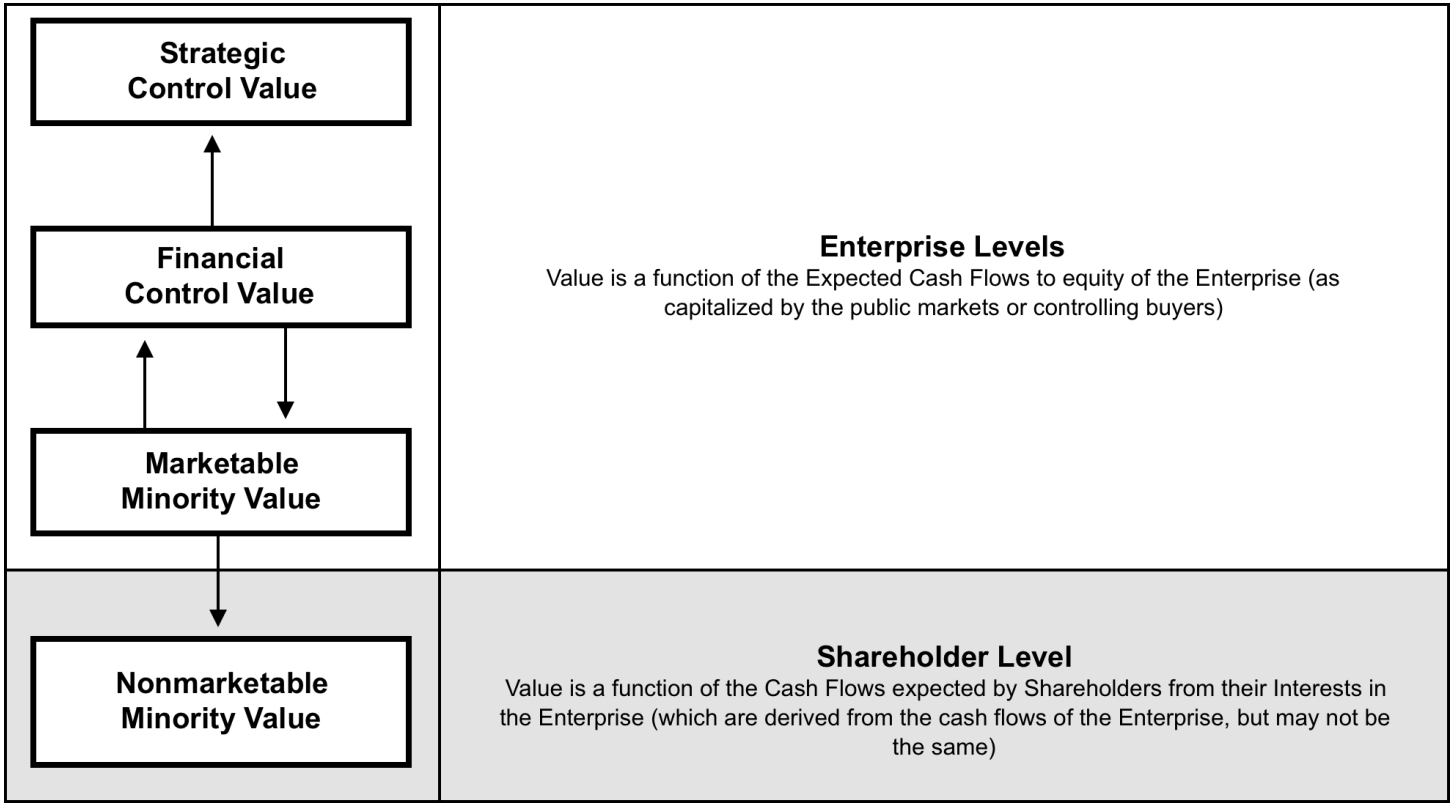


Exhibit 3.7 / p. 88

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

$$R_{hp} = R_{mm} + HPP$$

Equation 3.9 / p. 91

Nonmarketable Minority Level of Value

$$\mathbf{V_{sh}} = \frac{CF_{sh}}{R_{hp} - G_v}$$

$$V_{sh} = \left(\frac{CF_{sh,1}}{(1+R_{hp})} + \frac{CF_{sh,2}}{(1+R_{hp})^2} + \frac{CF_{sh,3}}{(1+R_{hp})^3} + \cdots + \frac{CF_{sh,f}}{(1+R_{hp})^f} \right) + \left(\frac{\left[\frac{CF_{e,f+1}}{R_{mm} - G_e} \right]}{(1+R_{hp})^f} \right)$$

PVICF **PVTV**

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

$$\mathbf{MD} = \mathbf{1} - \frac{V_{sh}}{V_{mm}}$$

Equation 3.10 / p. 93

Nonmarketable Minority Level of Value

	Conceptual Math	Relationships	Value Implications
Marketable Minority Value	$\frac{CF_{e(mm)}}{R_{mm} - G_{mm}}$	$G_v = R_{mm} - \text{Div Yld}$	V_{mm} is the benchmark for the other levels
Nonmarketable Minority Value	$\frac{CF_{sh}}{R_{hp} - G_v}$	$CF_{sh} \leq CF_{e(mm)}$ $G_v \leq R_{mm} - \text{Div Yld}$ $R_{hp} \geq R_{mm}$	$V_{sh} \leq V_{mm}$

Exhibit 3.8 / p. 92

The Integrated Theory of Business Valuation

	Conceptual Math	Relationships	Value Implications
Strategic Control Value	$\frac{CF_{e(c,s)}}{R_s - [G_{mm} + G_s]}$	$CF_{e(c,s)} \geq CF_{e(c,f)}$ $G_s \geq 0$ $R_s \leq R_{mm}$	$V_{e(c,s)} \geq V_{e(c,f)}$
Financial Control Value	$\frac{CF_{e(c,f)}}{R_f - [G_{mm} + G_f]}$	$CF_{e(c,f)} \geq CF_{e(mm)}$ $G_f \geq 0$ $R_f = R_{mm}$ (+/- a little)	$V_{e(c,f)} \geq V_{mm}$
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Nonmarketable Minority Value	$\frac{CF_{sh}}{R_{hp} - G_v}$	$CF_{sh} \leq CF_{e(mm)}$ $G_v \leq R_{mm}$ - Div Yld $R_{hp} \geq R_{mm}$	$V_{sh} \leq V_{mm}$

Exhibit 3.9 / p. 98

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**

Normalizing Adjustments

ABC, Inc. Normalizing Adjustments

ABC, Inc. Normalizing Adjustments ($000's)	Reported	Normalizing Adjustments: Type 1 Non-Recurring Items	Normalizing Adjustments: Type 2 Normalize to Public Equivalent	Normalized
Sales	$10,000	$0	$0	$10,000
COGS	$5,800	$0	$0	$5,800
Gross Profit	$4,200	$0	$0	$4,200
Litigation Settlement	$200	($200)	$0	$0
Selling (Cousin Joe)	$800	$0	($100)	$700
G&A (Cousin Al)	$1,800	$0	($100)	$1,700
Owner Comp (Big Daddy)	$900	$0	($600)	$300
Chalet (Big Daddy's Vacation Home)	$200	$0	($200)	$0
	$3,900	($200)	($1,000)	$2,700
Operating Profit	$300			$1,500
Operating Margin (No debt)	3.0%			15.0%

Exhibit 4.2 / p. 115

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

$$CV = MMV * (1 + CP)$$

$$CV = (Earnings_n * M) * (1 + CP)$$

$$CV = Earnings_c * M$$

$$(Earnings_n * M) * (1 + CP) = Earnings_c * M$$

$$\mathbf{Earnings_n * (1 + CP) = Earnings_c}$$

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)

Equation 5.1 / p. 132

Fundamental Adjustments

Compare Publico with Privateco
Derive Publico Discount Rate and Adjust for Privateco

Line	Capitalization Rate Components	Publico	Privateco	
1	Base Discount Rate (R)	15.5%	15.5%	Derived for Publico
2	Specific Company Risk (SCR)	0.0%	2.0%	Greater risks
3	Equity Discount Rate (R)	15.5%	17.5%	
4	Expected Growth (G_e)	-9.6%	-7.0%	Slower growth expectations
5	Capitalization Rate (R - G_e)	5.9%	10.5%	
6	P/E Multiple 1 / (R - G_e)	17.0	9.5	Lower implied P/E for Privateco
		Observed Multiple		
7	**Effective Fundamental Adjustment**		**-44.0%**	

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

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

Exhibit 5.3 / p. 138

Fundamental Adjustments for Total Capital Methods

- FATC = FAE x AF
- AF = (MVE/MVSC)

Impact of Fundamental Adjustment on Marketable Minority Level of Value

Impact of Fundamental Adjustment on Marketable Minority Level of Value

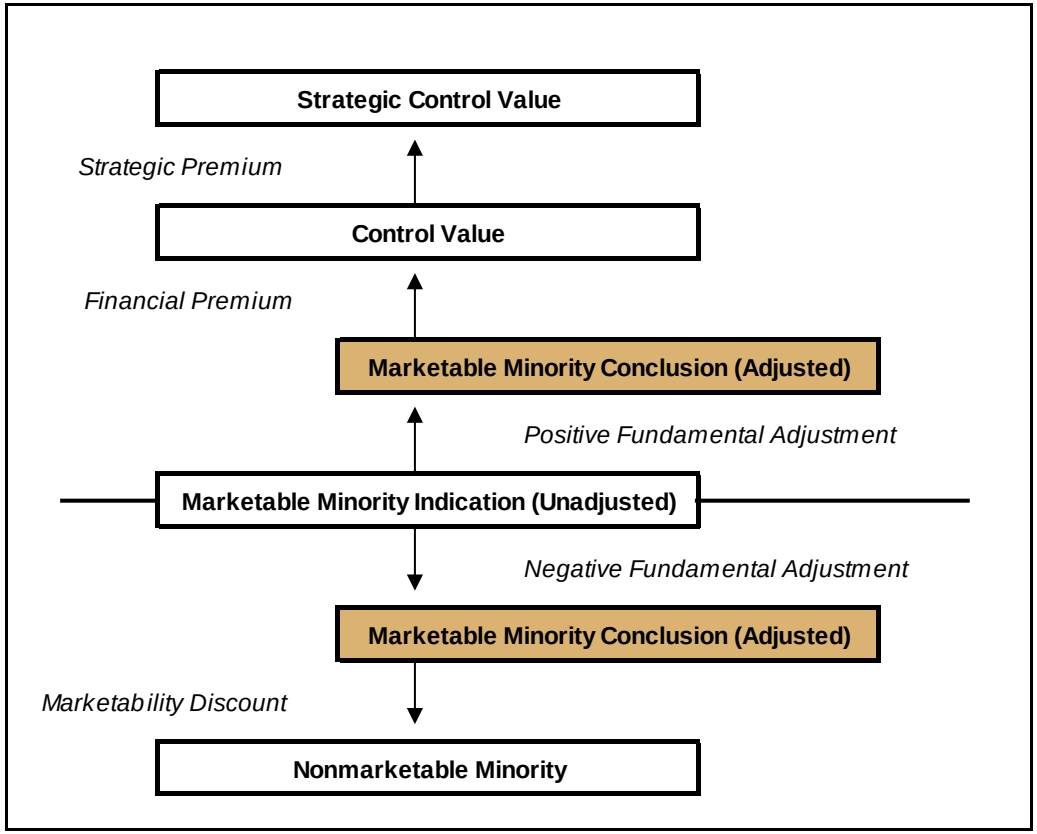


Exhibit 5.6 / p. 143

Fundamental Adjustments to Market Capitalization Rates

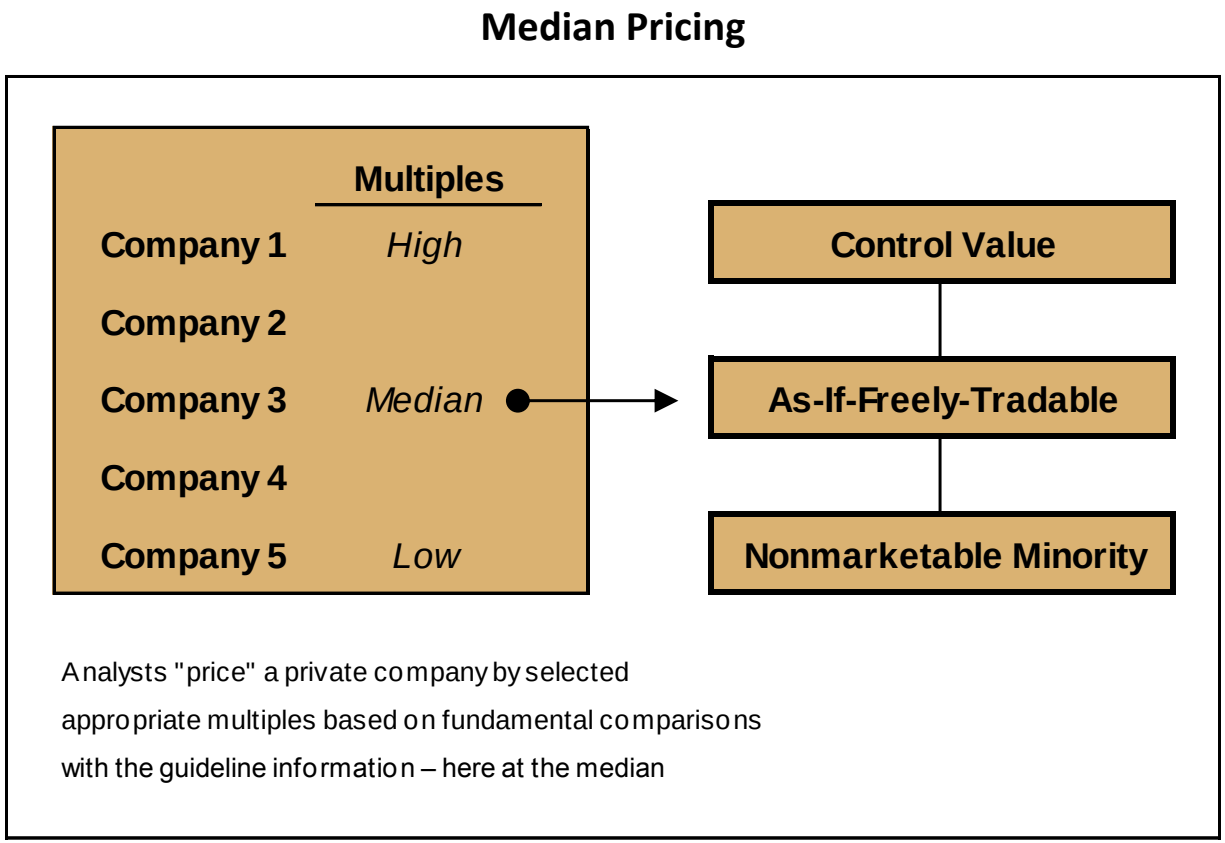


Exhibit 5.7 / p. 144

Influence of Fundamental Adjustment on the Various Levels of Value

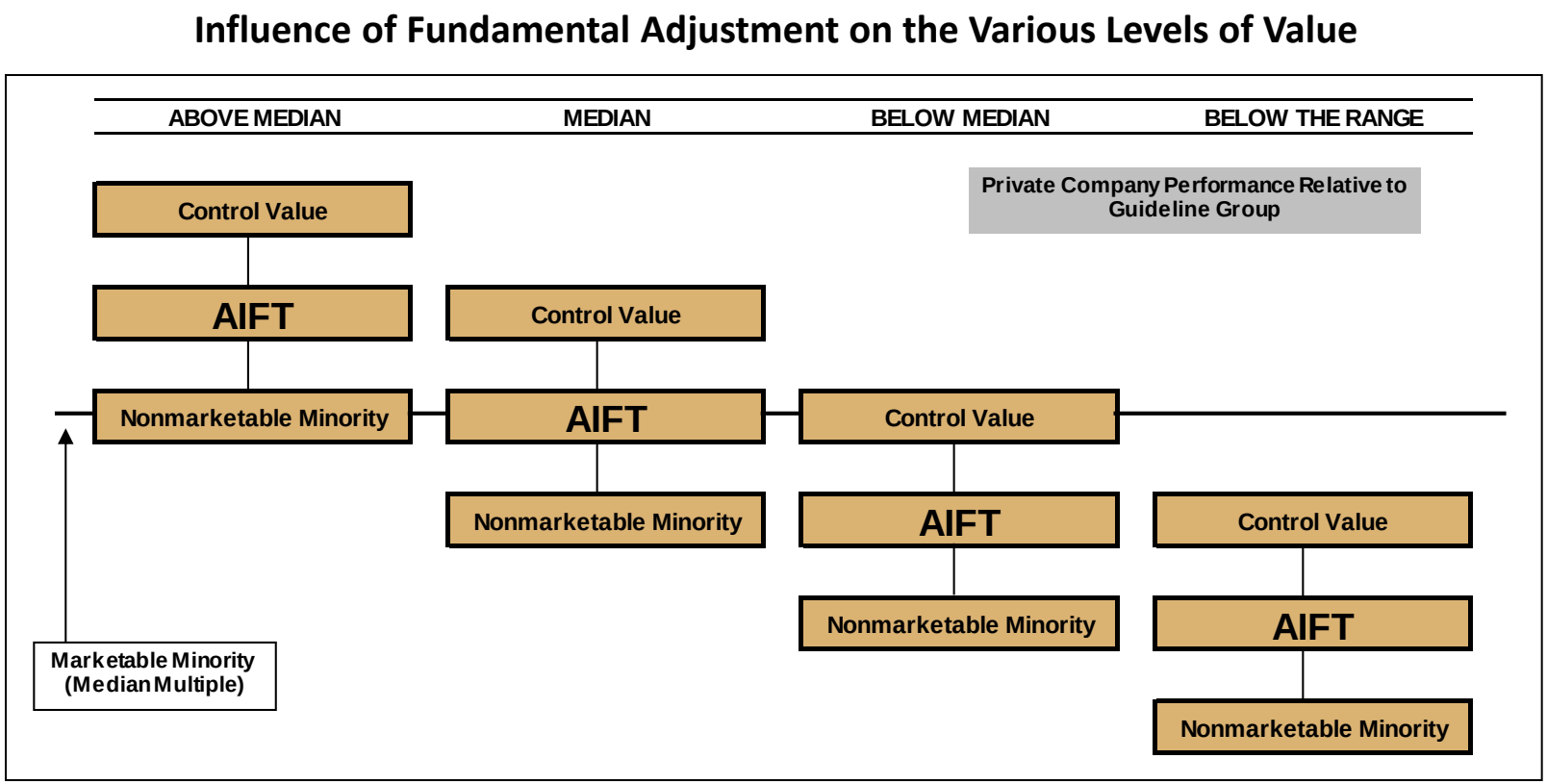


Exhibit 5.11 / p. 146

The Integrated Theory of Business Valuation

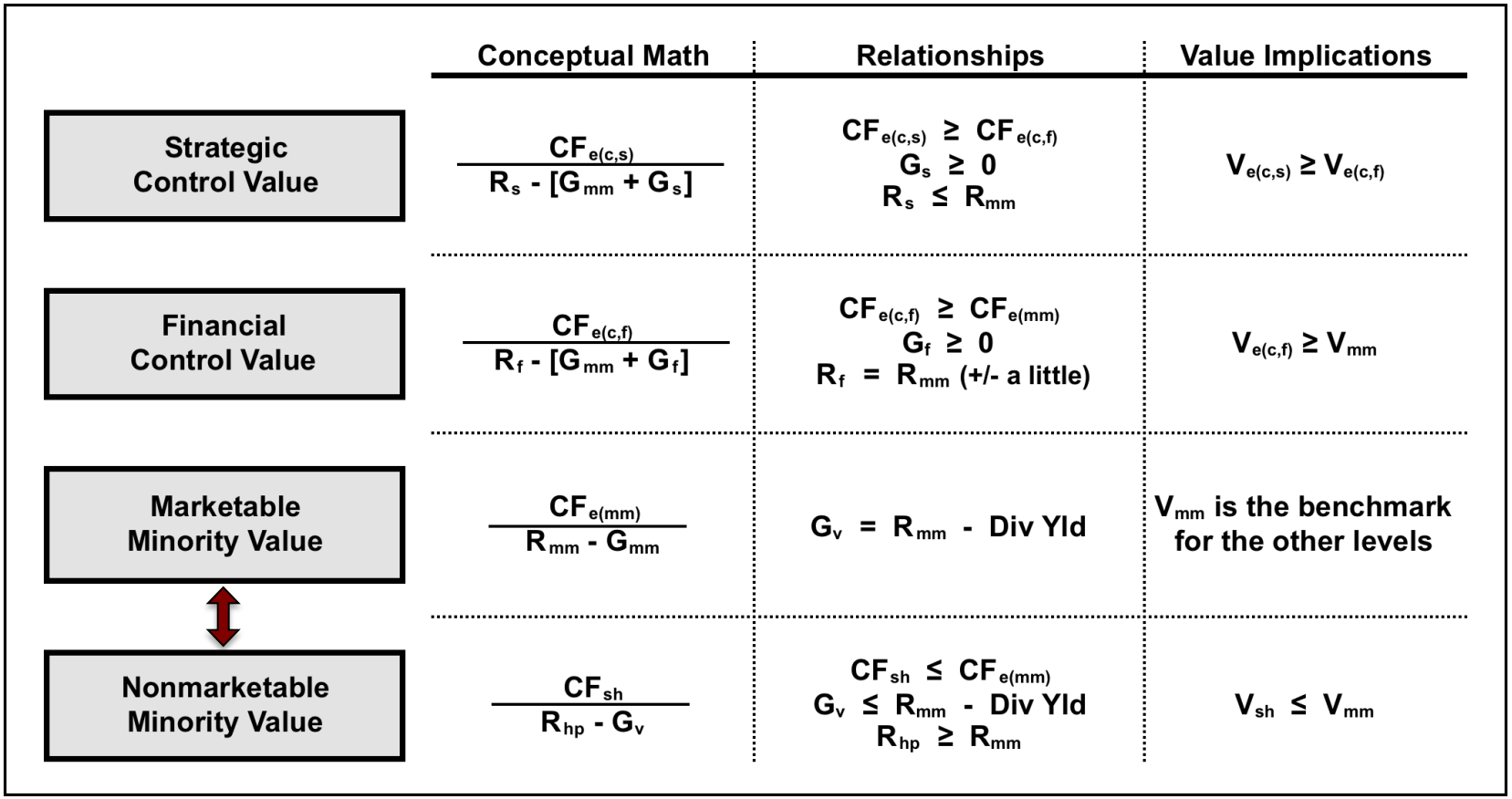


Exhibit 3.9 / p. 98

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)

Chapter 7 / p. 169

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

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

Components of Marketability Discounts

		(1)	(2)	(3)	(4)
1. Expected Holding Period	**Years**	**10**	**10**	**10**	**10**
2a. Expected Distribution / Dividend Yield	**Yield**	**10.0%**	**10.0%**	**10.0%**	**10.0%**
2b. Expected Growth in Distribution / Div. Yield	**Growth**	**6.0%**	**5.0%**	**6.0%**	**5.0%**
2c. Timing (Mid-Year or End of Year)	**Timing**	**E**	**E**	**E**	**E**
3a. Growth in Value over Holding Period	**G_v**	**6.0%**	**5.0%**	**6.0%**	**5.0%**
3b. Premium or Discount to Marketable Value	**Prem/Disc.**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
4. Required Holding Period Returns	**Low**	**16.0%**	**16.0%**	**20.0%**	**20.0%**

Marketability Discount	**0.0%**	**5.7%**	**20.3%**	**24.6%**

(1) Enterprise Value (Figure 7-6)

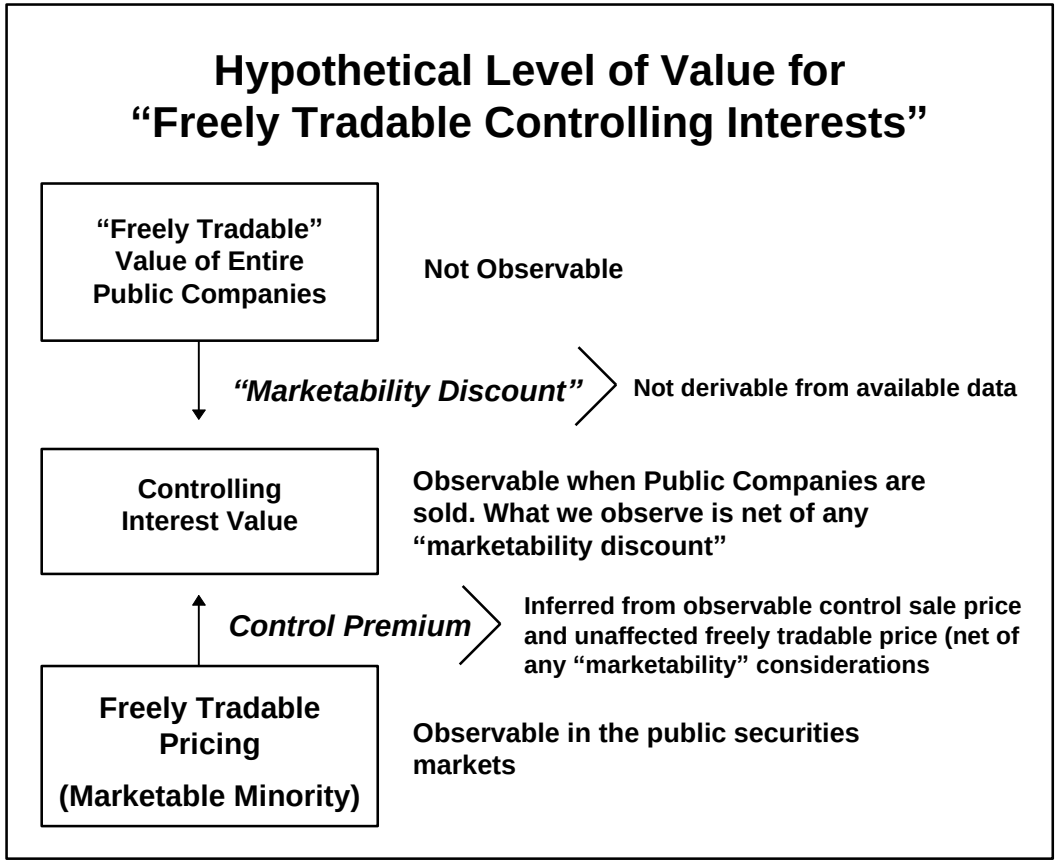
(2) Suboptimal Reinvestment Only (Figure 7-7)

(3) Incremental Risk Only (Figure 7-8)

(4) Suboptimal Reinvestment and Incremental Risk (Figure 7-5)

Exhibit 7.9 / p. 184

Marketability Discounts: Controlling Interests



Marketability Discounts

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

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

Exhibit 3.9 / p. 98

Last Look: Levels of Value

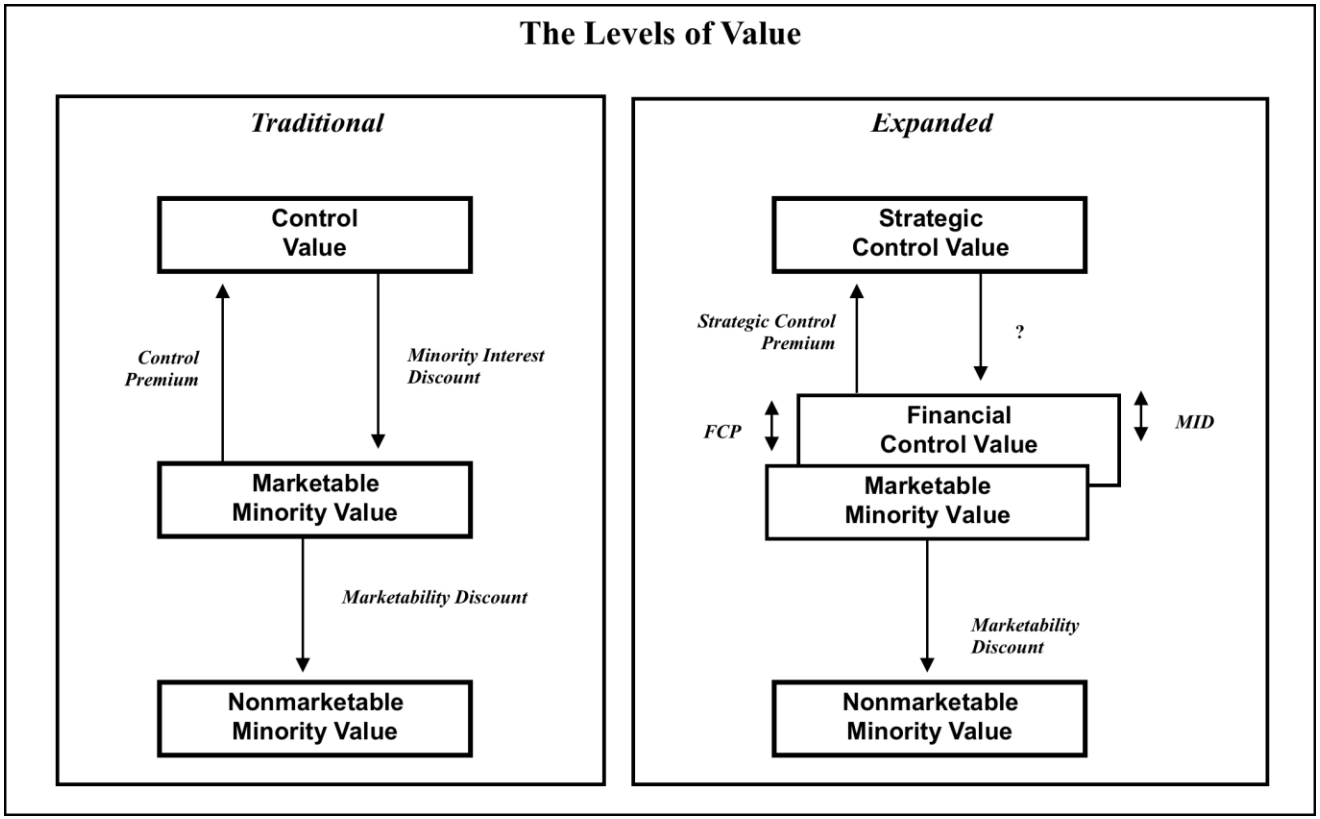


Exhibit 3.5 / p. 83

An Integrated Theory of Business Valuation

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