The Market Approach to Valuing Businesses (Second Edition)

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Chapter 9

Compiling Useful Market Value Tables

The purpose of gathering data on guideline companies is to derive some benchmarks by which to value the subject privately held company. We start by gathering a group of companies that will be used for comparison; those companies may be public companies used in the guideline public company method or either public or privately held companies used in the comparative transaction method (also know as the mergers and acquisitions method). We then construct tables presenting the financial fundamentals and the resulting valuation multiples for each company. Market value tables, for presentation in a valuation report, can take several forms. In this chapter we will review the subject company to guideline companies:

- Subject company to guideline publicly traded companies
- Subject company to other comparative private transactions

Presenting market value tables in a valuation report provides the reader with a visual means of comparison. We will review several illustrations of valuation tables that the analyst may include in the final valuation report. In an actual report, the analyst would discuss these tables, including a listing of the assumptions, a written discussion of the results of each of the tables, and details on how they relate to the final valuation. This narrative is not included in this chapter—we concentrate on the presentation of tables. The reader is directed to the sample valuation reports found in Chapters 13 and 14 in this text for a narrative discussion relating to the valuation tables.

TWO DISTINCT ALTERNATIVES IN MARKET MULTIPLES

As discussed in Chapter 1, there are two different types of valuation multiples: the equity-based and the invested capital valuation multiples. When valuing the total invested capital of a firm, the analyst considers the equity and the interest-bearing debt of the subject companies. When valuing the equity of a firm, the analyst considers only the common equity of the firm.

Direct Valuation of Equity

The direct valuation of equity is typically used by some appraisers when valuing minority interests: those interests that do not have the ability to change the capital structure of the company. In this procedure, the analyst uses market multiples of various levels of income available to equity owners. Some of these include

- Price/sales (generally not preferred if there are senior securities because the sales are the result of the resources of the entire capital structure)
- Price/gross cash flow (gross cash flow = net income + noncash charges)
- Price/earnings before taxes (EBT)
- Price/discretionary earnings (discretionary earnings = net income + taxes + interest + noncash charges + compensation to one owner manager)
- Price/dividends or withdrawals
- Price/book value of equity (most often tangible book value, but may be total book value)
- Price/adjusted book value (sometimes referred to as price/net asset value)

Valuing Total Invested Capital

Invested capital includes the total value of all components of the capital structure and is defined as the sum of the market values of common and preferred stock plus the market value of the interest-bearing debt. The invested capital valuation procedure is sometimes preferred over the equity method for valuing controlling interests—mainly because of the ability of the controlling party to directly impact the overall capital structure (debt versus equity) of the company.

Many appraisers consider the invested capital procedure as the preferred way to value any company. Subtracting the debt from the results of the indicated market value of invested capital (MVIC) to get the indicated value of equity permits the appraiser to see the company for what it is without the debt creating a blurring effect.

In the invested capital procedure, the denominator of the equation used to compute the valuation multiples needs to include all of the returns available to all the invested capital. Usually this means adding all of the interest paid in addition to all the returns available to common equity. If there is preferred stock, the dividends

on the preferred stock must also be included. Some of the more commonly used invested capital multiples are

- MVIC/sales
- MVIC/EBITDA (earnings before interest, taxes, depreciation and amortization)
- MVIC/EBIT (earnings before interest and taxes)
- MVIC/DFNI (debt-free net income—based on an estimation of what net income would be if there were no interest-bearing debt)
- MVIC/DFCF (debt-free cash flow—based on an estimation of what gross cash flow [debt free net income + noncash charges] would be if there were no interest-bearing debt)
- MVIC/book value of invested capital (most often only tangible book value, although the analyst might consider both tangible and total book value)
- MVIC/adjusted book value of invested capital (where major assets for subject and guideline companies are adjusted to market values)

The most widely used invested capital valuation multiple is the MVIC/EBITDA multiple, because it eliminates the possible distortion in differing depreciation policies among companies. The second most frequently used invested capital multiple is the MVIC/EBIT multiple. For smaller companies where less complete data may be available, MVIC/sales and MVIC/discretionary earnings are often used. When invested capital multiples are used, the market value of the senior securities (debt and preferred stock) must then be subtracted from the indicated value of MVIC to arrive at the value of common equity.

EXAMPLES OF MARKET VALUE TABLES

The examples include various valuation tables that an analyst typically may include in the final valuation report. ClearSkies is a privately held company, which we will use to illustrate the direct valuation of equity and total invested capital methods. Exhibit 9.1 shows the balance sheet of ClearSkies, and Exhibit 9.2 shows the income statement.

Subject Company to Guideline Publicly Traded Companies

Exhibit 9.3 includes a line-by-line comparison of the income statement and balance sheet for the subject company and the five publicly traded guideline companies. Exhibit 9.4 shows the calculations of market value of equity and market value of invested capital for the five guideline public companies selected.

For illustrative purposes, detailed calculations for the equity valuation multiples of one of the public guideline companies (Nimbus Corporation) are found in Exhibit 9.5 and include

Exhibit 9.1 ClearSkies Corporation Balance Sheet

Assets		
Current Assets		
Cash		$ 1,750,000
Accounts Receivable		2,750,000
Inventory		4,000,000
Total Current Assets		$ 8,500,000
Plant & Equipment		
At Cost	$45,000,000	
Less: Accumulated Depreciation	37,500,000	
Net Plant & Equipment		$ 7,500,000
Total Assets		$16,000,000
Liabilities and Equity		
Current Liabilities		
Accounts Payable		$ 3,500,000
Long-term Debt		7,500,000
Total Liabilities		$11,000,000
Common Equity (2,500,000 share outstanding)		$ 5,000,000
Total Liabilities and Equity		$16,000,000

Exhibit 9.2 ClearSkies Corporation Income Statement

Sales	$48,000,000
Cost of Goods Sold	28,000,000
Gross Margin	$20,000,000
Noncash Charges	1,200,000
Selling General and Administrative Expenses	14,200,000
Operating Income, before taxes (EBIT)	$ 4,600,000
Interest Expense	525,000
Income before Taxes	$ 4,075,000
Income Taxes	1,426,250
Net Income	$ 2,648,750

Note: The data have been condensed from various sources, including the statement of cash flows, footnotes to financial statements, and other sources: (1) long-term debt instruments bear an interest rate of 7%, (2) market value of the debt is approximately the same as the book value of the debt, and (3) effective tax rate equates to 35%.

Exhibit 9.3 Comparative Income Statement and Balance Sheets

Income Statement

	ClearSkies	Cumulus	Nimbus	Cirrus	Stratus	Stormy
Sales	$48,000,000	$5,200,000	$35,000,000	$66,000,000	$58,000,000	$96,500,000
Cost of Goods Sold	28,000,000	2,700,000	21,000,000	36,300,000	33,060,000	49,250,000
Gross Margin	$20,000,000	$2,500,000	$14,000,000	$29,700,000	$24,940,000	$47,250,000
Noncash Charges	1,200,000	200,000	800,000	1,500,000	685,000	4,825,000
Selling General and Administrative Expenses	14,200,000	1,700,000	11,800,000	17,820,000	19,980,000	32,810,000
Operating Income, before taxes (EBIT)	$4,600,000	$600,000	$1,400,000	$10,380,000	$4,275,000	$9,615,000
Interest Expense	525,000	350,000	525,000	988,000	32,500	1,365,000
Income before Taxes	$4,075,000	$250,000	$875,000	$9,392,000	$4,242,500	$8,250,000
Income taxes	1,426,250	100,000	288,750	3,756,800	1,590,938	3,465,000
Net Income	$2,648,750	$150,000	$586,250	$5,635,200	$2,651,562	$4,785,000

Balance Sheet

	ClearSkies	Cumulus	Nimbus	Cirrus	Stratus	Stormy
Assets						
Current Assets						
Cash	$1,750,000	$556,000	$2,275,000	$1,485,000	$2,250,000	$5,200,000
Accounts Receivable	2,750,000	810,000	2,450,000	1,875,000	2,250,000	3,750,000
Inventory	4,000,000	1,535,000	3,500,000	3,250,000	4,500,000	6,250,000
Total Current Assets	$8,500,000	$2,901,000	$8,225,000	$6,610,000	$9,000,000	$15,200,000

(continued)

Exhibit 9.3 Comparative Income Statement and Balance Sheets *(continued)*

Plant & Equipment	ClearSkies	Cumulus	Nimbus	Cirrus	Stratus	Stormy
At Cost	45,000,000	10,000,000	35,000,000	62,000,000	42,000,000	83,500,000
Less: Accumulated Depreciation	37,500,000	3,700,000	31,500,000	48,000,000	37,500,000	52,000,000
Net Plant & Equipment	$7,500,000	$6,300,000	$3,500,000	$14,000,000	$4,500,000	$31,500,000
Total Assets	$16,000,000	$9,201,000	$11,725,000	$20,610,000	$13,500,000	$46,700,000
Liabilities and Equity						
Current Liabilities						
Accounts Payable	3,500,000	624,000	3,350,000	3,410,000	2,500,000	3,250,000
Long-term Debt	7,500,000	5,000,000	7,000,000	15,200,000	500,000	21,000,000
Total Liabilities	$11,000,000	$5,624,000	$10,350,000	$18,610,000	$3,000,000	$24,250,000
Stockholders' Equity	5,000,000	3,577,000	1,375,000	2,000,000	10,500,000	22,450,000
Shares Outstanding	2,500,000	3,577,000	275,000	200,000	525,000	4,490,000
Market Price of Stock on Valuation Date		$2.50	$22.50	$65.00	$80.00	$7.50
Total Liabilities and Equity	$16,000,000	$9,201,000	$11,725,000	$20,610,000	$13,500,000	$46,700,000

Note: Figures represent year-end 1999.

Exhibit 9.4 Guideline Companies Market Value of Invested Capital

Company	Market Value per Share	Number of Shares	Long-term Debt[a]	Market Value of Equity	Market Value of Invested Capital
Cumulus	$2.50	3,577,000	$5,000,000	$8,942,500	$13,942,500
Nimbus	$22.50	275,000	$7,000,000	$6,187,500	$13,187,500
Cirrus	$65.00	200,000	$15,200,000	$13,000,000	$28,200,000
Stratus	$80.00	525,000	$500,000	$42,000,000	$42,500,000
Stormy	$7.50	4,490,000	$21,000,000	$33,675,000	$54,675,000

Note: Long-term debt in Exhibit 9.3 was used to create this table, assuming that market value of long-term debt approximates book value of long-term debt.

[a] None of these companies has issued preferred stock; if any had, we would include another column showing the value of the preferred stock and add this value to the market value of invested capital column.

Exhibit 9.5 Nimbus Corporation Equity Valuation Multiples

Market Value of Equity = Number of shares X Market Value per share[a]

= 275,000 shares X $22.50 per share = $6,187,500

Market Value of Equity / Sales

Market Value of Equity / Sales = $6,187,500 / $35,000,000 = 0.18

Market Value of Equity / Gross Cash Flow

Net Income	$ 586,250
Plus Noncash charges	800,000
Gross Cash Flow	$1,386,250

Market Value of Equity / Gross Cash Flow = $6,187,500/ $1,386,250 = 4.5

Market Value of Equity / Earnings (Net Income after taxes)

Market Value of Equity / Earnings = $6,187,500 / $586,250 = 10.6

Market Value of Equity / Book Value

Market Value of Equity / Book Value = $6,187,500 / $1,375,000 = 4.5

Note: When valuing equity directly, these multiples often are presented on a per-share basis. The multiple should be exactly the same whether computed on a per-share or aggregate common equity basis.

[a] Market value per share from Exhibit 9.4.

- Price/sales
- Price/gross cash flow
- Price/earnings (net income after taxes)
- Price/book value

Detailed calculations for the invested capital valuation multiples of one of the public guideline companies (Nimbus Corporation) are found in Exhibit 9.6 and include

- MVIC/sales
- MVIC/EBITDA

Exhibit 9.6 Nimbus Corporation Invested Capital Valuation Multiples

Market Value of Invested Capital (MVIC)		
Long-term Debt	53%	$ 7,000,000
Equity: (275,000 shares at $22.50)	47%	6,187,500
Market Value of Invested Capital[a]	100%	$13,187,500
MVIC / Sales		
MVIC / Sales = $13,187,500 / $35,000,000 = 0.38		
MVIC / EBITDA		
Net Income		$ 586,250
Plus Taxes		288,750
Plus Interest		525,000
Plus Noncash Charges		800,000
EBITDA		$2,200,000
MVIC / EBITDA = $13,187,500 / $2,200,000 = 6.0		
MVIC / EBIT		
Net Income		$ 586,250
Plus Taxes		288,750
Plus Interest		525,000
EBIT		$1,400,000
MVIC / EBIT = $13,187,500 / $1,400,000 = 9.4		
MVIC / Book Value of Invested Capital		
Book Value of Long-term Debt		$7,000,000
Book Value of Equity		1,375,000
Book Value of Invested Capital		$8,375,000
MVIC / BV of Invested Capital = $13,187,500 / $8,375,000 = 1.6		

[a] Market value of invested capital from Exhibit 9.4.

- MVIC/EBIT
- MVIC/book value of invested capital

Exhibit 9.7 illustrates the guideline companies' equity multiples. The top half of the exhibit includes four calculated equity multiples. Take particular note of the values for the four calculated multiples for the Cumulus Company. The majority of the multiples are drastically different from those of the other four guideline companies.

The bottom half of Exhibit 9.7 communicates the summary statistical analysis of the four invested capital valuation multiples and includes the mean, median, range, standard deviation, and coefficient of variation. The coefficient of variation is defined as the standard deviation divided by the mean and gives the analyst an indication as to the degree of dispersion exhibited by the data points. The lower the coefficient of variation, the lower the dispersion of the data points, and the better the valuation multiple is as an indicator of value. Note that the equity/book value valuation multiple has the lowest coefficient of variation. The analyst should note that this result can also be eyeballed by noting the range of this multiple compared to the range of the other three multiples: The difference between the lowest equity/book value valuation multiple (1.50) and the highest (6.50) is approximately a factor of 4. The equity/sales valuation multiple has the next lowest coefficient of variation with a difference between its lowest value (0.18) and highest value (1.72) of approximately a factor of 9. This clearly indicates that the equity/book value valuation multiple exhibits less dispersion. Exhibit 9.8 illustrates the guideline company market value of invested capital multiples.

Exhibit 9.7 Guideline Company Equity Multiples

	Equity	Equity/Sales	Equity/GCF[a]	Equity/Net Income	Equity/Book Value
Cumulus	$8,942,500	1.72	25.55	59.62	2.50
Nimbus	$6,187,500	0.18	4.46	10.55	4.50
Cirrus	$13,000,000	0.20	1.82	2.31	6.50
Stratus	$42,000,000	0.72	12.59	15.84	4.00
Stormy	$33,675,000	0.35	3.50	7.04	1.50
Mean	$20,761,000	0.63	9.59	19.07	3.80
Median	$13,000,000	0.35	4.46	10.55	4.00
Range	$6.1MM–$42.0MM	0.18–1.72	1.82–31.18	2.31–103.02	1.50–6.50
Std Dev		0.65	9.84	23.20	1.92
C of V[b]		1.02	1.03	1.22	0.51

[a] Gross cash flow = net income + noncash charges.

[b] Coefficient of variation = standard deviation / mean.

Exhibit 9.8 Guideline Company Market Value of Invested Capital Multiples

	MVIC[a]	MVIC/ Sales	MVIC/ EBITDA	MVIC/ EBIT	MVIC/ Book Value
Cumulus	$13,942,500	2.68	17.43	23.24	1.63
Nimbus	$13,187,500	0.38	5.99	9.42	1.57
Cirrus	$28,200,000	0.43	2.37	2.72	1.64
Stratus	$42,500,000	0.73	8.57	9.94	3.86
Stormy	$54,675,000	0.57	3.79	5.69	1.26
Mean	$30,501,000	0.96	7.63	10.20	1.99
Median	$28,200,000	0.57	5.99	9.42	1.63
Range	$13.1MM–$54.7MM	0.38–2.68	2.37–17.43	2.72–23.24	1.26–3.86
Std Dev		0.97	5.96	7.86	1.06
C of V[b]		1.02	0.78	0.77	0.53

[a] Assumes market value of debt = book value of debt.

[b] Coefficient of variation = standard deviation / mean.

Exhibit 9.9 replicates Exhibit 9.7 except that Exhibit 9.9 does not include Cumulus Company. Based on Cumulus' great divergence from the other four companies' multiples, it has been eliminated from our consideration and the remaining four have prevailed. Similarly, Exhibit 9.10 replicates Exhibit 9.8 except that Exhibit 9.10 also does not include Cumulus.

Exhibit 9.9 Guideline Company Equity Multiples Less Cumulus

	Equity	Equity/Sales	Equity/GCF[a]	Equity/Net Income	Equity/Book Value
Nimbus	$6,187,500	0.18	4.46	10.55	4.50
Cirrus	$13,000,000	0.20	1.82	2.31	6.50
Stratus	$42,000,000	0.72	12.59	15.84	4.00
Stormy	$33,675,000	0.35	3.50	7.04	1.50
Mean	$23,715,625	0.36	5.59	8.93	4.13
Median	$23,337,500	0.27	3.98	8.80	4.25
Range	$6.2MM–$42.0MM	0.18–0.72	1.82–12.59	2.31–10.55	1.50–6.50
Std Dev		0.25	4.79	5.71	2.06
C of V[b]		0.70	0.86	0.64	0.50

[a] Gross cash flow = net income + noncash charges.

[b] Coefficient of variation = standard deviation / mean.

Exhibit 9.10 Guideline Company Market Value of Invested Capital Multiples Less Cumulus

	MVIC[a]	MVIC/Sales	MVIC/EBITDA	MVIC/EBIT	MVIC/Book Value
Nimbus	$13,187,500	0.38	5.99	9.42	1.57
Cirrus	$28,200,000	0.43	2.37	2.72	1.64
Stratus	$42,500,000	0.73	8.57	9.94	3.86
Stormy	$54,675,000	0.57	3.79	5.69	1.26
Mean	$34,640,625	0.53	5.18	6.94	2.08
Median	$35,350,000	0.50	4.89	7.55	1.61
Range	$13.2MM–54.7MM	0.38–0.73	2.37–8.57	2.72–9.94	1.26–3.86
Std Dev		0.16	2.71	3.39	1.20
C of V[b]		0.30	0.52	0.49	0.57

[a] Assumes market value of debt = book value of debt.
[b] Coefficient of variation = standard deviation / mean.

Subject Company to Comparative Transactions in *Pratt's Stats*™

Data from the four databases of privately held company sales (*Pratt's Stats*™, *Done Deals, BIZCOMPS*®, and the *IBA Market Data Base*) can be consulted in the guideline merger and acquisition method of business valuation when investigating actual privately held company sale transactions in the market. Because the transactions used are usually controlling interests, it is most directly applicable for valuing other controlling ownership interests, although it can be used for minority interest valuations with proper adjustments.

See Exhibit 9.11 and Exhibit 9.12 as illustrative examples of valuation tables using *Pratt's Stats*™ data. Exhibit 9.11 represents the use of equity prices from the *Pratt's Stats*™ database whereas Exhibit 9.12 depicts the use of deal prices from the *Pratt's Stats*™ database. The lowest coefficient of variation occurs in the deal price/EBITDA valuation multiple in Exhibit 9.12. The implied value based on this valuation multiple is shown as well. In a full valuation report, extensive discussion should revolve around the data in these tables.

SUMMARY

We have presented various tables that an analyst may want to use in a final valuation report. We reviewed the invested capital procedure and the direct equity valuation procedure, and created samples of the different types of valuation tables.

Exhibit 9.11 Automobile Dealer Equity Price Valuation Multiples from *Pratt's Stats*™

	Equity / Sales	Equity / Gross Cash Flow	Equity / EBT	Equity / Net Income	Equity / Discretionary Earnings
Mean	0.20	22.28	NM[a]	NM	NM
Median	0.18	10.74	11.60	12.20	6.94
Range	0.10–0.66	4.80–246.70	loss–40.33	loss–54.77	3.68–14.69
Std Dev	0.11	44.60	378.17	379.17	3.03
C of V[b]	0.53	2.00	NM	NM	0.38
Multiplication Factor[c]	$55,857,000	$443,000	$542,000	$371,000	$1,857,000
Implied Value	$9,858,761	$4,758,307	$6,289,802	$4,525,755	$12,879,595

Note: Data are based on 29 selected guideline companies from *Pratt's Stats*™. Used with permission.

[a] Not meaningful.

[b] Coefficient of variation = standard deviation / mean.

[c] Multiplication factor represents value by which the valuation multiple's median value is multiplied (e.g., multiplication factor for equity price / sales is sales = $55,857,000; this value multiplied by 0.18 equates to the implied value).

Exhibit 9.12 Automobile Dealer Price Valuation Multiples from *Pratt's Stats*™

	Deal Price[a] / Sales	Deal Price / EBITDA	Deal Price / EBIT	Deal Price / Total Assets
Mean	0.21	8.41	9.91	0.91
Median	0.18	7.65	9.14	0.79
Range	0.10–0.66	3.67–14.69	4.06–26.04	0.44–1.92
Std Dev	0.11	3.04	4.62	0.38
C of V[b]	0.52	0.36	0.47	0.42
Multiplication Factor[c]	$55,857,000	$728,000	$656,000	$15,457,000
Implied Value	$10,037,503	$5,571,748	$5,993,544	$12,248,127

Note: Data are based on 29 selected guideline companies from *Pratt's Stats*™. Used with permission.

[a] Deal price in *Pratt's Stats*™ equates to market value of invested capital.

[b] Coefficient of variation = standard deviation / mean.

[c] Multiplication factor represents value by which the valuation multiple's median value is multiplied (e.g., multiplication factor for deal price / sales is sales = $55,857,000; this value multiplied by 0.18 equates to the implied value).

We reviewed data based on the guideline company method (ClearSkies example) and the merger and acquisition method (auto dealer from *Pratt's Stats*™).

It is important to remind the reader that in a final valuation report, an effective discussion of the information compiled from the tables is required. We have concentrated on the creation of effective tables in this chapter—the analyst will use his or her knowledge and the information located throughout this book to create an effective discussion of the relevant matters for any valuation.