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The Market Approach—
Exploring the Pricing Component

Co-Sponsored by:
National Association of Certified Valuators and Analysts
Institute of Business Appraisers

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BV: Case Analysis—Completed Transaction and Guideline Public Comparable Methods

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CHAPTER ONE

UNDERSTANDING AND APPLYING THE MARKET APPROACH TO VALUATION

I. INTRODUCTION

The Market Approach analyses market transactions involving interests in similar companies to gauge the value of the subject firm. The pricing multiples derived from these market transactions are applied to the subject company's metrics to derive its relative value.

Since the Market Approach is dependent upon comparable transactions, the predictive value derived is only as useful as the underlying data. Therefore, good data is a fundamental pre-requisite to apply correctly the Market Approach to solve for value. The sections that follow will discuss certain aspects of data analysis including appropriate sources and how to select, interpret and apply the data derived.

A. MARKET VALUE OF INVESTED CAPITAL AND ENTERPRISE VALUE

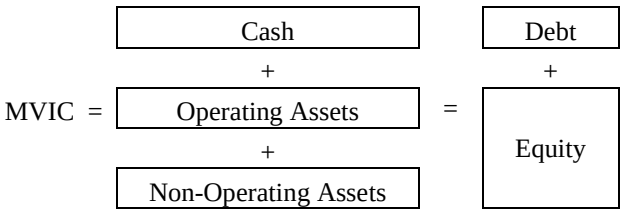
The International Glossary of Business Valuation Terms defines **Invested Capital** as "the sum of equity and debt in a business enterprise. Debt is typically (a) all interest-bearing debt or (b) long-term, interest-bearing debt."[1]

From this definition, two important economic measures of economic value are derived that are commonly used in valuation analyses: the market value of invested capital and enterprise value.

1. Market Value of Invested Capital

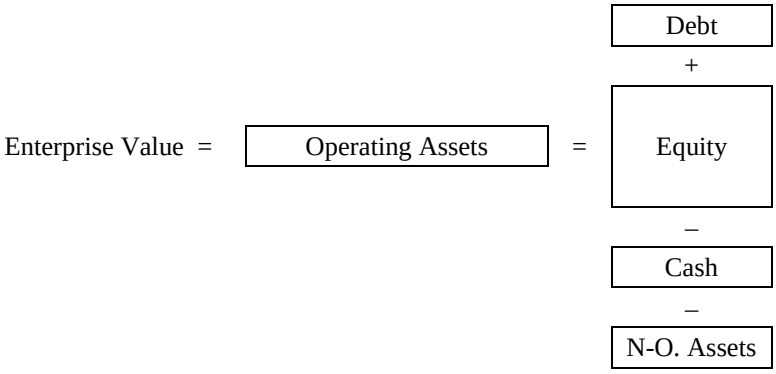
Represents the value of the total capital invested in the business. It includes cash and marketable securities, the market value of operating assets (tangible and Intangible), goodwill and the market value of non-operating assets. These assets are usually financed with a combination of debt and equity. It schematic representation can be summarized as follows:

[1] International Glossary of Business Valuation Terms is available as an appendix to the NACVA Standards.



2. Enterprise Value

Represents the market value of the operating assets in the business. In an M&A transaction, this is the value transferred from the seller to the buyer. In schematic form, enterprise value is represented as:



B. INVESTED CAPITAL VERSUS EQUITY MULTIPLES

There are two types of multiples used in the Market Approach: Invested Capital multiples and Equity multiples.

Invested capital multiples are used to calculate the market value of total assets, which is the value of (interest-bearing) liabilities plus the market value of equity.[2] Therefore, when using an invested capital multiple one must subtract debt to arrive at the value of equity[3]. Values calculated from invested capital multiples are considered "control values."

Unlike invested capital multiples which calculate the market value of the assets, irrespective of the financing, equity multiples calculate the market value of equity (the residual claim on the asset *after* the outstanding debt).

Practice Pointer: The basic equation of the Market Approach is as follows:

$$Value = \frac{Price_{comp}}{PerformanceMeasure_{comp}} \times PerformanceMeasure_{subject}$$

[2] In other words, we are leveraging the basic accounting principal of Assets = Liabilities + Equity.

[3] This fundamental concept will be developed and refined in later chapters by exploring what constitutes debt, how to apply premiums for control positions, how to apply discounts for minority interests, marketability concerns, non-operating assets and other issues.

C. RECONCILING THE RESULTS FROM MULTIPLES

Market multiples are based on individual companies with differing cost and capital structures, leading to multiples yielding different results when applied to a subject company. A valuation professional may find that applying a multiple of revenue yields a starkly different value indication than applying an EBITDA multiple derived from the same underlying data. The valuation professional must determine if one multiple is most appropriate for the subject company or if more than one multiple gives pertinent information.

D. CONTROL ISSUES INHERENT IN MARKET MULTIPLE SELECTION

One can move between invested capital and equity indications of value by adjusting for control (or lack of control) depending on which ownership interest one is valuing. As explained, the value of equity can be calculated using a total invested capital multiple or an equity multiple. In either case, the value represents 100% of the equity.

If the subject interest we are valuing is a 40% interest, we adjust the values resulting from the application of the multiple using a minority interest discount.

II. MARKET APPROACH METHODOLOGY AUTHORITY

A. INTERNAL REVENUE SERVICE REVENUE RULING 59-60

Internal Revenue Service Revenue Ruling 59-60 states:

> *Sales of stock of a closely held corporation should be carefully investigated to determine whether they represent transactions at arm's length. Forced or distress sales do not ordinarily reflect fair market value nor do isolated sales in small amounts necessarily control as the measure of value. This is especially true in the valuation of a controlling interest in a corporation. Since, in the case of closely held stocks, no prevailing market prices are available, there is no basis for making an adjustment for blockage. It follows, therefore, that such stocks should be valued upon a consideration of all the evidence affecting the fair market value. The size of the block of stock itself is a relevant factor to be considered. Although it is true that a minority interest in an unlisted corporation's stock is more difficult to sell than a similar block of listed stock, it is equally true that control of a corporation, either actual or in effect, representing as it does an added element of value, may justify a higher value for a specific block of stock.*
>
> *Section 2031(b) of the Code states: "in effect, that in valuing unlisted securities the value of stock or securities of corporations engaged in the same or a similar line of business which are listed on an exchange should be taken into consideration along with all other factors. An important consideration is that the corporations to be used for comparisons have capital stocks which are actively traded by the public. In accordance with section 2031(b) of the Code, stocks listed on an exchange are to be considered first. However, if sufficient comparable companies whose stocks are listed on an exchange cannot be found, other comparable companies which have stocks actively traded in on the over-the- counter market also may be used. The essential factor is that whether the stocks are sold on an exchange or over-the-counter there is*

> *evidence of an active, free public market for the stock as of the valuation date. In selecting corporations for comparative purposes, care should be taken to use only comparable companies. Although the only restrictive requirement as to comparable corporations specified in the statute is that their lines of business be the same or similar, yet it is obvious that consideration must be given to other relevant factors in order that the most valid comparison possible will be obtained. For illustration, a corporation having one or more issues of preferred stock, bonds or debentures in addition to its common stock should not be considered to be directly comparable to one having only common stock outstanding. In like manner, a company with a declining business and decreasing markets is not comparable to one with a record of current progress and market expansion."*

As specified by the IRS Revenue Ruling 59-60, the best approach to value a security interest is by observing the sales of the same stock as of or near the valuation date. In the absence of arms-length transactions of the subject company's stock, then sales of comparable stocks should be considered. Accordingly, when performing valuations for tax purposes, i.e., gift or estate tax, the valuation professional must consider the Market Approach in his/her valuation report.

B. NACVA STANDARDS AND THE AICPA STATEMENTS FOR STANDARDS FOR VALUATION SERVICES (SSVS)

The NACVA developmental standards require members issuing a conclusion of value to analyze information, as available and applicable including: *"The market price of interests of enterprises engaged in the same or similar line of business having interests actively traded in a free and open market."*[4]

The AICPA developmental standards state that when:

> *"…Developing the valuation, the valuation analyst should consider the three most common valuation approaches: Income-based approach, Asset-based approach and the Market-based approach." "The valuation analyst should use the valuation approaches and methods that are appropriate for the valuation engagement. General guidance on the use of approaches and methods appears in paragraphs 33 and 41, but detailed guidance on specific valuation approaches and methods and their applicability is outside the scope of this Statement."* [5]

Based on this guidance, the valuation professional when preparing a valuation report subject to either the NACVA or AICPA standards should consider the applicability of the Market Approach in their valuation opinion report.

[4] NACVA Development Standards, Paragraph 3.4(h).
[5] Statement on Standards for Valuation Services, Valuation Approaches and Methods, Paragraphs 31-32.

III. STATISTICS COMMONLY USED IN VALUATION

Several useful statistical measures can aid the valuation analysis. An understanding of these statistics can help answer questions about the accuracy of the data, the disparity of the data and what observations could be made regarding the data selected.

A. THE ARITHMETIC MEAN[6]

The arithmetic mean, expressed as $\bar{x}$, is the average observation of a sample. The mean is computed by adding the total of all individual observations and dividing by the number of observations.

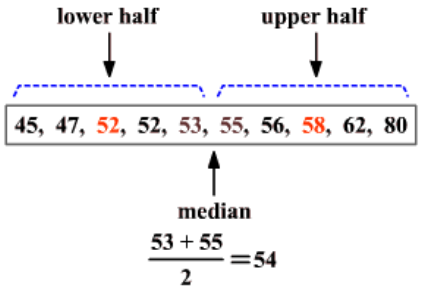
In the dataset of MVIC/EBITDA values:

- 0.6, 2.5, 2.8, 2.9, 3.1, 3.2, 3.2, 3.2, 4.0, 5.5 and 10.5;
- The arithmetic mean is 3.8.

When computing the mean in a valuation analysis, it is common for practitioners to use the mean observation when no individual observation in the dataset is considered better than the other observations when compared to the subject. In other words, absent a comparable transaction superior to the other observations, an equally weighted average multiple may be best suited to apply to the subject metric for valuation purposes.

B. THE MEDIAN AND QUARTILES[7]

The Median is literally the value of the observation where half of the observations lie below and half of the observations lie above it. The median lies in the middle of the observations in a dataset arranged from lowest value to highest value. If there is an even number of observations, then the middle two observations are averaged and the result is considered the median.



Quartiles divide a distribution into quarters. Twenty five percent of the observations will lie at or below the first quartile; fifty percent of the observations will like at or below the second quartile, or the fiftieth percentile; seventy five percent of observations will lie at or below the third quartile; the remaining twenty five percent of the observations are located in the upper quartile.

[6] In Excel use the command =average(select your dataset)
[7] In Excel use the command =Median(select your dataset)

In the dataset of MVIC/EBITDA values:

- 0.6, 2.5, 2.8, 2.9, 3.1, 3.2, 3.2, 3.2, 4.0, 5.5 and 10.5;
- The median is 3.2.

The median is calculated as the average of the two middle values, 3.1 and 3.2 = 3.15, rounded to 3.2. The mean can be adversely affected in datasets that contain outliers. In those cases, the median can be a better measure of central tendency.[8] This can be observed in cases where a significant disparity exists between the mean and median calculations.

C. THE MODE[9]

The mode is the most frequently occurring or repetitive value in a string of data.

In the dataset of MVIC/EBITDA values:

- 0.6, 2.5, 2.8, 2.9, 3.1, 3.2, 3.2, 3.2, 4.0, 5.5 and 10.5;
- The mode is 3.2.

In valuation theory, the mode could be the best indicator of value when transactions occur frequently at a repetitive value.

D. THE HARMONIC MEAN[10]

The harmonic mean, "H," is the reciprocal of the arithmetic mean of the reciprocals of the observations. It is a special type of weighted mean in which an observation's weight is inversely proportional to its magnitude. The harmonic mean is a relatively specialized concept of the mean that is appropriate when averaging ratios ("amount per unit") *when the ratios are repeatedly applied to a fixed quantity* to yield a variable number of units. (emphasis added)[11]

In other words, outliers do not influence the harmonic mean as they do the arithmetic mean. It is expressed in the following formula:

$$H = \frac{n}{\frac{1}{x_1} + \frac{1}{x_2} + \cdots + \frac{1}{x_n}}$$

Where: n = total number of observations
And X_1, X_2, X_n= individual observations

In the dataset of MVIC/EBITDA values:

- 0.6, 2.5, 2.8, 2.9, 3.1, 3.2, 3.2, 3.2, 4.0, 5.5 and 10.5;
- The harmonic mean is 2.4.

[8] Caution should be exercised when applying the median to a dataset that has few observations as this may result in a statistically invalid conclusion.

[9] In Excel use the command =Mode(select your dataset)

[10] In Excel use the command =Harmean(select your dataset)

[11] Mean, Median, Harmonic Mean: Which is Best? Business Valuation Resources, Jan. 2015

E. STANDARD DEVIATION[12]

The standard deviation, represented by the Greek letter sigma, "σ," provides important information about the usefulness of a dataset. The standard deviation measures the dispersion of the dataset from its mean and quantifies the variability of the underlying data. It is expressed in the following formula:

$$\sigma = \sqrt{\frac{1}{n}[(x_1 - \bar{x})^2 + (x_2 - \bar{x})^2 + \cdots + (x_n - \bar{x})^2]}$$

Where: $\bar{x} = \frac{1}{n}(x_1 + x_2 + \cdots + x_n)$

n is the number of observations,
$X_1, X_2, \ldots, X_n$ are the individual observations, and
$\bar{x}$ is the sample mean

The standard deviation can also be used to express a measure of confidence about the location of a population mean (μ) using confidence intervals. In a normally distributed sample,[13] a single standard deviation provides a confidence interval of 68%. In other words, there is a 68% confidence (or 68% of the time) that a given outcome will be within one standard deviation of the mean.

For example, in the following MVIC/EBITDA dataset:

- 0.6, 2.5, 2.8, 2.9, 3.1, 3.2, 3.2, 3.2, 4.0, 5.5 and 10.5;
- The standard deviation is 2.4.

Therefore, if we are stating an opinion about the data using the mean value of 3.8, we would say with 68% confidence, that the value of the MVIC/EBITDA multiple is between 1.4 and 6.2 (i.e. 3.8 mean ± 2.4 one standard deviation).

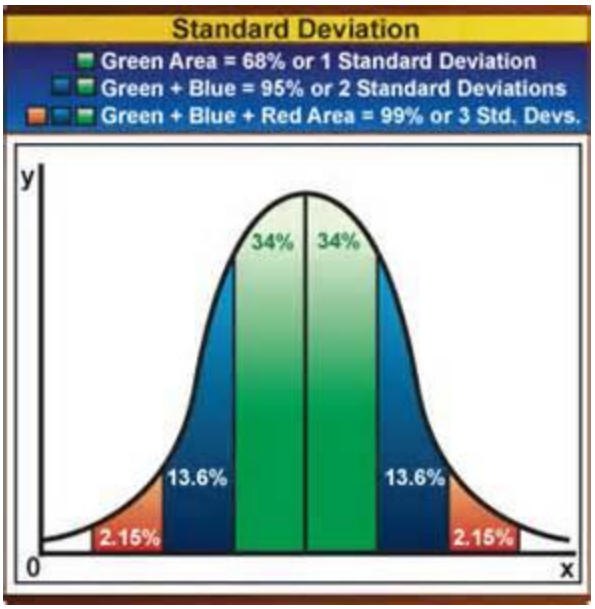
Practice Point: Do not apply the standard deviation directly to a company's revenue or earnings metric. The standard deviation only gives information about the sample data providing an indication of the dispersion of the data points around the average.

To obtain a confidence interval of 95%, multiply the standard deviation by 2.0. In the above example, one could state with 95% confidence that the MVIC/EBITDA multiple is between 0 and 8.6 (3.8 mean ± 2 x 2.4 two standard deviations).[14]

[12] In Excel use the command =Stdev.p(select your dataset) to use to produce a 68% confidence interval; To compute a 95% confidence interval, multiply the result by 2.0.

[13] Valuation analysts will not always encounter normally distributed samples. In the Market Approach, distributions are frequently positively skewed.

[14] A negative valuation multiple value has no meaning.



Single standard deviations are more commonly used since the variability and number of observations necessary to make statistically meaningful the use of a 95% confidence interval for business valuation purposes is challenging.

F. COEFFICIENT OF VARIATION

The coefficient of variation (CV) expresses the magnitude of variation of the observations from the mean, relative to their average size. It removes the scale, making comparisons of datasets that may have different magnitudes possible. For example, given an average Price/EBITDA multiple of 10 and a standard deviation of 2.0 along with a Price/Sales multiple of 0.5 and standard deviation of 0.2, it may seem that the Price to Sales multiple is a better choice given its lower standard deviation. However, once the statistics are calculated on the same scale, the Price to Sales multiple actually has much greater variability.

The Coefficient of Variation is expressed in the following formula:

$$CV = \frac{\sigma}{\bar{x}}$$

Where:
σ is the standard deviation of the sample, and
$\bar{x}$ is the sample mean

The usefulness of the coefficient of variation stems from the fact that it is a measure of the predictive value of the datasets. The lower the coefficient of variation, the tighter is the data around the mean and thus the higher the predictive value of the data. In valuation, the multiple with the lowest coefficient of variation, or CV closest to zero, indicates the best mathematical predictive result based on the criteria selected.

For example, suppose one has multiples for both MVIC/Sales and MVIC/EBITDA. The MVIC/Sales multiple is 0.90 and has a CV of 0.70. The MVIC/EBITDA data has a CV of 0.30.

One would select the multiple with a CV closest to zero, so the MVIC/EBITDA multiple should be the one selected in the valuation analysis of the subject company.

Keep in mind that in a valuation analysis, other factors such as the commonly used industry multiples should be considered regardless of their initial CV value. Applying multiples that are not germane to the industry could result in an erroneous value despite the use of a statistically superior predicted value derived from applying the CV closest to zero methodology.

G. MAKING THE DATA STRONGER THROUGH THE ELIMINATION OF OUTLIERS

How much of an effect do outliers have on the overall statistics derived from the population? In the prior example, we used the following MVIC/EBITDA dataset:

- 0.6, 2.5, 2.8, 2.9, 3.1, 3.2, 3.2, 3.2, 4.0, 5.5 and 10.5

This produced values as shown below:

- Mean = 3.8
- Median = 3.2
- Mode = 3.2
- Harmonic Mean = 2.4
- Standard Deviation = 2.4

If the subject company has an EBITDA of $1,000,000 then, the MVIC results for the company are as follows, the:

- Mean = $3,800,000
- Median = $3,200,000
- Mode = $3,200,000
- Harmonic Mean = $2,400,000
- Standard Deviation = $2,400,000

The 68% confidence interval would then be defined as a range of value between:
$3,800,000 ± $2,400,000 or $1,400,000 to $6,200,000. This interval is a fairly large spread between upper and lower values.[15]

Eliminating the uppermost and lowermost outliers from the dataset:

- ~~0.6~~, 2.5, 2.8, 2.9, 3.1, 3.2, 3.2, 3.2, 4.0, 5.5 and ~~10.5~~

Produces the following values:

- Mean = 3.4
- Median = 3.2
- Mode = 3.2
- Harmonic Mean = 3.2
- Standard Deviation = 0.8

[15] When applying confidence intervals one must always use the mean value. The calculation formula is based on the mean.

Using the same EBITDA of $1,000,000, the MVIC results for the company are as follows:

- Mean = $3,400,000
- Median = $3,200,000
- Mode = $3,200,000
- Harmonic Mean = $3,200,000
- Standard Deviation = $800,000

Given this tighter grouping of data points, we can now say with 68% confidence that our range of value is between $4,200,000 and $2,600,000 ($3,400,000 ± $800,000). This is a much more useful and tighter spread of potential values. Also, notice how the spread between the mean, median, mode and harmonic mean have narrowed. The new $800,000 standard deviation is one-third of its original $2,400,000 result.

IV. METHODS USED IN THE MARKET APPROACH

There are two methods under the Market Approach, the Completed Transactions Method and the Guideline Public Company Method. Chapters 11 and 12 cover the Completed Transactions Method. Chapter 13 covers the Guideline Public Company Methodology.

When selecting comparable market transactions (private or public), the valuation analyst is applying the principle of "substitution." That is, that the value of any investment tends to be determined by the cost of acquiring an equally desirable substitute. The comparison does not have to involve identical assets. It simply needs to include assets that are substantially equivalent.

CHAPTER REVIEW QUESTIONS

1. The market approach is frequently referred to by what other professional discipline's approach?

    a. Sales comparison approach used by realtors
    b. Automotive dealer "best deal" approach
    c. Broker's commodity pricing model
    d. Black Scholes valuation methodology

2. In order to convert a Market Value of Invested Capital to an Equity Value, the valuation professional must do which of the following?

    a. Add the value of working capital
    b. Add the value of working capital and subtract all debt
    c. Add the value of working capital excluding inventory and subtract all debt
    d. None of the above

3. Which of the following statements about the Harmonic Mean is correct?

    a. Calculated by taking the average of the median and the mean
    b. Calculated by taking the average of the median, mean and mode
    c. A measure of central tendency that emphasizes an equal weighting of each observation
    d. A measure of central tendency that emphasizes an equal weighting of the mean, median and mode

4. Which of the following statements regarding standard deviation (σ) is correct?

    a. Standard deviation is the most frequently occurring observation in a dataset
    b. It increases as the number of observations increase
    c. It decreases as the disparity between observations is increased
    d. It is a measure of mathematical expression about the dispersion of a population to its mean

5. All else equal, the valuation professional should select the multiple with a Coefficient of Variation:

    a. Equal to the subject's Beta
    b. Closest to the subject's Beta
    c. Closest to zero
    d. Closest to the mean

CHAPTER TWO

COMPLETED TRANSACTIONS METHOD

I. OVERVIEW

The Completed Transactions Method looks to define the value of the business by reference to transactions involving similarly comparable businesses. These similar companies are referred to as "comparables" or "comps."

II. PRINCIPLES TO SELECT COMPARATIVE DATA

What makes a company comparable? Unlike the sale of other assets such as houses or cars, the data regarding the sales of companies occurs less frequently and may not be as similar to our subject as the valuation professional would like. Hence, one of the challenges faced by valuation analysts is deciding on the search parameters for comparable transactions in terms of time period, company metrics and industry characteristics (other than SIC classification).

Practice Pointer: It is critically important that the valuation analyst applies professional judgment in reducing the population of observations or adding back additional observations as he/she deem appropriate. Notwithstanding, valuation professionals sometimes adopt the **"5/10/10 Principle"** as a way to examine transaction data. Its application begins by selecting all transactions within the subject company's SIC code. After obtaining this raw information, transactions older than five years from the valuation date will be eliminated. This timeframe is suggested because a typical business cycle lasts approximately five years; however, economic shocks or shorter or longer business cycles should be considered. Next, any transactions that are ten times larger or ten times smaller than the subject company's revenues AND 10 times larger or ten times smaller than the subject company's earnings or EBITDA are eliminated. Application of the 5/10/10 principle is an objective paring of the data.

A. VALUE PRODUCED BY COMPLETED TRANSACTIONS METHOD

Usually, the transactions listed in the Completed Transactions Method data involve the sale of 100% of the business. Therefore, the result obtained from applying the Completed Transactions Method is a control position or market value of invested capital (MVIC) value. To obtain the subject company's equity value, the valuation analyst must subtract the subject company's interest-bearing debt and apply additional adjustments depending on the database used. This database specific process is described more fully in the individual databases sections that follow.

What multiples are used? Since the Completed Transactions Method produces a control value, MVIC multiples are most often used to calculate the market value of invested capital (MVIC)

directly. The following are the most common multiples used in the Completed Transactions Methodology:

Market Value of Invested Capital (MVIC) Multiples:

- MVIC/Sales
- MVIC/ EBITDA (Earnings Before Interest, Taxes, Depreciation and Amortization)
- MVIC/EBIT
- MVIC/Total Book Value of Invested Capital (TBVIC)[16]

The Completed Transactions Method uses databases of transactions that are available for purchase. The data gathered is from the three following events:

- Public companies buying public companies
- Public companies buying private companies
- Private companies buying private companies

Not listed are private companies buying public companies. Although this does occur occasionally, there are simply not enough transactions from which to draw meaningful statistical conclusions for business valuation purposes. Accordingly, there is no business valuation repository of this data other than the individual announcements themselves.

III. UNDERSTANDING THE PRINCIPLE BEHIND THE MULTIPLE

A. BASIC IMPLEMENTATION

A simplified outline of the steps in applying the Completed Transactions Method is as follows:

1. Review the nature and background of the subject company, its industry, the economy, etc. The valuation analyst should understand the subject company's business sustainability in the industry and the conditions under which it operates.

2. Obtain the financial statements for the subject company (prior five years of financial data).

3. Normalize the subject company's financial statements. This is done to eliminate non-recurring transactions, adjust for unusual conditions and identify non-operating assets and liabilities.

4. Search for and select appropriate industry transactions.

5. Select appropriate multiples from the comparable transaction population. The valuation analyst should consider which multiples will be the most appropriate to value the subject company from the population of multiple choices. Remember, that as one adjusts the data population, the coefficient of variation, standard deviation, mean, median, etc. will change based on the data selected.

[16] Commonly used in holding companies that use mark-to-market accounting such as insurance companies (not insurance agencies) and banking entities.

6. Choose the appropriate multiple based on an analysis of the multiple with the lowest coefficient of variation. The coefficient of variation closest to zero has the smallest standard deviation and therefore, the least amount of variability in its application.[17]

7. Multiply the appropriate multiple by the corresponding subject company measure – (i.e. multiple the comparable company derived MVIC/EBITDA multiple by the subject company's EBITDA). Misapplying multiples is a common mistake. Be sure to apply the proper multiple to the proper performance measure.

8. Make any adjustments to the raw number computed for any non-operating assets or other adjustments as discussed in the database section that follows. Be sure to understand what is included in the computation and what is not included. If one is valuing the company's equity, which is common, an adjustment is needed for working capital, net non-operating assets, excess assets and subtract interest-bearing debt. See the database specific information for detailed information about what is required.

9. Consider the applicability of premiums and/or discounts for control, marketability, and/or liquidity. The value derived under the Completed Transactions Method initially is a control, non-marketable position. To this result, adjust for premiums and discounts as appropriate. See sections 6.5 and 6.6 for a more robust discussion of these issues.

10. Perform sanity checks and compare the results of this methodology to the results of other methods. Compare the results achieved under this method to the Income and Asset approaches. Are they similar? If a substantial difference exists, check the methodology and calculations to ensure that the valuation has been performed correctly. Be prepared to discuss and explain the results and applicability of each method.

B. APPROPRIATE MULTIPLES FOR VALUING SMALL AND LARGE COMPANIES

In general, smaller companies use gross revenue and earnings multiples. Owners of small businesses are able to exercise greater control over the expenses of the business. Therefore, using multiples that remove subjective control better reflect the value of the business. Revenue is the top line of what the business is producing at a given point in time. It is an easy multiple to use because there is little subjective argument about what a firm's revenue might be compared to its net income. Furthermore, discretionary earnings reflect the total amount that the business owner makes from the business whether it is earned through salary, dividends, executive perquisites, or other means. Though there is not a consensus on a formal definition, it is generally offered as an estimate of what the owner ultimately receives for operating the small business.

Practice Point: When using transaction databases, use caution with discretionary earnings. Each database defines discretionary earnings differently.

Larger companies most frequently use EBITDA multiples. EBITDA multiples are good measures for larger companies because the control over the company's decision making is usually spread to a larger group of directors and managers. Therefore, EBITDA many times is a good yardstick by which to measure larger subject entities.

[17] The valuation analyst should also understand what industry multiples are commonly associated with the type of business being valued. The multiple selected should be a multiple commonly used in that particular industry.

C. ADVANTAGES OF THE COMPLETED TRANSACTIONS METHOD

The advantage of the Completed Transactions Method is that it produces values for controlling interests on a non-marketable basis[18] (the databases list transactions for 100% interests in almost every instance). The transactions are non-marketable since the observed value is based upon the sale of non-public entities.

The data captures actual market transactions. Unlike the income approach, observed transactions are not based on theory, professional judgment or market assumptions. The transactions themselves are frequently difficult to locate businesses, small companies and otherwise private data not available in another forum. Unlike the asset method, the transactions observed are for the business' operating assets *and* its goodwill.

D. DISADVANTAGES OF COMPLETED TRANSACTIONS METHOD

One of the disadvantages of the Completed Transactions Method is that the underlying data is not always verifiable. Transactions rarely occur on the valuation date. This requires the valuation analyst to consider whether an adjustment needs to be made due to changing market forces over time.

The quantity of companies that are comparable may be less than optimal. In most cases, the valuation analyst will search by SIC code for comparable companies. Broad types of companies within the same SIC code might hinder the analysis as no additional information may be available to further differentiate or compare the similarity of the comparable and subject entities to one another.

E. PERSPECTIVES ON LACK OF CONTROL ISSUES WITH MARKET VALUE OF INVESTED CAPITAL MULTIPLES AND EQUITY MULTIPLES

Control is implicit in invested capital multiples. By virtue of the resulting entire entity value being derived from an invested capital multiple, it is implied that control can be exercised over the debt structure. Therefore, when calculating control positions, invested capital multiples are preferred because they require fewer subjective adjustments to arrive at a control value.

Equity multiples calculate value subject to the existing debt structure. Equity multiples value company's equity, not the market value of invested capital. Therefore, when using an equity multiple (such as Price/Net Income), based on a controlling purchase of 100% of an entity, a measure of lack of control may already be factored into the equity multiple. Stated differently, transactions involving minority interests in private transactions would more directly produce equity multiples that could be used to value minority interests using the fewest adjustments possible for a lack of control.

Therefore, a valuation analyst has to consider the merits and the degree to which he/she applies a lack of control discount to minority interests using both MVIC and equity multiples under the Completed Transactions Method. A lack of control discount on a minority interest would tend to be larger when using MVIC multiples compared to equity multiples because equity multiples

[18] It is not uncommon to adjust the control non-marketable position as derived from the Market Approach for lack of liquidity factors such as business brokerage fees, marketing expenses and other selling-related costs. In addition, privately held businesses do not sell quickly as do marketable securities. Therefore, a discount for the time value of money may also be appropriate in certain circumstances.

may have a measure of lack of control built into them since they are derived on an after-debt basis.

F. PERSPECTIVES ON LACK OF MARKETABILITY ISSUES WITH MARKET VALUE OF INVESTED CAPITAL MULTIPLES AND EQUITY MULTIPLES USING THE COMPLETED TRANSACTIONS METHOD

In its basic unadjusted calculation, the Completed Transactions Method produces a non-marketable value.[19] It is non-marketable because the transactions observed are not publicly traded entities. However, when considering a controlling interest, the valuation analyst might consider additional factors concerning the lack of liquidity of the subject interest.[20] In addition, there are risks, such as changes in value, and time value of money issues that the appraiser may consider. There could be significant time and costs that would need to be incurred in order to make the subject company salable."[21] How much time will be incurred in liquidating the subject interest? What is the reasonable cost related to the time necessary to liquidate the entity? Lack of liquidity factors might be considered by the valuation expert when applying the Completed Transactions Method to controlling interest values.

Generally, a minority share interest is not as desirable as a controlling share interest. Therefore, a lack of marketability discount might be appropriate when valuing minority interests using the Completed Transactions Method. The degree to which the discount is applied, if any, is subject to the valuation analyst's judgment and research.

IV. ISSUES IN THE APPLICATION OF THE COMPLETED TRANSACTIONS METHOD

A. FACTORS TO CONSIDER

To apply consistently the Completed Transactions Method, the valuation analyst should follow the same logic used to select the performance measures of the other approaches. For example, if the valuation analyst has selected a three-year average of EBITDA as his/her calculation base for the Weighted Average Cost of Capital (WACC), then the same three-year period should be used when applying the Completed Transactions Method metrics to the subject company.[22] This ensures the consistent application of the same selection principles to both the Market and Income approaches.

B. AVERAGING METHODS OR MULTIPLES

It is not uncommon for valuation analysts to average the results from more than one multiple when applying the Market Approach. For example, using the same dataset, one can calculate a value using both a revenue multiple and an EBITDA multiple and average the results of these two calculations. When applying this principle the valuation analyst should consider the disparity of the two independent results.

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[19] This statement is subject to the database selected and the underlying data from which the valuation analysis is made. For more guidance, the valuation analyst should refer to the database specific information contained herein and available from the data provider for additional guidance.

[20] The distinction between Liquidity and Marketability is an important, but more advanced topic.

[21] Pratt, Shannon P. *The Market Approach to Valuing Businesses*. Second Edition, page 42.

[22] If the selection involves a three-year EBITDA calculation for the Income Approach, then use the same three-year period when applying, for example, revenue or EBITDA multiples in the Market Approach.

Some questions to consider include: Is the average based on good underlying data in each? Or, is the average simply a midpoint between poor datasets? Is one multiple more useful than the other? If the independent results of applying several multiples are fairly close, there may be more confidence in the result. Many valuation analysts advise against blindly averaging values reached using different multiples, and suggest trying to reconcile any material differences if possible. Language in Revenue Ruling 59-60 warns against *blindly* averaging factors in valuation engagements.

C. DEAL STRUCTURE AND TERMS

The terms of sale are frequently disclosed in the notes about the comparable company sale. The valuation analyst should consider the affect the terms may have on the calculation of a deal price expressed in "cash today" terms. For example, the time value of money or contingent consideration might be an adjustment necessary to convert longer payment terms to a deal price as of the date of the transaction observed.

D. CORRELATION TO OTHER VALUE INDICATIONS

If the analyst is using an EBITDA or earnings multiple in the Market and Income approaches, then a further crosscheck may be performed against the Income Approach. This is done by understanding the reciprocal relationship between market multiples and discount rates. Mathematically, dividing by a fraction is the same as multiplying by its inverse:

> $100,000 divided by 20% (or $1/5^{th}$) = $500,000; is the same as
> $100,000 times the inverse, 5/1 (or 5) = $500,000.

If we convert the WACC to a pre-tax discount rate and calculate its inverse, we produce an EBITDA multiple. Therefore, it must be true that if we invert the EBITDA multiple we produce a discount rate (pre-tax). This simple exercise allows us to crosscheck Income Approach based theoretical WACC rates against market observed transactions. Review the following example:

An EBITDA market multiple of 5.2 = a WACC of (1/5.2 * 60%) or 11.5%

E. SUFFICIENT SAMPLE SIZE

How many transactions do I need to apply the Completed Transactions Method effectively? In the *Estate of Joyce C. Hall*, 1992 T.C. No 19 (1989) the court rejected the appraiser's reliance on one business transaction stating that, "One company does not a market make." Pratt offers: "Our confidence rises sharply when we can find four to seven good guideline publicly traded companies." A valuation professional should ensure there are enough, good comparable data to establish an adequate base from which to draw reasonable conclusion.[23] Ranges of uncertainty (which can be expressed as the standard deviation) tend to narrow with sample sizes of at least 10 reasonable guideline transactions.

[23] Shannon P. Pratt, Robert F. Reilly and Robert P. Schweihs, Valuing a Business-The Analysis and Appraisal of Closely Held Companies, fifth edition, page 274.

V. SUMMARY

The Completed Transactions Method relies on pricing multiples derived from transactions involving similar companies and applied to the subject company's metrics to determine the value of the subject interest.

The valuation analyst must exercise care in the determination of what is the result of applying the multiple. Is the result the value of equity or is it the value of total invested capital? If a total invested capital or market value of invested capital multiple to value equity is used, one must subtract interest-bearing debt to arrive at the value of equity. Similarly, if one is calculating the market value of invested capital using an equity multiple, one must add interesting-bearing debt to the calculation to arrive at the market value of invested capital.

According to IRS Revenue Ruling 59-60, the Market Approach should be considered whenever determining the value of an underlying security. Accordingly, the valuation professional should document his consideration of the Market Approach when valuing securities for gift or estate tax purposes.

The NACVA and AICPA standards also provide guidance suggesting that the Market Approach should be considered whenever performing a business valuation.

The valuation professional should understand several statistics. These include the mean, median, mode, standard deviation and coefficient of variation.

The Completed Transactions Method emphasizes the principle of substitution that says that the value of any "thing" tends to be determined by the cost of acquiring an equally desirable substitute. The comparable thing does not have to be identical; it simply needs to be substantially equivalent.

When selecting comparable company transactions, the valuation analyst may decide on the search parameters such as time period, company metrics and industry characteristics (other than SIC classification). Tools available involve the application of the 5/10/10 principle and other comparative analysis.

Transactions in databases are derived from three primary sources: public companies buying public companies, public companies buying private companies and private companies buying private companies.

The advantages of the Completed Transactions Method are that it consists of data involving private companies that are not publically traded and for which data is not readily available to the public. The value produced is a control value. The data is based on actual transactions and not on valuation theory, assumptions or other hypothesis.

The disadvantages of the Completed Transactions Method are that the data within the databases is often not verifiable, may include synergistic or disadvantaged market conditions, transactions do not normally occur on the valuation date and the number of comparable company deals may be limited.

Databases that have a substantial number of private smaller-sized transactions include BIZCOMPS, IBA and Pratt's Stats. Generally, these datasets involve the sales of 100% asset sale interests.

Databases with larger transactions include Done Deals, FactSet MergerStat and S&P CapitalIQ. Generally, these datasets involve the sale of equity. The valuation analyst should understand what is included in the transaction fields of each dataset to properly calculate the subject company's MVIC value or equity value.

CHAPTER REVIEW QUESTIONS

1. The completed transaction method emphasizes the principle of which of the following?

    a. Multicollinearity
    b. Substitution
    c. Multiplication
    d. Multiplication and substitution

2. Common market value of invested capital (MVIC) multiples include:

    a. MVIC/Sales
    b. MVIC/EBITDA
    c. MVIC/Gross Margin
    d. Both A and B

3. In order to maintain consistency across methodologies, a valuation professional should

    a. Always use the same multiple regardless of the database selected using the market approach
    b. Consistently apply the same period interval (e.g. not applying a forward P/E to a three-year average of EBITDA) from the income approach to the market approach
    c. Always use the same database for all of his/her valuation projects
    d. Never average the results from the revenue multiple and the EBITDA multiple

CHAPTER THREE

DATA SOURCES COMMONLY USED FOR THE COMPLETED TRANSACTIONS METHOD

I. BIZCOMPS[24,25]

A. OVERVIEW

The BIZCOMPS studies of small business sales were initiated in 1990. Through 2013, BIZCOMPS data comprises over 11,000 business transactions. Approximately 8% or 900 businesses were excluded due to their extraordinary high earnings multiples or negative earnings that would have distorted the underlying multiples derived had these outliers been included in the dataset. The underlying data is comprised of actual sales of companies. BIZCOMPS data focuses on main street businesses such as restaurants, small retailers and other hard-to-find business sale transactions.

The sale transaction data is submitted by business brokers who are mostly exclusive members of the International Business Brokers Association or "IBBA." As an inducement to submit data, contributors are granted free access for one year to BIZCOMPS data upon submitting five usable transactions or upon reasonable submission volumes over a period of years. The number of transactions included by year is shown in the table below:

[24] Unless otherwise specifically annotated, data for this section was derived from the BIZCOMPS User Guide, Copyright 2013, by Jack R. Sanders

[25] A sample of the BIZCOMPS data is included in Appendix I

Current Age of BIZCOMPS Data

Year	*Number of Transactions*
2012	452
2011	562
2010	702
2009	963
2008	1,436
2007	953
2006	1,455
2005	1,351
2004	966
2003	1,164
2002	1,045

B. DATA AVAILABLE

Data within BIZCOMPS is searchable by business type, SIC code, the date of sale and location of the business. The surveyed information includes the asking price, the sale price and the terms of the sale. Financial data includes the annual gross revenue, the Seller's Discretionary Earnings or "SDE", the amount of inventory, the amount of furniture, fixtures and equipment and the rent as a percentage of sales. From this data one can calculate the sales price as a percent of gross revenue known as the "Gross Revenue Multiple" and the sales price as a multiple of the Seller's Discretionary Earnings or "SDE Multiple."

C. GLOBAL STATISTICAL INFORMATION

Of the 11,000 total businesses sold, 37.5% were all cash sales. Furthermore, 83.5% of the 11,000 transactions reported were for transaction sales of less than $500,000. The purchase of smaller businesses is more like buying a job with SDE ratios that rarely exceed 1.5 times SDE. Transactions under $100,000 are strongly correlated with owner's remuneration as the major factor in the sale of very small businesses.

Transactions greater than $500,000 begin to demonstrate a premium. Larger businesses tend to have more management, are less dependent on the efforts of one individual and are more profitable when compared to smaller businesses.

Based on its data analysis, BIZCOMPS concludes that the ultimate sale price of all business sold ranges from 30% to 100% of gross revenues and 1.5 to 3.5 times SDE.[26]

[26] This computation excludes service stations and travel agencies.

D. WHAT IS INCLUDED IN THE SALES PRICE?

The sales price listed includes only two items: the fixtures and equipment and business-related goodwill. Cash, accounts receivable, loans receivable, inventory, real estate and all liabilities are typically excluded from the sale price. Fixtures, furniture, non-compete agreements and goodwill are included in the listed MVIC price. Accordingly, the values stated in BIZCOMPS are enterprise values on a debt-free basis.

E. HOW IS THE SELLER'S DISCRETIONARY EARNINGS CALCULATED?

BIZCOMPS defines SDE as earnings before taxes, amortization, depreciation and interest plus owner's compensation, owner's benefits, non-business related expenses and nonrecurring expenses. If there is more than one owner, a hypothetical salary will be subtracted for the lowest paid working partner.[27]

F. CONVERTING BIZCOMPS ENTERPRISE VALUES TO EQUITY VALUES

The values provided in BIZCOMPS are debt-free asset sales. The only assets included in this number are for fixtures and equipment and business-related goodwill. Therefore, the values directly derived by BIZCOMPS multiples with no adjustments thereto are business enterprise values or market values of invested capital (MVIC).

In order to convert enterprise value to an equity value, additional steps are required.

After applying the desired valuation multiple to the subject appropriate statistic (i.e. revenue multiple times subject company's revenue), to this result add the balance sheet items of the subject company for all items other than fixtures and equipment. In other words, all of the subject company's working capital, long-term assets and other assets (excluding fixtures and equipment) must be added to the BIZCOMPS value. Next, all interest bearing liabilities must be subtracted from the value derived. The result is the value of the subject company's equity.

G. MINORITY AND MARKETABILITY DISCOUNTS USING BIZCOMPS

The values from BIZCOMPS data are based on transactions of a 100% ownership interest. By definition, this means that the ownership interest calculated is a control position. Therefore, if calculating a minority interest, a lack of control discount might be appropriate.[28]

The calculation of a marketability discount is based on the valuation analyst's judgment. Many valuation experts advocate that the value derived from BIZCOMPS produces a control, non-marketable value. However, others believe that an additional discount for lack of marketability or, as discussed in section 6.6 herein, a lack of liquidity discount should be considered. BIZCOMPS does not state a firm position on this issue. Rather, it provides the results of its data and leaves the merits of the decision to the valuation analyst.

The average transaction as recorded in BIZCOMPS had a median time to sell of 174 days and an average of 218 days, or approximately six to seven months to sell. Further, since the collected data originated from business brokers, a fee was paid upon completion of the sale. The majority of the business brokers reported a 10% commission on the total sales price.

[27] BIZCOMPS User Guide, p16.

[28] Section 6.5 discusses the potential degrees of control based on whether the valuation analyst selects MVIC or equity multiples.

Valuation experts generally consider three positions on the application of lack of marketability discounts in the form of lack of liquidity discounts when relying upon BIZCOMPS data for valuing a subject company's interest:

1. No discount, as the subject interest is unlikely to require brokerage fees to liquidate and the time to sell the business is considered to be a normal interval;
2. At or near a 10% discount since, the BIZCOMPS sales price data includes brokerage fees which are normally about 10% and the time to sell is considered to be a normal interval; or
3. At or near a 10% discount for brokerage fees plus an additional discount for the time value of money since, the transaction cannot be converted to cash in approximately 3 to 5 days.

II. INSTITUTE OF BUSINESS APPRAISERS[29]

A. OVERVIEW

Founded in 1978, the Institute of Business Appraisers (IBA) is the oldest professional society devoted solely to the appraisal of closely-held businesses. On March 1, 2012 the IBA was acquired by the National Association of Certified Valuators and Analysts (NACVA). A new appraisal database was created with the IBA data now known as the Appraisal Database and Mentoring Services or "ADAM."

IBA or ADAM has over 37,000 business purchase/sales transactions over 800 SIC codes. The database has over 2,000 sales in excess of $1,000,000 of deal price.

As shown in the table below, 86.4% of the deals listed are $500,000 or less in sales price. However, the database also has 4,607 deals or 12.2% of its total number of deals in the $500,000 to $5,000,000 range.[30]

ADAM Number of Deals by Deal Price

Deal Price	*Number of Transactions*	*Percent of Total*
$0 to $500,000	32,533	86.4%
$500,001 to $1,000,000	2,683	7.1%
$1,000,001 to $5,000,000	1,924	5.1%
$5,000,001 to $10,000,000	281	0.7%
Greater than $10,000,000	224	0.6%

ADAM (IBA Market Data) obtains transactions from both brokers as well as from public filings on private company acquisitions by public companies. The majority of the information submitted to IBA is from members of the International Business Brokers Association (IBBA) who hold a Certified Business Intermediary (CBI) designation.

[29] Unless specifically annotated, data for this section was derived from the IBA website: www.go-iba.org
[30] Information obtained directly from IBA representatives.

B. DATA AVAILABLE

Data within IBA is sortable by business type, SIC code, the date of sale, asking price, owner's compensation and location of the business. IBA includes valuation multiples for Price/Sales and Price/Discretionary Earnings. The expanded data includes business fields for sixteen income statement fields for three years of data and fifteen asset fields for one year of data. The expanded data was introduced several years ago. Thus, older data may not have the expanded data information.

The IBA data is queried from an Excel-based data engine that allows several parameters to be inputted to sort data.

What Is Included in the Price Listed? – IBA transaction remuneration is listed as the deal "Price." Price includes the total consideration, including any notes or liabilities assumed and employment contracts or non-compete agreements. Real estate is excluded from the sale price. Fixtures, furniture, inventory, non-compete agreements and goodwill are typically included in the MVIC price.

Practice Point: Inventory is included in IBA, but is excluded in BIZCOMPS

C. HOW IS THE DISCRETIONARY EARNINGS MEASURE CALCULATED?

IBA defines discretionary earnings as annual earnings before owners' compensation expense, interest expense and income tax expense. The tutorial on the ADAM website[31] notes that this data category is not available for all transactions.

D. CONVERTING IBA ENTERPRISE VALUES TO EQUITY VALUES

The values provided in IBA are for debt-free asset sales. The only assets included in this number are for inventory, fixtures and equipment and business-related goodwill. Therefore, the values derived from applying the IBA multiples with no adjustments are enterprise values or market values of invested capital (MVIC).

In order to convert enterprise value to an equity value, additional steps are required. After applying the desired ratio to the subject appropriate statistic (i.e. Revenue Multiple times subject company's Revenue), the valuation analyst must add the balance sheet items of the subject company for all items other than fixtures and equipment. In other words, all of the company's working capital, long-term assets and other assets (excluding fixtures and equipment) must be added to the IBA value. Next, all of the company's interest bearing liabilities must be subtracted from the value derived. The result is the value of the company's equity.

E. DIRECT MARKET DATA METHODOLOGY ("DMDM")

The IBA nomenclature for the Completed Transactions Method is the Direct Market Data Method or "DMDM." A unique aspect of DMDM methodology is that one may apply a percentile multiple in addition to the average multiple. In other words, the valuation analyst could select statistics about the data sample's 60th percentile. One must have at least 20 data

[31] http://www.adamdata.com/ibamarketdatabase/tutorials/tutorial3.aspx

observations in order to use this methodology. This option is available using IBA's online tools.

F. MINORITY AND MARKETABILITY DISCOUNTS USING IBA

The values from the IBA data are based on transactions of a 100% ownership interest. By definition, this means that the interest calculated is a control position. Therefore, if calculating a minority interest, a lack of control discount might be appropriate.[32]

The calculation of a marketability discount is based on the valuation analyst's judgment as some valuation experts advocate that the value derived from IBA produces a control, non-marketable value. In addition, many valuation experts believe that an additional discount for lack of marketability or as discussed in section 6.6 herein, a lack of liquidity discount should be considered. IBA does not state a firm position on this issue.

III. PRATT'S STATS[33]

A. OVERVIEW

The Pratt's Stats has compiled deal related data since its inception in 1996. The database includes approximately 21,100 transactions. The deals included in Pratt's Stats are categorized by size in the table below:

Pratts Stats Number of Deals by Deal Price

Deal Price	*Number of Transactions*	*Percent of Total*
$250,000 and under	8,552	40.5%
$250,001 to $500,000	2,756	13.1%
$500,001 to $1,000,000	1,784	8.5%
$1,000,001 to $2,000,000	1,202	5.7%
$2,000,001 to $5,000,000	1,340	6.4%
$5,000,001 to $10,000,000	1,097	5.2%
$10,000,001 to $20,000,000	1,129	5.4%
$20,000,001 to $50,000,000	1,361	6.5%
$50,000,001 to $100,000,000	778	3.7%
$100,000,001 to $500,000,000	827	3.9%
$500,000,001 to 1,000,000,000	274	1.3%

About 40.5% of the transactions involve smaller deals under $250,000 in sales price. However, the database also has 7,913 deals (37.5%) in the $500,000 to $50,000,000 range.

[32] Section 6.5 discusses the potential degrees of control based on whether the valuation analyst selects MVIC or equity multiples.
[33] Unless otherwise specifically annotated, data for this section was derived from the Pratt's Stats website: www.bvmarketdata.com

Pratt's Stats obtains transactions from business brokers directly, Business Valuation Resources' (BVR) personnel who travel to the offices of business brokers to collect the information from their files, and BVR personnel research at the Securities and Exchange Commission's (SEC) website on private company acquisitions by public companies. The majority of the information submitted to Pratt's Stats is from members of the International Business Brokers Association (IBBA) who hold a Certified Business Intermediary (CBI) designation. The information source including the broker's name and firm, if applicable, is available to facilitate further communication about the reported deal.

B. DATA AVAILABLE

Data within Pratt's Stats is sortable by business type, SIC code, the date of sale and location of the business. The surveyed information includes the asking price, the sale price, the terms of the sale, target name, and the buyer name in the case of SEC transactions.

Financial data includes income, asset and transaction data. Income data includes the latest full year reported income statement including net sales, gross profit, yearly rent, owner's compensation, operating profit and net income. Asset data includes a purchase price allocation balance sheet. Pratt's Stats backs out real estate in all reported transactions. Transaction data includes the date of sale, days to sell, asking price, selling price, market value of invested capital, non-compete value, employment agreement value, amount of cash paid down, financing terms of the agreement and the type of entity purchased.

Pratt's includes valuation multiples such as Market Value of Invested Capital (MVIC)/Net Sales, MVIC/Gross Profit, MVIC/EBITDA, MVIC/EBIT, MVIC/Discretionary Earnings[34] and MVIC/Book Value of Invested Capital. Also included are useful ratios that measure profitability, leverage, liquidity and activity ratios.

The transaction data is summarized into a one-page report that includes the range of individual transaction values for several statistics including the sale date, net sales, MVIC, EBITDA, EBIT, Net Income, Gross Profit Margin, Operating Profit Margin, Net Profit Margin, MVIC/Net Sales, MVIC/Gross Profit, MVIC/EBIT, MVIC/EBITDA, MVIC/Discretionary Earning and MVIC/Book Value of Invested Capital. As the choices are narrowed, the summary page updates the statistical information based on the data selected.

C. WHAT DATA IS INCLUDED IN THE MVIC PRICE?

Pratt's Stats lists the deal price as the Market Value of Investment Capital (MVIC) which includes the total consideration paid plus any interest-bearing liabilities assumed and any amounts associated with non-compete agreements. Appraisers should use the Asset Data column to determine what was included in the sale price. Bundled deals may be different. If no information is listed, typically cash, accounts receivable, loans receivable, real estate and all liabilities are excluded from the sale price. Fixtures, furniture, inventory and goodwill are typically included in the listed MVIC price.

[34] Pratt's Stats defines Discretionary Earnings as Pre-tax Operating Profit + Owner's Comp + Noncash charges

D. CONVERTING PRATT'S STATS ENTERPRISE VALUES TO EQUITY VALUES

The MVIC values provided in Pratt's Stats often have specific information about what was included in the price listed. Valuation professionals should look to the deal data as reported in the Asset Data table to ensure that the application to the subject company is consistent with the data provided.

The valuation analyst might need to adjust the MVIC value listed for deal-specific items included in the deal price before applying the desired ratio to the subject company statistics. For example, if within a population of transactions, one includes working capital, the purchase price should be adjusted to exclude working capital. Otherwise, the data will be skewed by the amount of working capital included in the single transaction.

Next, the valuation analyst will apply the desired ratio to the subject appropriate statistic (i.e. revenue multiple times the subject company's revenue. To this result, the valuation analyst must add the balance sheet items of the subject company for all items not included in the deal price calculation such as the subject company's working capital, long-term assets and other assets (excluding inventory, fixtures and equipment). Finally, the company's interest-bearing liabilities must be subtracted from the value derived. The result is the value of the subject company's equity.

E. PERCENTILE OPTION

Pratt's Stats has an option to view or select a statistical measure above or below the median. This functionality gives users better insight into the transactions distribution, as opposed to only being able to observe the median and average.

F. MINORITY AND MARKETABILITY DISCOUNTS USING PRATT'S STATS

The values from Pratt's Stats are derived from sales information that is nearly always a 100% ownership interest. By definition, this means that the ownership interest calculated is a control position. Therefore, if calculating a minority interest, a lack of control discount might be appropriate.[35]

Pratt's Stats defers the question of marketability discounts to Shannon Pratt's, *The Market Approach to Valuing Businesses*.[36]

> *"If valuing a controlling interest, a discount for lack of marketability may be appropriate in limited circumstances. There could be significant time and costs that would need to be incurred in order to make the subject company saleable, which could be the basis for a lack of marketability discount."*
>
> *"The merged and acquired company method produces a value on a control basis. A controlling interest is not as readily marketable as a publicly traded stock. Therefore, if valuing a controlling interest, some discount for lack of marketability may be warranted, although if so, it generally would not be as great a percentage as would be appropriate for a minority interest, in fact, probably substantially less."*

[35] See section 6.5 for a further discussion regarding lack of control discounts.

[36] *The Market Approach to Valuing Businesses*, Shannon Pratt, New York: John Wiley & Sons, 2001, Chapter 3, The Guideline Merged and Acquired Company Method, p. 39

This indirect guidance suggests that the analysis might consider a lack of marketability discount in the computation of the subject company using Pratt's Stats data. The lack of marketability discount may take the tangent form of a lack of liquidity discount to account for the time and expense necessary to convert the subject private security to cash.[37]

IV. DONE DEALS[38]

A. OVERVIEW

The Done Deals database includes approximately 10,300 transactions through the first quarter of 2014. Done Deals data focuses on middle market companies with purchase prices between $1,000,000 and $1,000,000,000. According to Done Deals, the median price of the 10,300 transactions is approximately $15,000,000.

Done Deals transactions are obtained from financial reports that have been filed with the Securities and Exchange Commission (SEC). Companies subject to SEC reporting requirements must report transactions involving the acquisition of a 10% interest or more in an entity. Most of the data as reported has been subjected to Generally Accepted Accounting Principles (GAAP). Over 75% of the transactions are for privately owned companies. Another 11% of the companies included in the database were subsidiaries of public companies.

B. DATA AVAILABLE

Data within Done Deals is sortable by business type, SIC code, the date of sale, buyer, seller and location of the business. The surveyed information includes the sale price, company contact information and the terms of the sale.

Financial data includes income, asset and transaction data. Income data includes the latest full year reported income statement including total revenue, net income, cash flow and EBITDA. Asset data includes the total assets and stockholder's equity. Transaction data includes the type of sale (i.e. asset or stock), date of sale, selling price, written description of the seller's business, financing terms of the agreement and the name and contact information for both seller and buyer.

Done Deals provides valuation multiples for Price/Assets, Price/Equity, Price/Revenue, Price/Earnings, Price/Cash Flow and Price/EBITDA.

C. WHAT DATA IS INCLUDED IN THE PRICE?

Unlike BIZCOMPS, IBA and Pratt's Stats, approximately 76% of the sales recorded in Done Deals are stock purchases.

About 24% of the deals in Done Deals are assets purchases. The price listed is equal to the price paid for the equity plus the value of any assumed liabilities. Appraisers should use the deal "Terms" field to determine what was included in the sale price.

[37] See section 6.6 for a further discussion regarding lack of marketability and lack of liquidity discounts.
[38] Data for this section obtained from the Done Deals website: http://www.donedeals.com unless otherwise noted.

D. DONE DEALS EQUITY/ENTERPRISE VALUE ADJUSTMENTS

The valuation analyst should exercise care to make sure he/she is applying the appropriate multiples to relate value to the subject company. For example, if the analyst has selected all equity based transactions, no adjustment for long-term liabilities or working capital would be necessary to convert the value derived from Done Deals to the value of an equity multiple from which to value the subject entity. In other words, the valuation analyst would not need to add the balance sheet items of the subject company for all items not included in the deal price calculation such as the subject company's working capital, long-term assets and other assets. Interest-bearing liabilities would not be subtracted from the value derived since the value starts with an equity value, not an enterprise value.

Practice Point: When working with any transactions database, the valuation analyst should consider the appropriateness of adjustments for the subject company's excess, non-operating assets and/or other assets and liabilities.

For assets sales, the Done Deals (MVIC) price includes the total consideration paid plus any interest-bearing liabilities assumed and any non-compete value. Appraisers should use the deal "Terms" field to determine what was included in the sale price. Bundled deals may be different. If no information is listed, typically cash, accounts receivable, loans receivable, real estate and all liabilities are excluded from the sale price. Fixtures, furniture, inventory and goodwill are typically included in the listed MVIC price.

For asset deals, the valuation analyst must add the balance sheet items of the subject company for all items not included in the deal price calculation such as the subject company's working capital, long-term assets and other assets (excluding inventory, fixtures and equipment). Finally, all interest-bearing liabilities must be subtracted from the value derived. The result is the value of the subject company's equity.

E. MINORITY AND MARKETABILITY DISCOUNTS USING DONE DEALS

The values from Done Deals are derived from data based on purchases of at least a 10% stock ownership interest. The majority of these purchases involve large companies in which the purchaser also retains some type of control in the entity acquired via a board seat(s), advisory role or other form of limited control. Therefore, the value is usually expressed as a control, non-marketable value despite the fact that less a controlling interest in the company was purchased. Accordingly, if a minority interest is the subject valuation, a discount for lack of control might be appropriate.

The analysis might consider a lack of marketability discount in the computation of the subject company using Done Deals data. In deciding whether a lack of marketability discount is appropriate the valuation analyst should take care to analyze the nature of the comparative transactions. For example, the dataset may involve publicly traded companies that by definition are marketable securities. In those instances the value derived from the dataset might be control, marketable.

A lack of marketability discount could take the form of a lack of liquidity discount to account for the time and expense necessary to convert the subject private security to cash. Note that there is an inverse relationship between deal transaction costs such as brokerage fees, accounting fees, transactions size, etc., and deal size. Since Done Deals represents larger transactions, the lack of liquidity discount would generally be proportionately smaller when

compared to the smaller deals typically included in IBA, BIZCOMPS and to a lesser extent, Pratt's Stats data. Again, it is imperative that the analyst consider the underlying data upon which the criteria for a lack of marketability discount would be based.

V. FACTSET MERGERSTAT[39]

A. OVERVIEW

The FactSet MergerStat database includes approximately 450,000 transactions through the third quarter of 2013. MergerStat data focused on U.S. and U.S. cross-border transactions since 1992, European major markets since 2000 and global transactions since 2003. Public deals are added to the database the same day they are announced.

FactSet MergerStat data is compiled from U.S. public and private company transactions where a U.S. public company was involved and the agreement was filed with the SEC.

B. DATA AVAILABLE

Data within FactSet MergerStat is searchable by business type, SIC code, the date of sale, buyer, seller and location of the business. The surveyed information includes the sale price, company contact information and the terms of the sale.

In addition, most of the data is linked to its source documentation. This might include the actual agreements, financing terms, tender offer documents, proxy filings, call transcripts and other data. MergerMetrics, a companion product, allows users to build presentation-ready deal document books incorporating the key deal documents, exhibits, protective terms, review fees and other information.

FactSet MergerStat provides valuation multiples for Price/Assets, Price/Stockholder's Equity, Price/Revenue, Price/Earnings, Price/Cash Flow and Price/EBITDA.

C. WHAT DATA IS INCLUDED IN THE PRICE?

Most of the deals recorded in FactSet MergerStat are stock purchases. Appraisers should use the deal terms field to determine what was included in the sale price.

D. FACTSET MERGERSTAT EQUITY/ENTERPRISE VALUE ADJUSTMENTS

The majority of the transactions are stock sales. Therefore, the valuation analyst should exercise care to make sure he/she is applying the appropriate multiples to relate value to the subject company. For example, if the valuation analyst has selected all equity based transactions, no adjustment for long-term liabilities or working capital would be necessary to convert the value derived from FactSet MergerStat to the value of an equity multiple from which to value the subject entity. In other words, the valuation analyst would not need to add the balance sheet items of the subject company for all items not included in the deal price calculation such as the subject company's working capital, long-term assets and other assets. Interest-bearing liabilities would not be subtracted from the value derived since the value starts with an equity value, not

[39] Data for this section obtained from the FactSet MergerStat website: http://www.factset.com/data/factset_data/factsetmergers unless otherwise noted herein.

an enterprise value. The valuation analyst should consider adjustments for the subject company's excess, non-operating assets and/or other assets and liabilities.

E. MINORITY AND MARKETABILITY DISCOUNTS USING FACTSET MERGERSTAT

The values from FactSet MergerStat are derived from data based on purchases of at least a 10% stock ownership interest. The majority of these purchases involve large companies in which the purchaser also retains some type of control in the entity acquired via a board seat(s), advisory role or other form of limited control. Therefore, the value is usually expressed as a control value despite the fact that less than a controlling interest in the company was purchased. Accordingly, if a minority interest is the subject valuation, a discount for lack of control might be appropriate.

The analysis might consider a lack of marketability discount in the computation of the subject company using FactSet MergerStat data. In deciding whether a lack of marketability discount is appropriate, the valuation analyst should take care to analyze the nature of the comparative transactions. For example, the dataset may involve publicly traded companies that, by definition are marketable securities. In those instances the value derived from the dataset might be control, marketable.

A lack of marketability discount could take the form of a lack of liquidity discount to account for the time and expense necessary to convert the subject private security to cash. Note that there is an inverse relationship between deal transaction costs such as brokerage fees, accounting fees, transactions size, etc., and transaction size. Since Mergerstat represents larger transactions, the lack of liquidity discount would generally be proportionately smaller when compared to the smaller deals typically included in IBA, BIZCOMPS and to a lesser extent, Pratt's Stats data. Again, it is imperative that the analyst consider the underlying data upon which the criteria for a lack of marketability discount would be based.

VI. MCGRAW HILL FINANCIAL AND S&P (STANDARD & POOR'S) CAPITAL IQ[40]

A. OVERVIEW

The Capital IQ database includes approximately 562,000 merger and acquisition transactions, 267,000 private placements, 23,000 bankruptcies and 230,000 public offerings through the summer of 2014. Capital IQ provides data for approximately 583,000 U.S., European and Korean private companies. It tracks all publicly announced mergers, acquisitions, private placements, public offerings, shelf registrations, equity buybacks, and bankruptcies. Information is integrated in the Platform and Excel Plug-In. The transaction data is updated daily from various sources including regulatory filings, company websites, newsletters, trade publications, and press releases.

The available data includes screening based on industry, GICS (Global Industry Classification Standard), geography, keywords, financial metrics and other data. Also included are detailed profiles of company executives, officers and directors including their compensation, education, job functions and board memberships. Capital IQ analysts read SEC footnotes and filings to normalize the profitability of the comparable companies selected. A company's historical

[40] Data for this section obtained from the Capital IQ website: https://www.spcapitaliq.comunless otherwise noted herein.

financial data is also available. Information can be downloaded to Excel for easy use by the subscriber.

Data within the analysis is linked to its source documentation. This might include the actual agreements, financing terms, tender offer documents, proxy filings, call transcripts and other data. Most financial data is downloadable into Excel.

B. DATA AVAILABLE

Data within Capital IQ is sortable (and searchable) by business type, GICS code, SIC code, the date of sale, buyer, seller and location of the business. The surveyed information includes the sale price, company contact information and the terms of the sale.

Financial data includes income, asset and transaction data. Income data includes the latest full year reported income statement including total revenue, net income, cash flow and EBITDA. Asset data includes the total assets and stockholder's equity. Transaction data includes the type of sale (i.e. asset or stock), date of sale, selling price, written description of the seller's business, financing terms of the agreement and the name and contact information for both seller and buyer.

Capital IQ provides valuation multiples for Price/Assets, Price/Stockholder's Equity, Price/Revenue, Price/Earnings, Price/Cash Flow and Price/EBITDA.

C. WHAT DATA IS INCLUDED IN THE PRICE?

Most of the sales recorded in Capital IQ are stock purchases. Appraisers should use the deal terms field to determine what was included in the sale price.

D. CAPITAL IQ EQUITY/ENTERPRISE VALUE ADJUSTMENTS

The majority of the transactions are stock sales. Therefore, the valuation analyst should exercise care to make sure he/she is applying the appropriate multiples to relate value to the subject company. For example, if the analyst has selected a price/net income multiple, no adjustment for long-term liabilities or working capital would be necessary to convert the value derived from Capital IQ to the value of an equity multiple from which to value the subject entity. In other words, the valuation analyst would not need to add the balance sheet items of the subject company for all items not included in the deal price calculation such as the subject company's long-term assets and other assets (excluding inventory, fixtures and equipment and reasonable working capital). Interest-bearing liabilities would not be subtracted from the value derived since the value starts with an equity value, not an enterprise value. Using these multiples, the valuation analyst should consider adjustments for excess, non-operating assets and/or other assets and liabilities only.

E. MINORITY AND MARKETABILITY DISCOUNTS USING CAPITAL IQ

The values from Capital IQ are derived from data based on purchases of at least a 10% stock ownership interest. The majority of these purchases involve large companies in which the purchaser also retains some type of control in the entity acquired via a board seat(s), advisory role or other form of limited control. Therefore, the value is usually expressed as a control, non-marketable value despite the fact that less than a controlling interest in the company was

purchased. Accordingly, if a minority interest is the subject valuation, a discount for lack of control may be appropriate.

The analysis might consider a lack of marketability discount in the computation of the subject company using Capital IQ data. The lack of marketability discount may take the form of a lack of liquidity discount to account for the time and expense necessary to convert the subject private security to cash. Note that there is an inverse relationship between deal transaction costs such as brokerage fees, accounting fees, etc., and transactions size. Since Capital IQ represents larger transactions, the lack of liquidity discount would generally be proportionately smaller when compared to the smaller deals typically included in IBA, BIZCOMPS and to a lesser extent, Pratt's Stats data. In deciding whether a lack of marketability discount is appropriate, the valuation analyst should take care to analyze the nature of the comparative transactions. For example, the dataset may involve publicly traded companies that by definition are marketable securities. In those instances the value derived from the dataset may be control marketable.

CHAPTER REVIEW QUESTIONS

1. Without regard to issues of liquidity, the indicated value, before adjustments, derived from multiples using BIZCOMPS data is generally considered to be which of the following:

    a. Control, marketable value
    b. Control, non-marketable value
    c. Minority, marketable value
    d. Minority, non-marketable value

2. The transaction prices in IBA/ADAM include the value of which of the following?

    a. Only fixtures and equipment
    b. Only business-related goodwill
    c. Debt
    d. A and B only

3. Pratt's Stats consists of primarily which type of transaction?

    a. Contingent sales
    b. Liquidation sales
    c. Equity sales
    d. Asset sales

4. The majority of the observations in Done Deals are what type of transaction?

    a. Contingent sales
    b. Liquidation sales
    c. Equity sales
    d. Asset sales

5. BIZCOMPS transactions primarily consist of sales of

    a. Large publically traded entities
    b. Main street businesses such as restaurants, small retailers and other hard-to-find businesses
    c. Advertising agencies
    d. Insurance agencies
    e. All of the above
    f. C and D only

6. The unadjusted transaction prices in BIZCOMPS includes the value of which of the following:

    a. Fixtures and equipment only
    b. Inventory only
    c. Business-related goodwill only
    d. Debt
    e. All of the above
    f. A and C only

7. The indicated value before adjustments derived from multiples using IBA/ADAM data is generally considered to be a

    a. Control, marketable value
    b. Control, non-marketable value
    c. Minority, marketable value
    d. Minority, non-marketable value

8. The majority of the observations in S&P Capital IQ are what type of transaction?

    a. Equity sales
    b. Contingent sales
    c. Liquidation sales
    d. Asset sales

CHAPTER FOUR

GUIDELINE PUBLIC COMPANY METHOD

I. OVERVIEW

The Guideline Public Company Method evaluates the prices paid for publicly traded company equities as the basis to determine the value of the subject company. By publicly traded companies, we mean companies that have registered with the Securities and Exchange Commission (SEC) and are traded on one of the publicly listed exchanges such as the NYSE (New York Stock Exchange now merged with Euronext), NASDAQ (National Association of Securities Dealers Automated Quotations) and American Stock Exchange (ASE). In addition to the data available on the large exchanges, there are hundreds of other smaller exchanges including Chicago Board of Trade (CBOT), Over the Counter (OTC) Bulletin Board, and Pink Sheets. All of these provide information about the market value of equities that are publicly traded.

Below are the number of companies that comprise each index:[41]

Exchange	# of Companies
NYSE	2,424
NASDAQ	2,709
Japan	3,432
Euronext	1,063
LSE (London)	2,475
Hong Kong	1,689
Shanghai	959
TMX (Includes Toronto & TSX Venture)	3,805
Deutsche Bourse (Frankfurt)	702
SIX (Zurich)	275
ASE/ATHEX	247
JSE (Johannesburg)	375
BM&F (Sao Paulo)	369

[41] This information was compiled as of the third quarter of 2014.

As discussed in Chapter 1 of Fundamentals, Techniques, and Theory, the SEC has regulatory authority over U.S. public markets. Data obtained from SEC registered companies is subjected to the rigor of regulatory oversight. For valuation purposes, the key SEC data filings include the 10-K annual report, 10-Q quarterly report and the 8-K special events filing. Included in these filings are quarterly and yearly balance sheets, income statements, statement of changes in cash flow and other supplementary information about the company, its operations, ownership, key management team and market data. This information can be obtained for free via several sources such as SEC's EDGAR database, Yahoo! Finance, Google Finance, NASDAQ.com and other internet sources. Pay services such as Scottrade, E*TRADE, Bloomberg and others offer in-depth analysis and access to company data, historical trends and expert analysis.

The financial data, with a few exceptions, has been audited by registered independent accountants. These independent accountants must meet the registrant and oversight requirements of PCAOB (Public Company Accounting Oversight Board), a nonprofit corporation established by Congress to oversee the audits of public companies.

The audited financial data derived from these filings has been prepared according to Generally Accepted Accounting Principles (GAAP). Accordingly, the information is reliable, consistent and independently verified. This is especially true when comparing the Guideline Public Company Method's publicly available financial information to the Completed Transactions Method's private company data that is not subjected to the same independent rigor or transparency.

The additional reliability through regulation imposes significant compliance costs upon the companies that choose to be listed on public exchanges subject to SEC regulation. These costs include significant management time on compliance related reporting issues, audit fees, regulatory filing fees and attorney fees.

A significant advantage of this method is that the stock quotes can be obtained as of the valuation date. Furthermore, the financial information can be obtained as of the nearest quarter-close of the valuation date. This makes the comparable company's data dynamic and reduces the need for market adjustments as the effect of market forces is already priced into the security as of the observation date.

For many smaller companies however, the cost burden and reporting requirements are too substantial and the benefits of a publicly traded stock too small to warrant serious consideration of "going public" through an Initial Public Offering (IPO). Nonetheless, there may be valid comparisons to be drawn in some cases. Accordingly, the valuation analyst may want to weigh the availability and quality of data available for valuations involving companies whose revenue meets or exceeds this minimum threshold level.

A. UNDERSTANDING THE PRINCIPLES BEHIND THE MULTIPLE

The principle behind the Guideline Public Company Method is that the day-to-day sales price of an individual share of stock is reflective of the market value of the entire company's equity. This method relies on the assumption that the selection of public companies similar to the subject company should produce meaningful equity multiples for the valuation of privately held companies.

Since the multiples are based on the market's reflection of value of the comparable's equity pricing as of the valuation and observation date, then the multiples produced are reflective of the perceived fair market value and risk associated with the given security on that particular

date. This limits adjustments to the multiple based on economic activity, industry news or regulatory factors. The theory is based upon an assumption that the market is rationally responding to these factors and as such, these issues are factored into the closing stock price as of the observation date. The valuation analyst should look for individual stock anomalies that may affect an individual share's value. For example, a major lawsuit filed against a comparable company could deflate its stock price and cause the multiple to be skewed if this observation was included in the pool of comparable stocks.

An important distinction of this methodology is the value it produces. The underlying data is predicated upon sales of individual securities sold in a public forum. Therefore, the value produced by this methodology is a minority, marketable value of equity. To convert this to a privately held subject company's interest requires additional consideration in the form of control premiums and marketability discounts. Furthermore, since the value computed is the value of equity, to convert to an enterprise value using equity multiples, long-term debt must be added to the value computed.

B. BASIC IMPLEMENTATION

1. Review the nature and background of the subject company, its industry, the economy, etc. The valuation analyst should understand the subject business's sustainability in the industry and the conditions under which it operates.

2. Obtain the financial statements for the subject company. The analyst should obtain the last five years of financial data as this typically represents a full business cycle.

3. Find suitable comparables in the public markets. This is done by searching for companies similar to the subject company's industry, revenues, market share, total assets, etc. The search can be conducted online through sources such as Yahoo! Finance, Google Finance or many other public investment forums.

4. Normalize both the subject company and comparable companies. In basic valuation methodology, normalizing the subject company is a key process inherit in every method. Normalization involves the adjustments for non-recurring items, truing up accounting methodology, adjusting salaries, etc.

5. In the guideline public company comparable method, the ability to normalize the comparable companies is unique. This is possible because the information necessary to normalize the comparables is contained in the public filings, announcements and quarterly financial statements. Accordingly, the analyst should gain a much deeper understanding of the comparables themselves and how they relate to the subject interest when compared to the information available using the Completed Transactions Method.

6. Prepare a comparative table of financial data. For example, juxtapose the subject company's income statement and balance sheet against the comparables' income statements and balance sheets.

7. With the normalized comparable company information, the analyst can compute either market value of invested capital (MVIC) multiples or equity multiples.[42] Commonly used

[42] It is important to understand that to use MVIC multiples, one must be sure to take into consideration the long-term debt of the company (if this has not been done already). In the public markets, quoted MVIC multiples are usually computed by adding back the long-term debt and

multiples include Price/Earnings, Price/Revenue and Price/EBITDA (earnings before interest, taxes, depreciation and amortization).

8. Choose the appropriate multiple based on an analysis of the multiple with the lowest coefficient of variation. The coefficient of variation closest to zero has the smallest standard deviation and therefore, the least amount of variability in its application.

9. Apply the computed multiples to the subject company's corresponding statistics. Care should be taken to ensure the multiple's base is applied to the same subject base. For example, if a Price/Revenue multiple is used based upon the comparables' last or trailing twelve months of data,[43] use the subject company's corresponding time period of revenue for the analysis. Otherwise, a mismatch of the application of the multiple and its base data will occur.

10. If more than one multiple is to be used, then the valuation analyst should weight the corresponding results to achieve a single result under this methodology. The valuation analyst should have good reasoning for using more than one multiple and naively averaging several methods should be avoided (see Revenue Ruling 59-60).

11. After computing the results, additional adjustments for the subject company's non-operating and extraordinary assets and liabilities are made. This is accomplished by adding or subtracting these amounts from the results derived above.

12. Apply any premiums or discounts to the result to produce the same level of value as required by the scope and purpose of the valuation engagement.

13. Perform sanity checks and compare the results of this methodology to the results of other methods. Compare the results achieved under this method to the Income and Asset approaches. Are they similar? If a substantial difference exists, check the methodology and physical calculations to ensure that the valuation has been performed correctly. Be prepared to discuss and explain the results and applicability of each method.

14. Understanding the Results

    Since the underlying data observed is minority, publicly traded shares, the Guideline Public Company Method produces a minority, marketable value.

    The equity numerator is an aggregation of minority shares. Its base is predicated upon minority sale values. Since one is directly calculating a minority value, a discount for lack of control is not appropriate when calculating a minority value for the subject company's equity interest.

    If one is calculating a control value, a control premium should be considered. A controlling interest in the subject company exercises certain rights and privileges of control not afforded to minority shareholders such as setting compensation, determining company

subtracting cash. Therefore, when applying MVIC multiples one must add back cash in addition to the non-operating and extraordinary balance sheet items.

[43] This is commonly expressed in public data as the "TTM" or "LTM."

direction, negotiating deals, etc.[44] Failure to consider this aspect for control will result in the same value for the control and minority interest positions.

In many instances, the private subject company valuation will be calculated based upon a non-marketable basis. Therefore, the analyst will need to adjust the Guideline Public Company Method results to account for the non-marketable aspects of the subject interest. This will normally be the case except when valuing subject interests that are publicly traded, frequently privately traded or otherwise reasonably convertible to cash in a short period of time without substantial transaction costs.

C. THE EFFECTS OF SIZE ON MULTIPLES

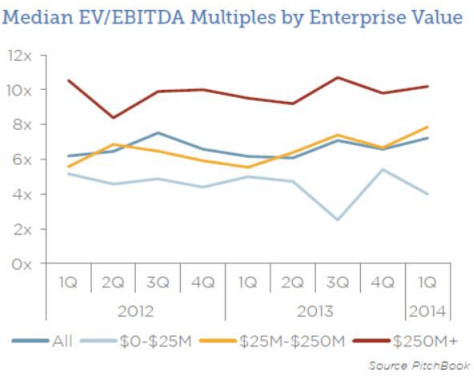
Much research has been done to study the relationship between small companies and rates of return. Because a market multiple is really the inverse of the rate of return, these studies also apply to market multiples. If the result of a study seems to indicate that investors earn higher returns on smaller companies, the mathematical corollary is that smaller companies sell for lower multiples. Given that returns and multiples are inversely related, there has been some research specifically addressing the multiples paid for smaller and larger firms—including that by two Harvard Business School faculty members, Richard Ruback and Royce Yudkoff.

Some of the research that is conducted with an emphasis on multiples is less formal or empirical and often conducted through interviews and anecdotal reports of multiples paid. A paper written by Ruback and Yudkoff in 2012 found that acquisition costs were larger, as a percentage of total value, for smaller firms. This indicates that there is some measure of fixed expenses in acquisition costs is consistent with common brokerage terms, and typical pricing structures for financial and transaction consulting services.

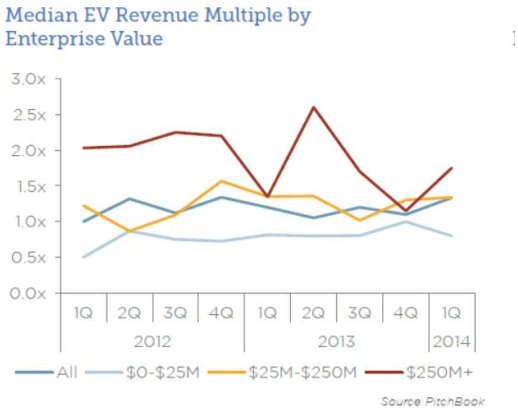
For example, financial statement preparation may be more expensive, in dollar amounts, for larger firms, but the expenses of putting together financial statements deemed reliable by an outside party is usually a larger burden in terms of percentage of value for small companies. The finding that acquisition costs are a heavier burden on smaller companies is also similar to reports of IPO costs, where research finds that the cost of going public may be 6% of the transaction value on average, but are usually a much higher percentage of a small company's value.

In recent history, more empirical research on private equity and venture capital multiples has been conducted and marketed through PitchBook. Since 2012, PitchBook has published a quarterly Deal Multiples & Trends Report that tracks multiples across the size spectrum. The research breaks down data for transactions under $25 million, between $25 million and $250 million, and above $250 million.

[44] Given this concern about control, the valuation analyst should carefully review any normalization adjustments of the subject interest. In valuing a minority ownership interest, the minority shareholder may not be able to exercise any influence over the subject company. Therefore, the analyst should consider whether normalization adjustments when valuing minority positions are appropriate.



Generally, multiples of EBITDA for the smallest category have been lower than the second category, and EBITDA multiples for the second category have been lower than the largest category.



Revenue multiples have generally followed suit, but there have been quarters where the median multiple for the "Above $250 Million" category dipped below that of the "Between $25 Million and $250 Million" category or where the multiples of two categories appeared to be equal.

The Alliance of Merger & Acquisition Advisors (AM&AA) releases a semi-annual Deal Stats Transaction Survey, the results of which echo the findings of the PitchBook reports. The Deal Stats report breaks down approximately 700 deals into those completed for under $1 million; between $1 and 5 million; between $5 and $10 million; between $10 and $25 million; between $25 and $50 million; and over $50 million. The Deal Stats report cautions that the study reports averages, and that there is considerable variability between the actual deals and the trend (some small companies may fetch very high multiples and vice versa). Similarly, GF Data Research has reported what appears to be a size premium—as well as differences in multiples when comparing companies with above- or below-average profitability.

The reports of the AM&AA and GF Data Research highlight an important consideration: while a general relationship between size and market multiple may exist, specific facts and characteristics of the subject company (e.g. growth, profitability and competitive position) must also be considered.

D. ADVANTAGES OF GUIDELINE PUBLIC COMPANY METHOD

The Guideline Public Company Method uses dynamic comparable equity transactions as of the valuation date. This type of comparison provides the valuation analyst with value data inclusive of industry and market components. This reduces the number of areas for adjustment and degree of adjustment subjectivity inherent in other approaches. When compared to the Income Approach, for example, the discount rate is already factored into the Guideline Public Company Method pricing model based on arms-length transactions observed on the valuation date. In minority, non-marketable valuations, analyst subjectivity could be narrowed to the degree to which the valuation analyst applies a lack of marketability discount.

There is also a great deal of information available to the public for free. Also, in contrast to information on privately held companies (and related transactions), the financial data available is typically required to be analyzed and verified by an independent and qualified third party (audited).

This method is most advantageous when valuing interests of minority shares in middle market and larger companies that could choose the publicly traded route but for various management reasons have not done so.

E. DISADVANTAGES OF GUIDELINE PUBLIC COMPANY METHOD

The single biggest disadvantage of the Guideline Public Company Method pertains to the size of the subject company. Is the interest to be valued of adequate size to make a comparative analysis to publicly traded securities valid? This can be determined by carefully juxtaposing the subject company's financial metrics against the publicly traded comparable companies' financial metrics. If there is a substantial mismatch between the subject and its comparables, the underlying multiple will not produce meaningful results without further and substantial subjective adjustment. As discussed in Section 1.3 above, as company size is increased, a premium for size is an integral part of the multiple equation.

Another common issue with the Guideline Public Company Method is that the public companies tend to be more diversified. They may have greater revenue and operational diversification, as well as a wider geographical reach.

Publicly traded companies also have greater access to capital. Publicly traded companies, on average, will find it easier to secure debt (without the owners' personal guarantees). Publicly traded companies often have avenues of raising capital that are not viable for privately held companies. The valuation analyst must consider how and to what extent this may affect the comparability of the companies.

The subjective multiple adjustments need to be based on statistical analysis and not arbitrary opinion. Given the extent of the adjustment required, the multiple adjustment by itself may be too subjective to provide relevant and reliable data points upon which to base an analysis of the subject interest. For example, for controlling interests of small entities with revenues of less than $4,000,000 to $5,000,000, it is doubtful that this approach will provide meaningful statistical valuation relevance.

As discussed earlier, another disadvantage is that any extraordinary events or good/bad announcements immediately affect the market price of that stock. It can be difficult to adjust the

observed multiple so that it provides a basis of valuation for the subject company without regard to the individual stock anomaly.

F. CONSISTENCY IN THE APPLICATION OF THE GUIDELINE PUBLIC COMPANY METHOD

To apply consistently the Guideline Public Company Method, the valuation analyst should first make sure that the subject interest is suitable to be compared to a publicly traded company. It does not provide statistical meaning to relate a locally-owned computer repair shop to Apple Inc's valuation multiples. Therefore, relevant size is an important consideration. For guidance consider the 5/10/10 principle. As previously outlined, comparable companies within +/- 10 times of the subject company's revenue and earnings may provide statistically meaningful multiple data. To illustrate this point mathematically, a subject company with $50,000,000 of revenue should begin to look for publicly traded comparables between $5,000,000 and $500,000,000 of revenue. From this initial dataset, more relevant comparables should be selected for further analysis.

In this context, the term "public" means public information. The valuation analyst will have at his/her use substantially more information upon which to base this method.[45] Care should be exercised to ensure that this additional information is put to good use. Additional procedures comparing the subject to its comparables demonstrate the statistical relevance of the results of the Guideline Public Company Method.

As in the Completed Transactions Method, be sure to apply the proper guideline company metrics to the proper subject company's metrics. If one is using a trailing twelve month revenue multiple, be sure to use the subject company's revenue for the same trailing twelve months. Annual data and trailing twelve months data will not normally be the same. A mismatch of these data points will result in a flawed application of the methodology.

Finally, understand the value derived under this method. The Guideline Public Company Method produces a minority, marketable value. Therefore, when valuing control positions, a control premium may be necessary to add to the minority marketable value. Furthermore, when valuing non-marketable interests, a discount for lack of marketability may be appropriate.

[45] In general, when the analyst has access to statistical information, he/she is expected apply this information to the valuation assignment. Misapplication of this approach often occurs when the analyst ignores the additional information available that would have resulted in a different calculation or conclusion of value. Accordingly, when applying this approach, the valuation analyst should budget enough time to apply effectively the procedures necessary to support their value calculations and conclusions.

Practice Point: Primary Drivers of the EV Multiples

EV Multiple	Value Driver
EV/Sales	Expected Operating Margin and Revenue Growth
EV/EBITDA (Earnings Before Interest, Taxes, Depreciation, and Amortization)	Expected EBITDA Growth
EV/EBIT (Earnings Before Interest and Taxes)	Expected EBIT Growth
EV/FCFF (Free Cash Flow to the Firm)	Expected FCFF Growth
EV/TA (Total Assets)	Expected Return on Total Assets
EV/BEV (Book Enterprise Value)	Expected Return on Book Operating/Invested Capital)
EV/FA (Fixed Assets)	Expected Return on Fixed Assets
EV/TFA (Tangible Fixed Assets)	Expected Return on Tangible Fixed Assets

II. SUMMARY

The Guideline Public Company Method provides the valuation analyst with dynamic, independent valuation data based on industry and market conditions as of the date of the valuation. When applicable, this method can provide significant relevant information about the value of the subject company's interest. One of the key factors that makes this method relevant is the amount and consistency of information available. Publicly traded companies are subjected to the rigor of SEC reporting requirements, auditor procedures and generally accepted accounting principles. This increases the ability of the analyst to rely upon the quality of the data underlying this methodology. Furthermore, this allows the analyst the ability to adjust the comparables' financial statements since the information necessary to make these types of adjustments is generally available.

The initial analysis of this method produces a minority, marketable value. From this result, the analyst must consider factors for control and lack of marketability to adjust the value derived to the subject interest valuation.

Furthermore, the valuation analyst should consider the financial metrics of the subject company's interest to the publicly traded entity. If there is a substantial disparity between the subject company's revenues, assets, earnings, management depth, etc., a meaningful comparison may not be possible without substantial subjective adjustments to the publicly derived multiples. The analyst should exercise care when determining the nature and degree of this adjustment its effect upon the relevance of the valuation assignment.

CHAPTER REVIEW QUESTIONS

1. Which contains public company equity transaction information?

   a. Yahoo! Finance
   b. BIZCOMPS
   c. Pratt's Stats
   d. All of the above

2. One of the advantages of the Guideline Public Company Method is that

   a. The values derived are inclusive of market and economic factors as of the valuation date based on independent arms-length activity
   b. The degree of adjustment when valuing similar minority interests in large privately-held entities can often times be reduced to considerations for lack of marketability
   c. The underlying data is considered to be fairly reliable given the degree of scrutiny publicly traded companies must undergo
   d. All of the above

3. Implicit in the calculation derived under the Guideline Public Company Method is the balance sheet, therefore:
   i. No adjustment is required for the subject's routine balance sheet items.
   ii. Extraordinary and non-operating balance sheet items of the subject company need to be taken into consideration.

   a. i only
   b. ii only
   c. neither i nor ii
   d. i and ii

4. The single most important factor below that limits the applicability of the Guideline Public Company Method is

   a. The lack of information available about the comparables
   b. The substantial costs involved in the collection of information about the comparables
   c. The data is typically dated
   d. The relevant size of the subject company compared to its publicly traded peer group

5. The Guideline Public Company Method produces what kinds of multiples:

   a. Price Multiples
   b. Market Value of Indicated Capital Multiples
   c. Asset Multiples
   d. None of the Above

6. Which of the following is one of the largest U.S. Stock Exchanges?

    a. NYSE
    b. LSE
    c. TMX
    d. CME

7. Which of the following is NOT one of the largest stock exchanges in the world?

    a. Deutsche Bourse
    b. LSE
    c. CST
    d. Japan

8. Which of the following statements regarding research on the effect of size on market multiples is NOT true:

    a. Empirical studies have more often focused on rates of return rather than multiples
    b. Pitchbook has recently conducted research on private equity and venture capital multiples
    c. Findings on the effect of size on rates of return can be considered to shed light on the relationship between size and market multiples
    d. Research on the effect of size on market multiples indicates that multiples do not change across size categories

9. Which of the following should be done in the Guideline Public Companies Method?

    a. Compare the guideline companies' financial data to the subject company
    b. Make normalization adjustments to the subject company, where appropriate
    c. Make normalization adjustments to the guideline companies, where appropriate
    d. All of the above

10. Which of the following are equity multiples?

    a. Price to Earnings
    b. Book Value to EBITDA
    c. Book Value of Total Capital to Sales
    d. Interest Coverage Ratio
    e. Market Value of Invested Capital to EBITDA

11. Which of the following is the most compelling reason to use the Guideline Public Company Method:

    a. It provides a verifiable and objective measure of value derived from actual transactions of similar interests
    b. Its use is required by Revenue Ruling 59-60
    c. It is the required method when valuing controlling interest
    d. It provides a verifiable and objective measure of value derived from publicly available information

12. The valuation professional should consider which of the following when selecting guideline public companies?
    i. Revenue
    ii. Industry
    iii. Operating Segments

    a. i only
    b. ii only
    c. i and ii only
    d. i and iii only
    e. ii and iii only
    f. i, ii, and iii

13. Which of the following are considered primary market methods?

    a. Rule of Thumb and Guideline Public Company Methods
    b. Guideline Public Company and Completed Transactions Methods
    c. Completed Transactions and Rule of Thumb Methods
    d. Subscription Models and Guideline Public Company Methods
    e. Completed Transactions Methods and Subscription Models

APPENDIX I

Answers To Review Questions

Chapter One

1. The market approach is frequently referred to by what other professional discipline's approach?
   a. Sales comparison approach used by realtors
      A is Correct—The market approach compares the sales of other interests in similar companies to gauge the value of the subject firm. Much like real estate sales comparison where the value of the subject home to be purchased is derived by comparing the sales of recently sold similar homes.
   b. Automotive dealer "best deal" approach
      Incorrect—The market approach to business valuation relies upon metric derived from actual historical transactions, whereas, an automotive dealer bases their "best deal" upon self-serving metrics.
   c. Broker's commodity pricing model
      Incorrect—Commodity pricing is based on supply and demand rather than historical transactions.
   d. Black Scholes valuation methodology
      Incorrect—The Black Scholes Model is used for pricing options rather than entire companies. The theory in Black Scholes more closely emulates the income approach of business valuation.

2. In order to convert a Market Value of Invested Capital to an Equity Value, the valuation professional must do which of the following?
   a. Add the value of working capital
      Incorrect—To obtain the subject's equity value, the valuation professional must subtract the subject's interest-bearing debt and apply additional adjustments depending on the database used.
   b. Add the value of working capital and subtract all debt
      Incorrect—See Answer A.
   c. Add the value of working capital excluding inventory and subtract all debt
      Incorrect—See Answer A.
   d. None of the above
      D is Correct—See Answer A.

3. Which of the following statements about the Harmonic Mean is correct?
   a. Calculated by taking the average of the median and the mean
      Incorrect—The average of these two measures has no statistical significance. However, the median is literally the number in the middle of a string of observations. The mean is the simple average of a string of observations.
   b. Calculated by taking the average of the median, mean and mode
      Incorrect—See details to Answer A. The mode is the most frequently occurring observation in a data set.
   c. A measure of central tendency that emphasizes an equal weighting of each observation
      C is Correct—The harmonic mean, "H", is the reciprocal of the arithmetic mean of the reciprocals of the observations.
   d. A measure of central tendency that emphasizes an equal weighting of the mean, median and mode
      Incorrect—Harmonic mean is the central tendency that emphasizes an equal weighting of each observation.

4. Which of the following statements regarding standard deviation (σ) is correct?
   a. Standard deviation is the most frequently occurring observation in a dataset
      Incorrect—The most frequent occurring observation is referred to as the Mode.
   b. It increases as the number of observations increase
      Incorrect—The number of observations has no effect on the standard deviation, rather the dispersion from the Mean of the observations.
   c. It decreases as the disparity between observations is increased
      Incorrect—The inverse of this is true. It increases as the dispersion of the observations increases.
   d. It is a measure of mathematical expression about the dispersion of a population to its mean
      D is Correct—It quantifies the predictability of the computed multiple based on the consistency of the underlying data.

5. All else equal, the valuation professional should select the multiple with a Coefficient of Variation:
   a. Equal to the subject's Beta
      Incorrect—Coefficient of variation is a measure of relative dispersion and its magnitude is used to evaluate the amount of variation in a distribution. Beta is irrelevant.
   b. Closest to the subject's Beta
      Incorrect—See Answer A.
   c. Closest to zero
      C is Correct—The smaller the coefficient of variation, the less variance there is among the observations.
   d. Closest to the mean
      Incorrect—Coefficient of Variation is a measure of relative dispersion and its magnitude is used to evaluate the amount of variation in a distribution. The mean is used to calculate the coefficient of variation, in order to scale the variation (i.e. to allow comparison across different types of observations). A coefficient of variation close to zero indicates a tight distribution, irrespective of the mean's value.

Chapter Two

1. The completed transaction method emphasizes the principle of which of the following?
   a. Multicollinearity
      Incorrect—Multicollinearity is a statistical concept that has nothing to do with applying the market approach. You should forget you ever saw this word.
   b. Substitution
      B is Correct—When selecting comparable transactions, the valuation professional is applying the principle of substitution. That is, that the value of an investment tends to be determined by the cost of acquiring an equally desirable substitute.
   c. Multiplication
      Incorrect—Multiplication is not a principle but rather a mathematical operation of arithmetic used under the completed transaction method.
   d. Multiplication and substitution
      Incorrect—See explanation of Answer B.

2. Common market value of invested capital (MVIC) multiples include:
   a. MVIC/Sales
      Incorrect—MVIC/EBITDA is also a common multiple.
   b. MVIC/EBITDA
      Incorrect—MVIC/Sales is also a common multiple.
   c. MVIC/Gross Margin
      Incorrect—This is not a common multiple utilized because not all companies utilize a Gross Profit measure in accounting.
   d. Both A and B
      D is Correct—Two of the most common MVIC multiples used are MVIC/Sales and MVIC/EBITDA.

3. In order to maintain consistency across methodologies, a valuation professional should
   a. Always use the same multiple regardless of the database selected using the market approach
      Incorrect—The valuation professional should consider the statistics behind each multiple before determining which multiple to use.
   b. Consistently apply the same period interval (e.g. not applying a forward P/E to a three-year average of EBITDA) from the income approach to the market approach
      B is Correct—The purpose of utilizing and comparing multiple approaches is to determine whether there is consistency in a determined value. By applying the same intervals throughout the Market and Income approaches, the valuation professional is able to compare apples to apples.
   c. Always use the same database for all of his/her valuation projects
      Incorrect—As indicated in the reading some databases are better for different sizes of companies, therefore, the size and number of transactions should dictate your decision of what database to utilize.
   d. Never average the results from the revenue multiple and the EBITDA multiple
      Incorrect—It is not uncommon for valuation professionals to average the results from more than one multiple when applying the market approach. For example, using the same dataset, you can produce a value using both a revenue multiple and an EBITDA multiple and average the results of these two calculations. When applying this principle the valuation professional should consider the disparity of the two independent results. Is the average based on good underlying data in each? Or is the average simply a midpoint between poor data sets? If the independent results are fairly tightly disbursed, then the average be meaningful and further allow the analyst the ability to relate the valuation data based on two or more data points rather than a single data point.

Chapter Three

1. Without regard to issues of liquidity, the indicated value, before adjustments, derived from multiples using BIZCOMPS data is generally considered to be which of the following:
   a. Control, marketable value
      Incorrect—BIZCOMPS transactions are of privately held businesses which do not have a readily available market from which to buy and sell their stock. However, BIZCOMPS is based on transactions of a 100% ownership interest, which would imply a controlling interest.
   b. Control, non-marketable value
      B is Correct—BIZCOMPS database is made up on transactions for 100% ownership interests, which imply a controlling interest. Furthermore, these transactions are of privately held businesses which do not have a market for their stock, which implies a non-marketable value.
   c. Minority, marketable value
      Incorrect—The BIZCOMPS database only reports transactions of 100% ownership interests. Furthermore, the BIZCOMPS transactions are based on non-marketable transactions which indicate no market is available for the trading of private company shares.
   d. Minority, non-marketable value
      Incorrect—Business brokers only report transactions of 100% ownership interests to BIZCOMPS implying a controlling interest in the sales reported.

2. The transaction prices in IBA/ADAM include the value of which of the following?
   a. Only fixtures and equipment
      Incorrect—Fixtures and equipment are not the only asset included in the value based on the IBA/ADAM observations, however, they are one of the assets included.
   b. Only business-related goodwill
      Incorrect—Business-related goodwill is included in the value of IBA/ADAM observations, however, so is fixtures and equipment.
   c. Debt
      Incorrect—The IBA/ADAM observations are based on Market Value to Invested Capital, which assumes all interest-bearing debt is paid off and therefore not included in the transaction.
   d. A and B only
      D is Correct—Fixtures, furniture, inventory, non-compete agreements, and goodwill are typically included in the MVIC price. However, the details of each transaction should be considered.

3. Pratt's Stats consists of primarily which type of transaction?
   a. Contingent sales
      Incorrect—A contingent sale would be a transaction that occurred as a result of an action.
   b. Liquidation sales
      Incorrect—Liquidation sales are transactions which occur typically by force.
   c. Equity sales
      Incorrect—Equity sales typically will include all assets less interest bearing debt. Pratt's Stats does report stock sales, but adds back any interest-bearing debt to arrive at the reported MVIC price.
   d. Asset sales
      D is Correct—Pratt's Stats lists the deal price as the Market Value of Investment Capital (MVIC) which includes the total consideration paid plus any interest-bearing liabilities assumed and any non-compete value. Appraisers should use the Asset Data column to determine what was included in the sale price. Bundled deals may be different. If no information is listed, typically cash, accounts receivable, loans receivable, real estate and all liabilities are excluded from the sale price. Fixtures, furniture, inventory and goodwill are typically included in the listed MVIC price.

4. The majority of the observations in Done Deals are what type of transaction?
   a. Contingent sales
      Incorrect—Contingencies are sometimes included in a transaction, however, these types of transactions are not included in Done Deals.
   b. Liquidation sales
      Incorrect—Liquidation sales are typically asset sales.
   c. Equity sales
      C is Correct—Approximately 76% of the sales recorded in Done Deals are stock purchases, which produce a price of the equity purchased.
   d. Asset sales
      Incorrect—Done Deals mainly focuses on purchase prices between $1,000,000 and $1,000,000,000 with a median price of $15,000,000; transactions of this size tend to be equity purchases. An asset sale would deduct interest-bearing debt because it is typically paid off; however, with an equity sale often times the interest-bearing debt is retained because of favorable variables.

5. BIZCOMPS transactions primarily consist of sales of
   a. Large publically traded entities
      Incorrect—BIZCOMPS is focused on main street business transactions.
   b. Main street businesses such as restaurants, small retailers and other hard-to-find businesses
      B is Correct—The majority of transactions in BIZCOMPS are of main street businesses.
   c. Advertising agencies
      Incorrect—BIZCOMPS is focused on main street business transactions.
   d. Insurance agencies
      Incorrect—BIZCOMPS is focused on main street business transactions.
   e. All of the above
      Incorrect—BIZCOMPS is focused on main street business transactions.
   f. C and D only
      Incorrect—BIZCOMPS is focused on main street business transactions.

6. The unadjusted transaction prices in BIZCOMPS includes the value of which of the following:
   a. Fixtures and equipment only
      Incorrect—The unadjusted transaction prices in BIZCOMPS include fixtures and equipment and business-related goodwill.
   b. Inventory only
      Incorrect—The unadjusted transaction prices in BIZCOMPS include fixtures and equipment and business-related goodwill.
   c. Business-related goodwill only
      Incorrect—The unadjusted transaction prices in BIZCOMPS include fixtures and equipment and business-related goodwill.
   d. Debt
      Incorrect—The unadjusted transaction prices in BIZCOMPS include fixtures and equipment and business-related goodwill.
   e. All of the above
      Incorrect—The unadjusted transaction prices in BIZCOMPS include fixtures and equipment and business-related goodwill.
   f. A and C only
      F is Correct—The unadjusted transaction prices in BIZCOMPS include fixtures and equipment and business-related goodwill.

7. The indicated value before adjustments derived from multiples using IBA/ADAM data is generally considered to be a
   a. Control, marketable value
      Incorrect—Values derived from IBA/ADAM data are generally considered to be control, non-marketable since they are based on sales of controlling interests in non-marketable entities.
   b. Control, non-marketable value
      B is Correct—Values derived from IBA/ADAM data are generally considered to be control, non-marketable since they are based on sales of controlling interests in non-marketable entities.
   c. Minority, marketable value
      Incorrect—Values derived from IBA/ADAM data are generally considered to be control, non-marketable since they are based on sales of controlling interests in non-marketable entities.
   d. Minority, non-marketable value
      Incorrect—Values derived from IBA/ADAM data are generally considered to be control, non-marketable since they are based on sales of controlling interests in non-marketable entities.

8. The majority of the observations in S&P Capital IQ are what type of transaction?
   a. Equity sales
      A is Correct—The observations in S&P Capital IQ are primarily of larger businesses' equity transactions.
   b. Contingent sales
      Incorrect—Contingent sales are sometimes included in contracts however, S&P Capital IQ does not include these in its database.
   c. Liquidation sales
      Incorrect—Liquidation sales included in S&P Capital IQ data however, these types of sales do not comprise the majority of the observations.
   d. Asset sales
      Incorrect—Asset sales included in S&P Capital IQ data however, these types of sales do not comprise the majority of the observations.

Chapter Four

1. Which contains public company equity transaction information?
   a. Yahoo! Finance
      A is Correct—The information from Yahoo! Finance pulls information from the Edgar database on public companies. Other available free sources are Google Finance and NASDAQ.com
   b. BIZCOMPS
      Incorrect—As indicated in Chapter 10, BIZCOMPS is a database of transactions for privately-owned companies. Additionally, less financial information detail on those privately owned companies are provided.
   c. Pratt's Stats
      Incorrect—Pratt's Stats is a database of transactions for privately-owned companies; however, some "buyers" of the private companies could be public companies. Pratt's Stats does typically provide more financial information on the privately owned transactions.
   d. All of the above
      Incorrect—Yahoo! Finance is a source of public company financial information, whereas, BIZCOMPS and Pratt's Stats are strictly privately owned company transaction information.

2. One of the advantages of the Guideline Public Company Method is that
   a. The values derived are inclusive of market and economic factors as of the valuation date based on independent arms-length activity
      Incorrect—Based on the fact that the transactions utilized in the GPCM are actively traded indicates the changes within a market and the current economic factors are considered in each transaction, but Answers B and C are also correct.
   b. The degree of adjustment when valuing similar minority interests in large privately-held entities can often times be reduced to considerations for lack of marketability
      Incorrect—The transactions utilized in the GPCM are minority transactions, therefore, in valuing a similar minority interest the discount associated with a minority position is already accounted for which leaves the lack of marketability but Answers A and C are also correct.
   c. The underlying data is considered to be fairly reliable given the degree of scrutiny publicly traded companies must undergo
      Incorrect—The financial data, with a few exceptions, has been audited by registered independent accountants. These independent accountants must meet the registrant and oversight requirements of PCAOB (Public Company Accounting Oversight Board), a nonprofit corporation established by Congress to oversee the audits of public companies, but Answers A and B are also correct.
   d. All of the above
      D is Correct—All of the responses above are advantages of the GPCM method. It is important to understand the advantage of the GPCM is its reporting of (1) actively traded securities; (2) the transactions are typically "minority" positions; (3) the financial information within each transaction is greatly scrutinized by regulators.

3. Implicit in the calculation derived under the Guideline Public Company Method is the balance sheet, therefore:
   iii. No adjustment is required for the subject's routine balance sheet items.
   iv. Extraordinary and non-operating balance sheet items of the subject company need to be taken into consideration.
   a. i only
      Incorrect—ii is also correct
   b. ii only
      Incorrect—i is also correct
   c. neither i nor ii
      Incorrect—i and ii are both correct
   d. i and ii
      D is Correct—Implicit in the computation of an equity-based multiple is the balance sheet. The equity sale observations take into consideration the assets and liabilities of the entity. Therefore, no adjustments are necessary for normal balance sheet entries. The subject's extraordinary or non-operating assets and liabilities are added to the result produced by the multiple in the same manner as is done in income approaches.

4. The single most important factor below that limits the applicability of the Guideline Public Company Method is
   a. The lack of information available about the comparables
      Incorrect—Between free sources such as Yahoo! Finance, EDGAR, Google Finance, and NASDAQ.com there is sufficient information to apply the GPCM.
   b. The substantial costs involved in the collection of information about the comparables
      Incorrect—Most sources, as indicated above, are free. However, there are sources available at a cost such as trading websites and Bloomberg.
   c. The data is typically dated
      Incorrect—current data, as well as archived data is readily available.
   d. The relevant size of the subject company compared to its publicly traded peer group
      D is Correct—The size of a company as compared to its publicly traded peer group could be much smaller than the group, which significantly limits the applicability of the GPCM. The amount of work taken to adjust the size performance of the subject company is significant and can make the results less reliable due to the adjustments.

5. The Guideline Public Company Method produces what kinds of multiples:
   a. Price Multiples
      A is Correct—The GPCM generally produces multiples associated with Price, since the driving force of the multiples are benefit streams which affect equity owners.
   b. Market Value of Indicated Capital Multiples
      Incorrect—MVIC multiples are obtained from the Guideline Transaction Method.
   c. Asset Multiples
      Incorrect—Assets are typically not used in business valuation, but can be used in the denominator of the Price or MVIC multiples.
   d. None of the Above
      Incorrect—Price Multiples are the most common multiples used in the Guideline Public Company Method.

6. Which of the following is one of the largest U.S. Stock Exchanges?
   a. NYSE
      A is Correct—NYSE is one of the largest U.S. exchanges
   b. LSE
      Incorrect—LSE is a London exchange
   c. TMX
      Incorrect—TMX is a Canadian exchange
   d. CME
      Incorrect—The Chicago Mercantile Exchange (CME) is a U.S. exchange, but it is a derivatives exchange as opposed to a stock exchange.

7. Which of the following is NOT one of the largest stock exchanges in the world?
   a. Deutsche Bourse
      Incorrect—Deutsche Bourse is one of the largest stock exchanges in the world.
   b. LSE
      Incorrect—The London Stock Exchange is one of the largest stock exchanges in the world.
   c. CST
      C is Correct—The CST is not one of the largest stock exchanges in the world.
   d. Japan
      Incorrect—The Japan Stock Exchange is one of the largest stock exchanges in the world.

8. Which of the following statements regarding research on the effect of size on market multiples is NOT true:
   a. Empirical studies have more often focused on rates of return rather than multiples
      Incorrect—This statement is true.
   b. Pitchbook has recently conducted research on private equity and venture capital multiples
      Incorrect—This statement is true.
   c. Findings on the effect of size on rates of return can be considered to shed light on the relationship between size and market multiples
      Incorrect—This statement is true.
   d. Research on the effect of size on market multiples indicates that multiples do not change across size categories
      D is Correct—The studies seem to generally indicate that size and market multiples are at least somewhat correlated.

9. Which of the following should be done in the Guideline Public Companies Method?
   a. Compare the guideline companies' financial data to the subject company
      Incorrect—Other answers are also correct.
   b. Make normalization adjustments to the subject company, where appropriate
      Incorrect—Other answers are also correct.
   c. Make normalization adjustments to the guideline companies, where appropriate
      Incorrect—Other answers are also correct.
   d. All of the above
      D is Correct—The valuation professional should compare the guideline companies' financial data to the subject and make normalization adjustments to the subject company and guideline companies, where appropriate.

10. Which of the following are equity multiples?
    a. Price to Earnings
       A is Correct—Price multiples are equity multiples
    b. Book Value to EBITDA
       Incorrect—Book Value to EBITDA is not an equity multiple
    c. Book Value of Total Capital to Sales
       Incorrect—Book Value of Total Capital is not an equity multiple
    d. Interest Coverage Ratio
       Incorrect—The interest coverage ratio is not an equity multiple
    e. Market Value of Invested Capital to EBITDA
       Incorrect—MVIC multiples are not equity multiples

11. Which of the following is the most compelling reason to use the Guideline Public Company Method:
    a. It provides a verifiable and objective measure of value derived from actual transactions of similar interests
       Incorrect—This is a description of the Comparable Transactions Method.
    b. Its use is required by Revenue Ruling 59-60
       Incorrect—It is not required to be used by the IRS, but suggests that the Market Approach should be considered.
    c. It is the required method when valuing controlling interest
       Incorrect—No one method is required when valuing a controlling interest.
    d. It provides a verifiable and objective measure of value derived from publicly available information
       D is Correct—The Guideline Public Company Method uses publicly available information that is verifiable and objective.

12. The valuation professional should consider which of the following when selecting guideline public companies?
        iv. Revenue
        v. Industry
        vi. Operating Segments
    a. i only
       Incorrect—Revenue, industry, and Operating Segments should be considered
    b. ii only
       Incorrect—Revenue, industry, and Operating Segments should be considered
    c. i and ii only
       Incorrect—Revenue, industry, and Operating Segments should be considered
    d. i and iii only
       Incorrect—Revenue, industry, and Operating Segments should be considered
    e. ii and iii only
       Incorrect—Revenue, industry, and Operating Segments should be considered
    f. i, ii, and iii
       F is Correct—Revenue, industry, and Operating Segments should be considered

13. Which of the following are considered primary market methods?
    a. Rule of Thumb and Guideline Public Company Methods
       Incorrect—Rules of Thumb should not be used as a primary method
    b. Guideline Public Company and Completed Transactions Methods
       B is Correct—These are the primary market methods
    c. Completed Transactions and Rule of Thumb Methods
       Incorrect—Rules of Thumb should not be used as a primary method
    d. Subscription Models and Guideline Public Company Methods
       Incorrect—Subscription Models are used often in high tech companies, but it is not considered a primary market method
    e. Completed Transactions Methods and Subscription Models
       Incorrect—Subscription Models are used often in high tech companies, but it is not considered a primary market method

APPENDIX II

CPE Exam for Self-Study Participants Only

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THE MARKET APPROACH—
EXPLORING THE PRICING COMPONENT

This examination **must be completed and returned** to the Consultants' Training Institute **within one (1) year of the date the exam was issued, or the date this course was purchased in order to receive CPE**. Passing grades will receive eight (8) hours of Continuing Professional Education (CPE) credits. The CTI is an approved sponsor under the Quality Assurance Service program (QAS), offering the highest caliber of self-study courses and recognized by the National Association of State Boards of Accountancy.

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Circle the Correct Answer

1. IRS Revenue Ruling 59-60 states that the market approach should be considered for what types of valuation purpose?

   a. Gift tax and estate tax returns
   b. Gift tax, state tax and federal returns
   c. Mergers and acquisitions, federal tax refunds and donations of personal property
   d. Mergers and acquisitions, gift tax returns and estate tax returns

2. Which type of NACVA standard instructs the valuation professional to consider the market approach in their report?

   a. Reporting standards.
   b. Litigation standards
   c. IRS practice standards
   d. Development standards

3. Calculate the Coefficient of Variation using the following data:

   EBITDA: $100,000
   Standard Deviation: 1.4
   Mode: 5.0
   Median: 4.0
   Number of observations: 20

   a. 0.07
   b. 0.28
   c. 0.35
   d. Cannot be calculated based on the information provided

4. What are the two common approaches to the market approach?

   a. Completed transaction method and the guideline public company method
   b. Revenue multiple and EBITDA multiple method
   c. Revenue multiple and earnings multiple method
   d. The harmonic mean and standard mean method

For the following questions use the EBITDA multiple data set:

Comparable Company EBITDA Multiples: 0.20, 2.50, 2.80, 2.80, 2.90, 3.50, 3.80, 4.00, 13.00
Interest Bearing Debt = $450,000
Revenue = $2,000,000
EBITDA = $500,000

5. Based on this data, what is the Arithmetic Mean of the EBITDA multiples?

   a. 2.80
   b. 2.90
   c. 3.90
   d. 3.00

6. Based on this data, what is the Median EBITDA multiple?

    a. 2.80
    b. 2.90
    c. 3.90
    d. 3.00

7. Based on this data, what is the Mode EBITDA multiple?

    a. 2.80
    b. 2.90
    c. 3.90
    d. 3.00

8. Using the Mode EBITDA multiple, what is the value of the subject's equity?

    a. $950,000
    b. $1,500,000
    c. $1,450,000
    d. $1,000,000
    e. Cannot be determined from the data provided

9. Using the company's revenue, what is the Market Value of Invested Capital?

    a. $1,450,000
    b. $6,000,000
    c. $1,500,000
    d. Cannot be determined from the data provided

10. Assume debt was $650,000 instead of $450,000; using the mean EBITDA multiple, what is the Market Value of Invested Capital?

    a. $1,450,000
    b. $1,750,000
    c. $1,950,000
    d. Cannot be determined from the data provided

11. The predictive value of the dataset would appear to be improved if which of the following occurred?

    a. The number of observations were decreased to 5
    b. The number of observations resulted in an odd number (rather than an even number of observations)
    c. The outlier observations, 0.20 and 13.00 were determined to be erroneous data and eliminated
    d. We included the results from another SIC code in the observations

12. In a normal distribution, a single standard deviation does which of the following?

    a. Provides the analyst with a confidence interval of 75% or in other words, 75% of the population will lie within a single standard deviation
    b. Provides the analyst with a confidence interval of 68% or in other words, 68% of the population will lie within a single standard deviation
    c. Provides the analyst with a confidence interval of 95% or in other words, 95% of the population will lie within a single standard deviation
    d. Produces a multiple (such as an EBITDA multiple) that can be used for valuation purposes

13. The completed transaction method produces what indicated level of value (most of the time)

    a. Control position
    b. Marketable position
    c. Minority position
    d. Marketable, minority position

14. When calculating a value for a minority interest using the completed transaction method

    a. The analyst should consider a premium for lack of control depending on the specific circumstances of the valuation
    b. No adjustment is necessary since the value produced is for a controlling interest
    c. The analyst should consider a discount for lack of control depending on the specific circumstances of the valuation
    d. The analyst should first convert the dataset comparables to minority interest values

15. IRS Revenue Ruling 59-60 states that the market approach should be considered for what types of valuation purpose?

    a. Gift tax and estate tax returns
    b. Gift tax, state tax and federal returns
    c. Mergers and acquisitions, federal tax refunds and donations of personal property
    d. Mergers and acquisitions, gift tax returns and estate tax returns

16. Which type of NACVA standard instructs the valuation professional to consider the market approach in their report?

    a. Reporting standards
    b. Litigation standards
    c. IRS practice standards
    d. Development standards

17. Which of the following is not a necessary step to complete the market approach?

    a. Complete the income approach before beginning the market approach
    b. Obtain the subject company's financial statements
    c. Consider the applicability of discounts and premiums
    d. Adjust the raw number derived from the approach for any non-operating assets

18. Multiples most commonly used for valuing small companies include\

    a. The standard deviation and coefficient of variation
    b. EBITDA and net earnings
    c. EBITDA and net income after taxes
    d. Revenue and sellers discretionary cash flow
    e. EBITDA

19. Multiples most commonly used for valuing large companies include

    a. The standard deviation and coefficient of variation
    b. EBITDA and net earnings after taxes
    c. EBITDA and net income after taxes
    d. Revenue and sellers discretionary cash flow
    e. EBITDA

20. Advantages of the completed transaction method include

    a. The ability to produce control values
    b. Its basis is derived from observations of market transactions, not theoretical rates of return
    c. Its ability to provide otherwise difficult-to-find market data on small companies
    d. None of the above
    e. All of the above

21. Disadvantages of the completed transaction method include

    a. The fact that the underlying data is not always verifiable
    b. Issues with transactions normally occurring on the date of the valuation thereby skewing the results of the method
    c. Issues with too many comparable transactions that must be sorted before the method may be effectively applied
    d. None of the above
    e. All of the above

22. BIZCOMPS data is searchable by which of the following:

    a. SIC code
    b. Revenue
    c. Date
    d. Buyer's name
    e. All of the above
    f. A, B and C only

23. Which database normally contains the name of the buyer in its transaction listing information?

    a. BIZCOMPS
    b. IBA/ADAM
    c. Done Deals
    d. All of the above
    e. None of the above

24. IBA/ADAM data is searchable by which of the following

    a. SIC code
    b. Revenue
    c. Date
    d. Buyer's name
    e. All of the above
    f. A, B and C only

25. The Guideline Public Company Method compares the following:

    a. IPO data (initial public offering) to the subject company's equity interest
    b. Private companies with restricted stock to private companies without stock restrictions
    c. Publicly traded companies' equity to the subject company's equity
    d. 100% acquisitions of private companies by public entities

26. Which statement below is true about the Guideline Public Company Method?

    a. Since the Guideline Public Company Method is based on publicly traded companies it is only valid when valuing other publicly traded companies.
    b. The public company data derived under the Guideline Public Company Method must be compared to the privately derived data under the Completed Transaction Method in order to be valid.
    c. The financial cost of obtaining the data is a substantial impediment to the valuation professional when applying the Guideline Public Company Method.
    d. The multiples derived from the Guideline Public Company Method should be adjusted for market factors and economic events that are present as of the valuation date.
    e. None of the above

27. The indication of value produced by the Guideline Public Company Method is

    a. Control, marketable
    b. Control, nonmarketable
    c. Minority, marketable
    d. Minority nonmarketable
    e. None of the above

28. To adjust the initial value derived using the Guideline Public Company Method when valuing a control, nonmarketable position, the analyst should consider the following adjustments:

    a. A discount for control and a discount for lack of marketability
    b. A discount for control and a premium for lack of marketability
    c. No adjustments, the value derived is already control, nonmarketable
    d. A premium for control and a discount for lack of marketability

29. When applying the Guideline Public Company Method the analyst should do which of the following:

    a. Not consider the results reliable unless also using the Completed Transaction Method in conjunction with the Guideline Company Method.
    b. Compare the annual financial data of the subject to the trailing twelve months data of the comparables even if the two periods are not the same.
    c. Compare the trailing twelve months financial data of the subject to the trailing twelve months data of the comparables

30. Consider the following data derived from public comparables using the Guideline Public Company Method (Assume that the Interests in the Public Comparables represent minority interests):

Price (of equity) / Revenue Multiple:	0.6
Comparables' Average Working Capital	$10.0 Million
Comparables' Average Debt %	33%
Subject's Working Capital	$5.0 Million
Subject's Nonoperating Assets	$5.0 Million
Subject's Revenue	$10.0 Million
Subject's Debt to Book Equity %	33%
Discount for lack of control	10.0%
Control Premium	8.0%
Discount for lack of marketability	25.0%
Percent interest to value	40.0%

    Compute the value of the subject's equity on a minority, marketable basis

    a. $11,000,000
    b. $4,400,000
    c. $3,300,000
    d. $3,630,000
    e. $8,400,000
    f. $7,300,000

31. Consider the following data derived from public comparables using the Guideline Public Company Method (Assume that the Interests in the Public Comparables represent minority interests):

Price (of equity) / Revenue Multiple:	0.6
Comparables' Average Working Capital	$10.0 Million
Comparables' Average Debt %	33%
Subject's Working Capital	$5.0 Million
Subject's Nonoperating Assets	$5.0 Million
Subject's Revenue	$10.0 Million
Subject's Debt to Book Equity %	33%
Discount for lack of control	10.0%
Control Premium	8.0%
Discount for lack of marketability	25.0%
Percent interest to value	40.0%

Compute the value of the subject's equity on a minority, nonmarketable basis

a. $11,000,000
b. $4,400,000
c. $3,300,000
d. $3,630,000
e. $8,400,000
f. $7,300,000
g. Cannot determine from information above

32. Consider the following data derived from public comparables using the Guideline Public Company Method (Assume that the Interests in the Public Comparables represent minority interests):

Price (of equity) / Revenue Multiple:	0.6
Comparables' Average Working Capital	$10.0 Million
Comparables' Average Debt %	33%
Subject's Working Capital	$5.0 Million
Subject's Nonoperating Assets	$5.0 Million
Subject's Revenue	$10.0 Million
Subject's Debt to Book Equity %	33%
Discount for Lack of Control	10%
Control Premium	8.0%
Discount for lack of marketability	25.0%
Percent interest to value	60.0%

Compute the value of the subject's equity on a control, nonmarketable basis

a. $11,000,000
b. $6,600,000
c. $3,300,000
d. $4,950,000
e. $5,346,000
f. $7,260,000
g. Cannot determine from information above

33. Consider the following data derived from public comparables using the Guideline Public Company Method:

Price (of equity) / Revenue Multiple:	0.6
Comparables' Average Working Capital	$10.0 Million
Comparables' Average Debt %	33%
Subject's Working Capital	$5.0 Million
Subject's Nonoperating Assets	$5.0 Million
Subject's Revenue	$10.0 Million
Subject's Debt to Book Equity %	33%
Discount for lack of control	10.0%
Control Premium	8.0%
Discount for lack of marketability	25.0%
Percent interest to value	100.0%

Compute the Market Value of Invested Capital of a 100% interest in the subject company on a control, marketable basis

a. $11,000,000
b. $12,100,000
c. $9,075,000
d. $15,000,000
e. $7,300,000
f. Cannot determine from information above

34. Consider the following data derived from public comparables using the Guideline Public Company Method:

MVIC (without cash) / Revenue Multiple:	1.2
Comparables' Average Working Capital	$10.0 Million
Comparables' Average Debt %	33%
Subject's Nonoperating Assets	$5.0 Million
Subject's Revenue	$10.0 Million
Subject's Debt to Book Equity %	33%
Subject's Cash	$2.5 Million
Subject's Revenue	$10.0 Million
Discount for Lack of Control	10.0%
Control Premium	8.0%
Discount for lack of marketability	25.0%
Percent interest to value	100.0%

Compute the Market Value of Invested Capital of a 100% interest in the subject company on a control, marketable basis

a. $12,000,000
b. $14,500,000
c. $17,000,000
d. $19,500,000
e. $21,060,000
f. Cannot determine from information above

35. Which of the following about finding useful and relevant comparable guideline publicly traded companies to use in this market method is most true:

    a. Relatively easy because numerous comparable guideline publicly traded companies exist for the privately held businesses.
    b. Relatively easy because finding comparable guideline publicly traded companies is quick and inexpensive.
    c. Relatively difficult because the methodology relies on explicit financial forecasts which are not readily available for the comparable companies.
    d. Relatively difficult because company size differential, management depth, product and services diversity and access to debt capital will seldom match smaller privately held companies.

36. Which of the following is a market method whereby multiples are derived from market prices of stocks of companies engaged in the same or similar lines of business and that are actively traded on a free and open market:

    a. Free and Open Market Method
    b. Guideline Transaction Method
    c. Best-Fit Method
    d. Guideline Public Company Method

37. Which of the following is true regarding proper application of the Guideline Public Company Method:

    a. Relies on the same data as the Guideline Transaction Method
    b. Reflects long-term historic averages of key public company data
    c. Requires consideration of normalized financial information
    d. Only uses the most recent fiscal year end of each public company

38. Which of the following databases focuses on minority interest transactions:

    a. BIZCOMPS
    b. ADAM/IBA
    c. Done Deals
    d. All of the above
    e. None of the above

39. In computing multiples under the Guideline Public Company Method:

    a. Comparability analysis is performed to determine the suitability of the comparable companies
    b. The mean of guideline companies should always be used
    c. Price to earnings measures are the unconditionally the most appropriate measure
    d. Multiples are not computed under the Guideline Public Company Method

40. Which is an advantage of the Guideline Public Company Method:

    a. Stock quotes can be obtained as of the valuation date
    b. The financial information of the comparable company is generally reliable
    c. Financial information can be obtained as of the nearest quarter-close of the valuation date
    d. All of the above
    e. Only B and C

41. When valuing a controlling interest of a privately held entity and utilizing the Guideline Public Company Method:

    a. A controlling interest cannot be determined under the GPCM
    b. A control premium should be considered
    c. A discount for lack of marketability is not appropriate
    d. The highest multiple of all the comparable companies should be used

42. Which are the most common multiple(s) published for guideline public companies:

    a. Market Value of Invested Capital multiples
    b. Price per share multiples
    c. Substitution multiples
    d. None of the above

43. When deriving multiple(s) under the Guideline Public Company Method:

    a. Only one multiple can be used
    b. If more than one multiple is used, a reasonable explanation for doing so should be provided
    c. The simple average does not reflect an accurate result
    d. The price to earnings should be given the highest weighting