

PART I

Defining Market Multiples and Market Approach Methods

Defining Market Value Multiples and Market Approach Methods

Common Equity Only versus Total Invested Capital Multiples

- Defining Common Equity

- Defining Invested Capital

- Guideline Company Equity and Invested Capital Price Data Must Be at Market Price

- Handling the Subject Company That Has No Senior Securities

Computing Market Value of Equity Multiples

Commonly Used Market Value of Equity Multiples

- Equity Price

- Price/Earnings

- Price/Gross Cash Flow

- Price/"Cash Earnings"

- Price/Pretax Earnings

- Price/Book Value (or Price/Adjusted Net Asset Value)

 - Price/Adjusted Net Asset Value

 - Tangible versus Total Book Value or Adjusted Net Asset Value

- Price/Dividends (or Partnership Withdrawals)

- Price/Net Cash Flow to Equity

Computing Market Value of Invested Capital (MVIC) Multiples

- Only Long-term Debt versus All Interest-bearing Debt

- Include or Subtract Cash and Cash Equivalents

- Calculating Fully Diluted Shares

Commonly Used MVIC Multiples

- MVIC/Sales

- MVIC/Discretionary Earnings

- MVIC/EBITDA

- MVIC/EBIT

- MVIC/Debt-free Gross Cash Flow

- MVIC/Debt-free Net Income

- MVIC/TBVIC

- MVIC/Physical Activity or Capacity

- MVIC/Net Cash Flow to Invested Capital

Time Periods to Measure Financial Variables

Matching Times for Income Variables

Matching Times for Asset Variables

Relationship between Market Multiples and Capitalization Rates

Summary

A *market value multiple* is the result of dividing a numerator, which represents dollars of price or value, by a denominator, which usually represents dollars of a financial variable of a company. The most familiar market value multiple is the *price/earnings (P/E) multiple*:

$$\frac{\text{Price of stock per share}}{\text{Latest 12 months earnings per share}} = \frac{\$15.00}{\$1.00} = 15\times$$

In a few cases, the denominator may be some physical fundamental of a company measured other than in dollar terms. For example, denominators could include

- For a tavern: monthly barrels of beer sold
- For a manufacturing plant: units of annual production capacity, such as thousands of board feet of plywood
- For a funeral home: annual number of full-service funerals
- For cable TV: number of subscribers
- For a gas station: number of gallons sold per month
- For a child care center, number of children, licensed and registered

The market value multiples are computed from transactions actually observed in the marketplace. The multiples so computed are then applied to the same financial variable for the subject company to derive an indication of value. *It is critical that the computation of the multiple for the market transactions be done on a basis that is consistent with the way the multiple is applied to data for the subject company.*

There are two basic categories of multiples used in the market approach:

1. Equity multiples
2. Invested capital multiples

The next section defines the concepts of equity and invested capital as the terms are used in valuation. Following sections will define and show sample computations of equity valuation multiples and invested capital valuation multiples.

COMMON EQUITY ONLY VERSUS TOTAL INVESTED CAPITAL MULTIPLES

The market value multiples are computed on one of two bases:

1. Amounts attributable to *common equity*
2. Amounts attributable to the company's *total invested capital*

If the company has preferred stock and/or other classes of senior equity, they conventionally are included with total invested capital, not with common equity.

Either the equity or the invested capital procedure can be used for valuing either controlling or minority interests. However, the invested capital procedure is sometimes preferable for valuing controlling interests, and the direct valuation of equity is often preferable for valuing minority interests. The reason is because a controlling interest holder can change the capital structure if that may enhance the value of the equity, while the minority interest owner does not have that option. However, if the subject and guideline companies have very different capital structures, eliminating the potential effects of that difference sometimes is a reason (sometimes a compelling reason) to use the invested capital procedure even when valuing minority interests.

The attitude toward using invested capital procedures for valuing minority interest varies among appraisers. One reviewer of the manuscript opined that we should “boldly note as a primary principle” that invested capital procedure is preferred for valuing controlling interests and direct valuation of equity preferred for minority interests. Another well-known reviewer said, “There is no reason that MVIC multiples are not just as appropriate when valuing minority interests. These multiples are readily observable in public markets.” In any case, there is general agreement that if using an invested capital method to value on a minority interest basis, no adjustment should be made to the subject company's actual capital structure, since a minority stockholder could not force such an adjustment.

Defining Common Equity

Common equity is the lowest (or residual) class of ownership. If preferred shares are outstanding, they are *not* part of common equity. However, more than one class of common equity may exist. For example, there may be both voting and nonvoting stock with equivalent rights to distributions. Similarly, there may be both general and limited partnership interests.

For valuation purposes, the number of units of common equity usually should be computed on a *fully diluted* basis. In other words, if there are options, warrants, or convertible securities outstanding, the number of equity units should be

Exhibit 1.1 Guideline Company A—Balance Sheet

ASSETS:		
Current Assets:		
Cash and Cash Equivalents		\$ 200,000
Accounts Receivable		300,000
Inventory		<u>400,000</u>
Total Current Assets		\$ 900,000
 Plant and Equipment		
At Cost	\$4,200,000	
Less Depreciation	<u>1,200,000</u>	3,000,000
Operating Patent		
At Cost	\$ 650,000	
Less Amortization	<u>50,000</u>	<u>600,000</u>
Total Assets		<u>\$ 4,500,000</u>
 LIABILITIES & EQUITY:		
Liabilities:		
Accounts Payable		\$ 800,000
Notes Payable		600,000
Current Portion of Long-term Debt		400,000
Long-term Debt		<u>2,000,000</u>
Total Liabilities		\$ 3,800,000
 Stockholders Equity:		
Class A voting common (400,000 shares		
authorized, 320,000 outstanding @ 12/31/xx)\$	80,000	
Class B nonvoting common (800,000 shares		
authorized, 400,000 outstanding @ 12/31/xx)	100,000	
Retained Earnings	<u>\$ 520,000</u>	\$ 700,000
Total Liabilities & Equity		<u>\$ 4,500,000</u>

Note: Classes A and B are both traded on NASDAQ and both closed at \$10 per share on the effective valuation date.

computed as if the conversion rights were exercised, assuming it would be to the financial advantage of the holders.¹

The number of equity units is based on the number *outstanding* (after allowing for dilution). There may be more units *authorized* but the additional units authorized do not count if they are not outstanding.

If companies repurchase shares, some states still require such stock to be shown on the balance sheet as *treasury stock*. These shares should *not* be included in shares outstanding.

Exhibit 1.1 shows two classes of common stock, but no treasury stock, senior equity, warrants, options, or convertible securities. In this simple example, a total of 720,000 shares of common stock are outstanding.²

Exhibit 1.2 shows a simplified income statement from which multiples of performance results can be computed. Multiples of book value can be computed from Exhibit 1.1. We will assume that these exhibits represent Guideline Company A

Exhibit 1.2 Guideline Company A—Income Statement

Sales	\$10,000,000
Cost of Goods Sold	<u>6,000,000</u>
Gross Margin	\$ 4,000,000
General & Administrative Expense ^a	<u>2,500,000</u>
Operating Income	\$ 1,500,000
Interest Expense	<u>300,000</u>
Pretax Income	\$ 1,200,000
Income Taxes (20%)	<u>240,000</u>
Net Income	<u>\$ 960,000</u>

Note: The Company pays dividends of \$.50 per share.

^aIncludes depreciation of \$400,000 patent amortization of \$50,000, and compensation and benefits of \$500,000 to the chief executive officer (who is also the controlling owner).

and that similar statements are available for each guideline company. For the purpose of the definitions of multiples in this chapter, it makes no difference whether the guideline companies are public stock market transactions or public or private merged or acquired companies. In other words, the market multiples defined in this chapter are equally applicable whether using the publicly traded guideline company method or the guideline transaction method.

Defining Invested Capital

Technically, *invested capital* includes all common and preferred equity plus long-term debt, including the current portion of long-term debt. In Exhibit 1.3, the book value of invested capital defined this way is \$3,100,000.

Some computations of invested capital include all interest-bearing debt. In Exhibit 1.3, the book value of invested capital defined in this alternative way is \$3,700,000. One reason to include all interest-bearing debt is because it may not be possible to determine how much interest is attributable to short-term versus long-term debt. Another reason, for some companies, is that many small companies use short-term debt as if it were long-term debt. The analyst should be consistent with regard to treatment of LTD with subject and guideline companies.

Other computations of invested capital subtract cash and cash equivalents. If the company owns marketable securities, they usually are included with the cash equivalents. This computation tends to be preferred by investment bankers.² The advantage of this computation is to make the market value multiples using invested capital more comparable among various companies with differing percentages of cash and cash equivalents in their asset mix.

Exhibit 1.3 Composition of Equity and Invested Capital

LIABILITIES & EQUITY:	
Liabilities:	
Accounts Payable	
Notes Payable	
Current Portion of Long-term Debt	
Long-term Debt	
Total Liabilities	
Stockholders Equity:	
Class A voting common (400,000 shares authorized 320,000 outstanding @ 12/31/xx)	\$ 80,000
Class B nonvoting common (800,000 shares authorized; 400,000 outstanding @ 12/31/xx)	100,000
Retained Earnings	\$ 520,000
Total Liabilities & Equity	\$ 1,400,000

\$ 800,000 600,000 400,000 2,000,000 \$3,800,000	Book value of invested capital including only long-term debt \$3,100,000 Book value of common equity \$ 700,000 <u>\$4,500,000</u>	Alternative computation: Book value of invested capital including all interest bearing debt \$3,700,000
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Note: Classes A and B are both traded on NASDAQ and both closed at \$10 per share on the effective valuation date.

If cash and cash equivalents were subtracted, the book value of invested capital for Guideline Company A would be \$2,900,000, including only long-term debt, and \$3,500,000 including all interest-bearing debt.

If cash and cash equivalents are subtracted in computing the value of invested capital for the guideline companies, then the valuation multiples derived do not reflect the value of cash and cash equivalents. If the subject company has cash and cash equivalents, they must be added back to the values indicated by the valuation multiples that were computed after subtracting cash and cash equivalents.

Guideline Company Equity and Invested Capital Price Data Must Be at Market Price

In this section, we have defined the components of equity and invested capital only in terms of book value. To get the numerators of the equations to compute market valuation multiples, it is necessary to find, for each guideline company, the *market price* of each component of capital being used, that is, the market price of common equity for equity multiples, and market price of common equity plus market value of preferred equity and debt for invested capital multiples.

Handling the Subject Company That Has No Senior Securities

If the company being valued has no senior securities (preferred stock or interest-bearing debt) in its capital structure, then the common equity is equal to the entire invested capital. Any or all of the multiples can be presented in a single table because there is no senior security value (i.e., no obligations that take precedence over the common equity) to be subtracted from the market value of invested capital.

Especially when valuing small companies, it is quite typical that neither the subject nor the guideline companies have any senior securities. In such a case there is no meaningful distinction between equity multiples and invested capital multiples.

However, it is also often the case that the guideline companies have senior securities, even if our subject company does not. When this is the situation, the subject company should be valued using invested capital multiples from the guideline companies, not on an equity basis.

COMPUTING MARKET VALUE OF EQUITY MULTIPLES

Market value of equity multiples can be computed either on a per-share basis or on a total equity basis. On a per-share basis, the multiple is simply the price per share divided by the company fundamental per share, as shown in the earlier

price/earnings multiple. Alternatively, equity multiples can be computed using the total value of the company's common equity divided by the total amount of the company's fundamental, for example, total net income. By *fundamental*, we mean an income statement or balance sheet financial value, such as an income variable or a balance sheet value, or a book value of equity.

It is important that the denominator include *only* those returns available to common equity. For example, any interest on debt or any dividends to preferred stock would not be included in computing the denominator of the market value of equity value multiple.

COMMONLY USED MARKET VALUE OF EQUITY MULTIPLES

The most commonly used market value of equity valuation multiples are:

- Price/earnings (price/net income after taxes)
- Price/gross cash flow
- Price/"cash earnings"
- Price/pretax earnings
- Price/book value (or price/net asset value)
- Price/dividends (or partnership withdrawals)

For the purpose of the equity multiples in this illustration, we will do computations on a per-share basis. The multiple would come out the same if computed on an aggregate basis. To follow the convention, we will round multiples to one decimal place. Valuation is not an exact science, and many analysts feel that carrying multiples to more decimal places conveys a specious sense of precision.

Equity Price

Equity price in the context of valuation multiples usually means only *common* equity, and may be expressed on either a per-share or an aggregate basis. If using public companies to compute market multiples per share, information usually is available. If using acquisitions of private companies to compute market multiples, usually only the aggregate price paid for all the equity is available.

As noted in Exhibit 1.1, the stock of Guideline Company A closed on the NASDAQ stock market at \$10 per share on our valuation date.

The definitions of the market valuation multiples and computations thereof are the same if using mergers and acquisitions of acquired companies. We would compute the amount received per common share and divide that by each of the

merged or acquired company's fundamental financial data per share (e.g., gross cash flow, pretax earnings, net income, book value) to derive valuation multiples for each fundamental. Again, the resulting multiples would be the same if computed on an aggregate rather than on a per-share basis.

Of course, in the case of merged and acquired companies, the transactions would not fall on our valuation date. For that reason, the multiples may have to be adjusted for timing differences, but that is covered in a later chapter.

Price/Earnings

Assuming that there are taxes, the term *earnings*, although used ambiguously in many cases, is generally considered to mean earnings *after* corporate-level taxes, or, in accounting terminology, net income.

Net income for Guideline Company A, \$960,000, can be taken directly from the income statement shown in Exhibit 1.2. On a per-share basis, this is

$$\frac{\text{Net income}}{\text{Number of shares}} = \frac{\$960,000}{720,000} = \$1.33 \text{ per share}$$

The multiple is computed as

$$\frac{\text{Price per share}}{\text{Earnings per share (net income per share)}} = \frac{\$10.00}{\$1.33} = 7.5\times$$

Price/Gross Cash Flow

Gross cash flow is defined here as net income plus all noncash charges (e.g., depreciation, amortization, depletion, deferred revenue). In Guideline Company A, this is

Net income	\$ 960,000
plus Depreciation and amortization	<u>1,250,000</u>
Gross cash flow	\$2,210,000
	<u>÷ 720,000 shares</u>
Gross cash flow per share	\$ 1.96

The multiple is computed as

$$\frac{\text{Price per share}}{\text{Gross cash flow per share}} = \frac{\$10.00}{\$1.96} = 3.3\times$$

Price/“Cash Earnings”

Cash earnings equals net income plus amortization, but not other traditional noncash charges, such as depreciation. This is a measure developed by investment bankers in recent years for pricing mergers and acquisitions as an attempt to even out the effects of very disparate accounting for intangibles. In Guideline Company A, this is

Net income	\$ 960,000
plus Amortization	<u>50,000</u>
Cash earnings	\$1,010,000
	<u>÷ 720,000 shares</u>
Cash earnings per share	\$ 1.40

The multiple is computed as

$$\frac{\text{Price per share}}{\text{Cash earnings per share}} = \frac{\$10.00}{\$1.40} = 7.1\times$$

However, recent FASB for financial reporting of goodwill and other intangibles may minimize the relevance of “cash earnings.”

Price/Pretax Earnings

Pretax income for Guideline Company A, \$1,200,000, can be taken directly from the income statement shown in Exhibit 1.2. On a per-share basis, this is

$$\frac{\text{Pretax income}}{\text{Number of shares}} = \frac{\$1,200,000}{720,000} = \$1.67 \text{ per share}$$

The multiple is computed as

$$\frac{\text{Price per share}}{\text{Pretax income per share}} = \frac{\$10.00}{\$1.67} = 6.0\times$$

Price/Book Value (or Price/Adjusted Net Asset Value)

Book value includes the amount of par or stated value for shares outstanding plus retained earnings. Book value for Guideline Company A, from Exhibit 1.1, is computed as

Class A stated value	\$ 80,000
Class B stated value	100,000
Retained earnings	520,000
Book value of common equity	<u>\$ 700,000</u>

On a per-share basis, this is

$$\frac{\text{Book value of common equity}}{\text{Number of shares}} = \frac{\$700,000}{720,000} = \$0.97 \text{ per share}$$

The multiple is computed as

$$\frac{\text{Price per share}}{\text{Book value per share}} = \frac{\$10.00}{\$0.97} = 10.3\times$$

Price/Adjusted Net Asset Value. Sometimes it is possible to estimate adjusted net asset values for the guideline and subject companies, reflecting adjustments to current values for all or some of the assets and, in some cases, liabilities. In the limited situations where such data are available, a price to adjusted net asset value generally is a more meaningful indication of value than price/book value. Examples could include real estate holding companies where real estate values are available or forest products companies for which estimates of timber values are available. This procedure can be particularly useful for family limited partnerships.

Generally, if the assets are written up, an offsetting liability for the trapped-in capital gains tax should be added. Some courts, however, especially family law courts, decline to recognize the trapped-in capital gains tax liability unless a sale is imminent.

Tangible versus Total Book Value or Adjusted Net Asset Value. If the guideline and/or subject companies have intangible assets on their balance sheets, analysts generally prefer to subtract them out and use only price/tangible book value or price/tangible net asset value as the valuation multiple.

This is to avoid the valuation distortions that could be caused because of accounting rules. On one hand, if a company purchases intangible assets, the item becomes part of the assets on the balance sheet. If, on the other hand, a company creates the same intangible asset internally, it usually is expensed and never appears on the balance sheet. Because of this difference, tangible book value or tangible net asset value may present a more meaningful direct comparison among companies that may have some purchased and some internally created intangible assets.

Price/Dividends (or Partnership Withdrawals)

If the company being valued pays dividends or partnership withdrawals, the multiple of such amounts can be an important valuation parameter. This variable

can be especially important when valuing minority interests, since the minority owner normally has no control over payout policy, no matter how great the company's capacity to pay dividends or withdrawals.

As noted in Exhibit 1.2, Guideline Company A pays dividends of \$.50 per share. The market multiple is computed as

$$\frac{\text{Price per share}}{\text{Dividend per share}} = \frac{\$10.00}{\$0.50} = 20\times$$

This is one market multiple that is more often quoted as the reciprocal of the multiple, that is, the capitalization rate (also called the *yield*). The yield is computed as

$$\frac{\text{Dividend per share}}{\text{Price per share}} = \frac{\$0.50}{\$10.00} = 5.0\% \text{ yield}$$

Price/Net Cash Flow to Equity

The net cash flow to equity measure of investment returns is widely used in the income approach, but is used very little in the market approach. Net cash flow to equity is defined as follows

$$\begin{aligned} & \text{Net income (after taxes)} \\ + & \text{ Noncash charges} \\ - & \text{ Net capital expenditures (the net change in fixed and other noncurrent assets)*} \\ \pm & \text{ Changes in working capital*} \\ \pm & \text{ Changes in long-term debt*} \\ = & \text{ Net cash flow to equity} \end{aligned}$$

Of course, if there are payments to preferred shareholders, these would need to be deducted to arrive at net cash flow to common equity.

The main reason that net cash flow is not typically used in the market approach is the difficulty in getting normalized capital expenditures and normalized changes in working capital for the guideline companies. If one is willing to do the work, using the statement of cash flows, along with the income statements and balance sheets, one can compute net cash flow for most public companies for each year. However, if data such as capital expenditures and changes in net working capital have been subject to wide variations, as they frequently are, these data generally are harder to

*Assumes that these amounts are those necessary to support projected business operations.

adjust objectively for abnormal or nonrecurring items than for most other data. Thus, gross cash flow is used more frequently than net cash flow in the market approach because it is straightforward, easier to compute, and simple to explain.

COMPUTING MARKET VALUE OF INVESTED CAPITAL (MVIC) MULTIPLES

Market value of invested capital multiples should be computed on a total company rather than on a per-share basis. This avoids the problem of getting multiples that really are not comparable because of differing capital structures.

The basic computation of the numerator is to add the total market value of common equity to the total market value of preferred stock (if any) plus the market value of long-term debt (or, alternatively, interest-bearing debt). Cash and equivalents may be subtracted.

The denominator is computed to include the returns available to all classes of capital. This means that the denominator would include all returns to common equity plus dividends on preferred stock plus interest (either on long-term debt or on all interest-bearing debt, depending on which is used in the numerator).

If cash and equivalents are deducted from the numerator, then interest earned on cash and equivalents should be subtracted from the denominator.

The critical thing is that the numerator and denominator be consistent: Returns included in the denominator should be those that are available to the components of the capital structure that are included in the numerator.

Market value of invested capital includes the values of all equity and the senior securities included in the capital structure. As with equity multiples, the definitions of the MVIC multiples and computations thereof are the same whether using guideline publicly traded companies or guideline merged and acquired companies.

Several options exist regarding how to compute market value of invested capital. In particular, the choices include whether to

- Include only long-term debt or all interest-bearing debt
- Deduct cash and cash equivalents

Because of these alternative acceptable procedures, it is essential that the analyst define how MVIC is computed in each report. Many analysts do not automatically use the same definition of MVIC in each case, but select the definition that best fits the facts, circumstances, and available data.

Caution: If you or your valuation firm does not necessarily use the same definition of MVIC in each case, be careful about boilerplate definitions in your reports. Be sure to check the MVIC definition in each report to be sure that it accurately describes the computations that actually were made.

Only Long-term Debt versus All Interest-bearing Debt

From a conceptual viewpoint, only long-term debt (but including the current portion) is really part of a company's capital structure. Also, short-term debt may have significant seasonal fluctuations. These factors favor using only long-term debt (including current portion) in computing MVIC.

However, as a practical matter, it may not be possible to determine from the guideline companies' financial statements how much interest expense is attributable to short-term versus long-term debt. To exclude short-term debt in the MVIC numerator but include the interest on it in the denominator of the MVIC valuation multiple would create a distorted multiple.

Also, many companies, especially smaller companies, use short-term debt *as if* it were long-term debt, that is, perhaps never paying it down. These factors favor using *all* interest-bearing debt in computing MVIC.

We suggest that, however MVIC is calculated, this decision should be made on the basis of the facts and circumstances on a case-by-case basis and disclosed in the definitions and/or footnotes in the report.

Include or Subtract Cash and Cash Equivalents

The main reason to subtract cash and cash equivalents is to even out differences among guideline companies and between guideline companies and the subject company where they may have excesses or shortages of cash and equivalents relative to their respective needs. Of course, if the cash equivalents are subtracted out of the MVIC, any return on such securities should be subtracted out of the denominator of the MVIC multiples. Again, this is a decision that can be made on a case-by-case basis and the procedure chosen should be fully disclosed.

For simplicity, for the illustrative multiples in this chapter, we will define MVIC to include *all* interest-bearing debt, and we will *not* subtract out cash and cash equivalents. We will assume that the book value of debt equals the market value of debt. Therefore, the computation of MVIC for Guideline Company A that we will use to compute the multiples in this chapter is

Common stock	
720,000 shares @ \$10 (NASDAQ closing	
price on valuation date)	\$ 7,200,000
Long-term debt (including current portion)	2,400,000
Notes payable	<u>600,000</u>
Market value of invested capital	\$10,200,000

Calculating Fully Diluted Shares

The calculation of fully diluted shares for valuation purposes is fairly straightforward, but the analyst should use a method appropriate to the valuation being conducted. Under GAAP, public companies use the “treasury stock” method to report the number of diluted shares. This method assumes that the proceeds from exercise of options and warrants that are “in-the-money” are used to buy shares in the market. Thus, this is the method used by publicly traded guideline companies.

For the subject company, the analyst should consider whether to use the treasury stock method or to calculate the maximum dilutive effect, assuming that the incremental shares are added to outstanding shares with no repurchase. If the maximum dilutive effect is used, the incremental cash to be received upon the stock option exercise must be added to cash, thereby reducing net debt. The analyst should also consider whether it is appropriate to discount the cash to be received to present value.

The analyst should be sure not to double-count “in-the-money” convertible securities. Because the calculation of diluted earnings per share assumes conversion of these securities, dilutive convertible debt and preferred stock should be excluded in the MVIC calculation, and related interest on convertible debt and dividends on convertible preferred stock should be appropriately adjusted for.

COMMONLY USED MVIC MULTIPLES

The most commonly used MVIC valuation multiples are

- MVIC/sales
- MVIC/discretionary earnings (also called seller’s discretionary cash flow [SDCF] or owner’s cash flow [OCF])
- MVIC/EBITDA (earnings before interest, taxes, depreciation, and amortization)
- MVIC/EBIT (earnings before interest and taxes)
- MVIC/TBVIC (tangible book value of invested capital)

Some other measures include

- MVIC/some physical measure of activity or capacity
- MVIC/debt-free net cash flow to invested capital
- MVIC/debt-free net income
- MVIC/net cash flow to invested capital

Invested capital multiples must be computed on an aggregate rather than on a per-share basis. It is totally meaningless, for example, to divide aggregate equity and debt value by number of shares of equity, which would produce the per-share

values combining equity and debt, a number that would be more nonsensical than a combined value of each piece of fruit in a crate of oranges and watermelons.

As with equity multiples, we will round to one decimal place, except MVIC/sales, where two decimals usually are significant because the multiples are likely to be less than 1.0.

MVIC/Sales

The figure for sales for Guideline Company A, \$100,000, is taken directly from the income statement, Exhibit 1.2. The multiple is computed as

$$\frac{\text{MVIC}}{\text{Sales}} = \frac{\$10,200,000}{\$10,000,000} = 1.02$$

Analysts generally prefer MVIC/sales rather than equity/sales because the sales are attributable to the resources provided by the entire capital structure. Equity/sales can give a distorted picture if there are substantial differences in the capital structures of the guideline and subject companies.

Revenue multiples are better used in select industries, such as mature industries with fairly homogenous operations, and widely published and available data on income and expenses. E.g. Retail Auto Dealerships. If a Honda store makes \$X in revenues, one can expect a certain percentage of profits with some degree of certainty.

MVIC/Discretionary Earnings

The International Business Brokers Association defines *discretionary earnings* (or SDCF or OCF) as pretax income (after adjustments for non-operational elements and nonrecurring activities) plus interest plus all noncash charges plus all compensation prerequisites and benefits to one owner/operator. Discretionary earnings for Guideline Company A are

Pretax income	\$1,200,000
plus Interest expense	300,000
plus Depreciation and amortization	450,000
plus Owner's compensation	500,000
Discretionary earnings	<u>\$2,450,000</u>

The multiple is computed as

$$\frac{\text{MVIC}}{\text{Discretionary earnings}} = \frac{\$10,200,000}{\$2,450,000} = 4.2\times$$

The multiple of discretionary earnings is used primarily for smaller businesses and professional practices where the involvement of the key owner/operator is an important component of the business or practice. For such businesses or practices, meaningful multiples generally fall between 1.5 and 3.5, although some fall outside that range.

MVIC/EBITDA

Earnings before interest, taxes, depreciation, and amortization for Guideline Company A are

Pretax income	\$1,200,000
plus Interest expense	300,000
plus Depreciation and amortization	<u>450,000</u>
EBITDA	\$1,950,000

The multiple is computed as

$$\frac{\text{MVIC}}{\text{EBITDA}} = \frac{\$10,200,000}{\$1,950,000} = 5.2\times$$

EBITDA multiples are particularly favored to eliminate differences in depreciation policies.

MVIC/EBIT

Earnings before interest and taxes for Guideline Company A are

Pretax income	\$1,200,000
plus Interest expense	<u>300,000</u>
EBIT	\$1,500,000

The multiple is computed as

$$\frac{\text{MVIC}}{\text{EBIT}} = \frac{\$10,200,000}{\$1,500,000} = 6.8\times$$

EBIT multiples are good where differences in accounting for noncash charges are not significant.

MVIC/Debt-free Gross Cash Flow

Debt-free gross cash flow is the gross cash flow that the company *would have* if it had no debt; it is a hypothetical number, computed by adding the interest expense, net of the tax effect, to the gross cash flow.

For Guideline Company A, the gross cash flow was computed to be \$1,410,000 (\$960,000 net income plus \$400,000 depreciation and \$50,000 amortization). Interest expense was \$300,000, and the tax rate 20%. If there were no debt, gross cash flow would be \$240,000 higher ($\$300,000 \times [1 - 0.20]$) = \$240,000. Therefore, debt-free gross cash flow for Guideline Company A is

Gross cash flow	\$1,410,000
plus Interest expense, net of tax effect	<u>240,000</u>
Debt-free gross cash flow	\$1,650,000

The multiple is computed as

$$\text{MVIC} \quad \frac{\$10,200,000}{\$1,650,000} = 6.2\times$$

MVIC/Debt-free Net Income

Debt-free net income is the net income that the company *would have* if it had no debt. As such, it is a hypothetical number, computed by adding the interest expense, net of the tax effect, to the net income.

For Guideline Company A, net income was \$960,000. If there were no debt, net income would be \$240,000 higher ($\$300,000 [1 - .20]$) = \$240,000. Therefore, debt-free net income for Guideline Company A is

Net income	\$ 960,000
plus Interest expense, net of tax effect	<u>240,000</u>
Debt-free net income	\$1,200,000

The multiple is computed as

$$\text{MVIC} \quad \frac{\$10,200,000}{\$1,200,000} = 8.5\times$$

Debt-free gross cash flow and debt-free net income are used to put companies with very divergent capital structures on a more comparable basis. However, since they are hypothetical numbers, they are not widely used. Most analysts prefer multiples of EBITDA and EBIT.

MVIC/TBVIC

Tangible book value of invested capital for Guideline Company A is

Book value of common stock	\$ 700,000
plus Long-term debt (including current portion)	2,400,000
plus Notes payable	600,000
less Operating patent	<u>(600,000)</u>
TBVIC	\$3,100,000

The multiple is computed as

$$\frac{\text{MVIC}}{\text{TBVIC}} = \frac{\$10,200,000}{\$3,100,000} = 3.3\times$$

As discussed in the section on equity multiples, this MVIC multiple can be used on TBVIC and also with adjusted net asset value instead of book value if data are available.

MVIC/Physical Activity or Capacity

The denominator in a market value multiple may be some measure of a company's units of sales or capacity to produce. Analysts generally prefer that the numerator in such a multiple be MVIC rather than equity for the same reasons as the sales multiple—that is, the units sold or units of capacity are attributable to the resources provided by all components of the capital structure, not just the equity.

MVIC/Net Cash Flow to Invested Capital

For the same reasons as when valuing equity directly, net cash flow to invested capital tends to be the earnings variable of choice in the context of the income approach, but is not widely used as the basis for a multiple in the market approach. Net cash flow to invested capital is computed as

- Net income (after taxes)
- + Noncash charges
- Net capital expenditures (the net change in fixed and other noncurrent assets)*
- Changes in working capital*

*Assumes that these amounts are those necessary to support projected business operations.

- + Interest expense, net of the income tax effect (i.e., interest expense $\times$ [1 – tax rate])
- + Preferred dividends, if any
- = Net cash flow to overall invested capital

TIME PERIODS TO MEASURE FINANCIAL VARIABLES

It is critical that the time period or periods for which the financial variables are measured are the same (or close to the same) for the guideline companies as for the subject company.

Sometimes the time period may be suggested by comparative facts and circumstances of the guideline and subject companies or by industry conditions. In many cases, selection of time periods from which to calculate market valuation multiples may be limited by the availability of comparative data.

Matching Times for Income Variables

There are many choices of time periods for measuring income variables derived from the guideline and subject companies, such as (but not limited to)

- Latest 12 months
- Latest fiscal year
- Average of some number of past years
- Weighted average of some number of past years
- Expected results for the year ahead, either the current or following fiscal year, or next 12 months (generally available only for guideline public companies, not for merged and acquired companies)

The choice of comparative time periods is an important analytical judgment. Conceptually, we are interested in the future. However, the use of expected results is dependent on having both credible projections for the subject company and estimates of future performance for guideline companies.

Use of the latest year can be good, if it is a normal period, to use as a base year, or if it is influenced by industry or economic factors to an extent similar to the guideline companies. If considering a series of past years, the analyst should compare the patterns of results between the subject and guideline companies. Sometimes, when using an average of past years, it is appropriate to rely most heavily on a subset of the guideline companies that have patterns of results most similar to the subject company.

Matching Times for Asset Variables

For financial variables derived from the guideline and subject companies' balance sheets, the general rule is to select the balance sheet data as close as possible to the valuation date. Unlike income data, averages of past asset data are meaningless for valuation purposes in most cases.

RELATIONSHIP BETWEEN MARKET MULTIPLES AND CAPITALIZATION RATES

Market multiples and capitalization rates are the inverse of each other. For example, if the P/E ratio is 20 times last year's earnings, then last year's earnings are capitalized at 5%:

$$\frac{1}{20} = .05 = 5\%$$

Conversely, if the capitalization rate is 5%, then the market multiple for that variable is 20:

$$\frac{1}{5\%} = \frac{1}{.05} = 20\times$$

Any market multiple can be converted to a capitalization rate, and vice versa. The capitalization rate form of presentation is commonly used in the income approach to valuation. It is more common to use the market multiple form of presentation in the market approach. For consistency, we will use the market multiple form of presentation throughout this book, with the exception of dividend yields, which we will present as a yield or capitalization rate.

A word of caution: Published P/E ratios of public guideline companies have high growth rates embedded in them. If your subject company does not even pretend to have similar growth, be sure to add back the growth rate expectations of the analyst, before you develop a capitalization rate.

SUMMARY

The market approach is based on observing actual market transaction prices relative to companies' fundamental financial data. Multiples of the observed prices to the respective companies financial data are computed to create observed market valuation multiples.

The market multiples are grouped into two categories:

1. *Equity multiples*—prices for equity (common stock or partnership interests) relative to observed returns available to the companies' equity owners
2. *Invested capital multiples*—market values of companies' total invested capital relative to observed returns available to all owners of components of the companies' respective capital structures

Either category of multiple can be used to value either minority or controlling interests. Analysts often tend to prefer equity multiples for valuing minority interests and invested capital multiples for valuing controlling interests, because a minority owner cannot change the existing capital structure and a control owner generally can. However, invested capital multiples often are used to minimize potentially distorting effects of disparate capital structures among companies. If invested capital multiples are used, then the value of senior securities in the subject company's capital structure needs to be subtracted from the indicated value of invested capital to arrive at an estimate of common equity value.

Subject to availability of data, all the same market multiples may be used with the guideline public company method, the guideline merger and acquisition method, or other market methods (see subsequent chapters).

Balance sheet multiples generally are based on balance sheet figures as of a date as near as possible to the valuation date. Income multiples may be based on many different time periods (as long as they are comparable between guideline and subject companies), such as

- Latest 12 months
- Latest fiscal year
- Straight average of several years
- Weighted average of several years
- Expected results for next 12 months, current fiscal year, or following fiscal year

Notes

1. Rules for computing dilution are beyond the scope of this text. See Doug R. Carmichael, Steven B. Lillien, and Martin Mellman, *Accountant's Handbook*, 9th ed. (Hoboken: John Wiley & Sons, 1999), 7.10(c).
2. Gilbert Matthews, "Fairness Opinions: Common Errors and Omissions," in *The Handbook of Business Valuation and Intellectual Property Analysis*, Robert F. Reilly and Robert P. Schweihs, eds. (McGraw Hill, 2004), 213.