

THE FOLLOWING WAS EXCERPTED FROM ONE OF MY VALUATIONS THAT DEMONSTRATES THE USE OF STATISTICAL ANALYSIS IN THE MARKET APPROACH.

### 6.2.1 DATABASES SELECTED

The most commonly used databases in the Direct Market Data Method are Pratt's Stats, BIZCOMPS, BizBuySell, and the Institute of Business Appraisers (IBA). For the most part, the data from these sources is obtained from business brokers who represented the buyer or the seller in the transaction. IBA has the largest database of transactions, but information such as inventory, fixtures and equipment and discretionary earnings is often missing. As such it is difficult to reconcile the many complexities of each sale. Consequently it is the least useful database. BIZCOMPS reports the selling prices of a business excluding inventory. This database, however, does report the level of inventory separately; therefore, we simply add inventory to the BIZCOMPS' reported selling price in order to be comparable to the other two databases. BIZCOMPS reports 17 data points for each transaction and claims to carefully review the input to its database.

BIZCOMPS and IBA state that they calculate Seller's Discretionary Earnings slightly differently. (For example, IBA does not mention adding back depreciation into SDE.) However, this Appraiser has completed over 250 market-approach analyses and has made a point to carefully read the complete transaction reports of over ten thousand comparables from all three databases. In instances where both databases reported the same transaction, the Appraiser has found that in a high percentage of the cases the selling price, gross revenues, and discretionary earnings were identical. One can attribute this to the fact that the same broker will report a transaction to all three databases, and will submit only one calculation for Seller's Discretionary Earnings (SDE). Brokers will typically follow the convention recommended by the IBBA (International Business Brokers Association) for calculating SDE, a convention that BIZCOMPS expressly follows and one that IBA appears to accept by default. Therefore, all three databases will be considered similar enough in their respective construction to be grouped together. Shannon Pratt draws the same conclusion in *The Market Approach to Valuing Businesses*.

"One may combine the data from the three databases into a single table. [However,] the analyst must be aware of and make certain adjustments to reflect that the three databases do not define the underlying financial variables in exactly the same way."<sup>1</sup>

Pratt's Stats has over 65 data points for each transaction including a summary of the P&L and balance sheet, a description of the terms of the deal, the type of consideration tendered, and whether it is a stock sale or an asset sale. Because of the extensive information available, reconciling Seller's Discretionary Earnings or reconciling the actual selling price of the transaction is more reliable. Pratt's Stats calculates SDE the same way as BIZCOMPS and IBA; however, it is not uncommon to find discrepancies among all three. Careful analysis of all three databases will help avoid selecting incorrect transactional data. The greater detail offered by the Pratt's Stats database can help reduce errors in selecting the transactional data. Therefore, if

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<sup>1</sup> Shannon Pratt, *The Market Approach to Valuing Businesses*, (John Wiley and Sons, Inc., 2001), p. 68

there are any discrepancies arising among duplicate transactions reported by the three databases, the Pratt's Stats data will generally be used in the analysis.

For an in depth discussion on how the above three databases are constructed and a listing of all the comparables used in this analysis, please go to the Appendix beginning on Page 73.

#### 6.2.2 TIMING OF THE SALE

The transactions used for business valuations are often several years old. Most of us exposed to real estate appraisals on private residences have been told that proximity to the subject house and timing of the comparable's sale are critical to the valuation. Business valuations, however, are not calculated by looking at the actual selling price of the comparables. Instead, the subject company's financial ratios are compared with the ratios of the comparable businesses. As noted below, such financial ratios have a tendency to be fairly consistent over time.

Secondly, small-business investors base their investment decisions primarily on a long-term view of the market. Unlike purchasing stock, where the holding period may be weeks or months, buyers of small businesses are often looking for career-length opportunities. Therefore, when comparing businesses that sold several years ago, the effects of recessions or bull markets on the earnings multiples of the business are somewhat minimized. Again, by using financial-ratio comparisons, the relationship between selling price and gross sales or selling price and discretionary earnings tends to be fairly stable over time. The time element that is so critical in real estate appraisals is not nearly as significant a factor in business appraisals.

The following research was discussed in the book by Gary Trugman, Understanding Business Valuation.<sup>2</sup>

“Raymond C. Miles, C.B.A., A.S.A., executive director of the Institute of Business Appraisers, published a paper entitled, “In Defense of Stale Comparables,” in which Miles examined the almost 10,000 entries in the database, and demonstrated that most industries are unaffected by the date of the transaction when smaller businesses are involved. Miles performed a study that examined the multiples across various industries and time periods to see if, in fact, the multiples changed. The conclusion reached was that the multiples do not appear time-sensitive, since inflation affects not only the sales prices, but also the gross and net earnings of the business. Therefore, this information can be used to provide actual market data.”

More recently, similar results were cited by Jack Sanders, the creator of BIZCOMPS database.<sup>3</sup>

“Recently, the author [Jack Sanders] compared current study data with the data over ten years old. First the Gross Sales to Selling Price ratio was compared. In the current National Database that ratio was available in 6,748 out of 6,851 transactions. The arithmetic mean of this ratio was .46, while the median was .38. A similar analysis of

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<sup>2</sup> Gary Trugman, Understanding Business Valuations: A Practical Guide to Valuing Small to Medium Sized Businesses. (New York: American Institute of Certified Public Accountants, 1988), p. 150

<sup>3</sup> Jack Sanders, “*BIZCOMPS User Guide*,” (Las Vegas, NV, 2004), p. 7

879 transactions out of 954 transactions older than ten years was made. The arithmetic mean was .44 and the median was .37. The same analysis was made of the Seller's Discretionary Earnings (SDE) to Selling Price ratio. The arithmetic mean for the current study was 1.95 while the median was 1.8. In the over 10 year-old data, the arithmetic mean was 2.0 and the median was 1.8."

**Analysis:** The search criteria used by the Appraiser when selecting guideline companies from the various databases, therefore, will not exclude transactions based on the timing of the sale.

### 6.2.3 LOCATION

The location of a business can certainly have a significant impact on its value. For example, we often hear comments from business owners such as, "my restaurant has the best location in town and, therefore, deserves a much higher valuation." That observation would be true if that business were more profitable than its competitor. When applying the *same* Cash Flow Multiplier to the two different locations, the restaurant with the higher profits (and superior location) would earn a higher calculated value than the other. The superior location undoubtedly contributed to the company's higher profitability, and hence, its higher value. If the company at the supposed superior location generated the same level of profits as its competitor, one would have to seriously question the contention that the location is superior.

Selecting guideline companies from different states for comparison with the subject frequently raises challenges. The Appraiser researched the BIZCOMPS database to determine if there were compelling differences in the Market Value Multiples earned by companies from different states. The exhibit below shows the Cash Flow Margins (SDE%) and Revenue and Cash Flow Multiples of companies sold in the major states throughout the country.

Tests were performed on the database to determine if various economic factors influenced the level of Market Value Multipliers earned by companies throughout the country. A regression analysis was performed comparing the population growth rate of a given state with the Gross Revenue Multiples earned by companies within that state. The hypothesis here is that high-growth areas must assuredly attract business buyers who are willing to pay a premium for access to that market. The regression produced an R-Squared of 0.30. The value, although not compelling, suggests that there is a modest tendency for high-growth areas to produce higher Gross Revenues Multiples than low-growth areas. (An R-Squared of 1.0 means a perfect correlation between variables, whereas 0.0 means no correlation at all.) The table below was sorted by states with the lowest population growth on top and the highest population growth on the bottom. We can visually see that states with the lowest population growth typically have lower Median Revenue Multiples.

# Exhibit XV Market Value Multiples by Different States

State	Median Revenue	Median Cash Flow Margin	Median Cash Flow Multiple	Median Rev Multiple	Population Growth	Income Growth	# of Sales
OH	703,000	13.6%	2.22	0.31	1.0%	17.3%	58
PA	497,000	18.8%	2.31	0.42	1.2%	25.3%	44
MA	650,000	17.4%	2.33	0.37	1.5%	28.1%	139
WA	465,000	14.1%	2.49	0.36	1.7%	25.0%	58
IA	538,000	17.2%	2.25	0.33	2.0%	23.1%	43
NC	695,000	15.8%	2.46	0.36	3.3%	20.2%	81
UT	354,000	21.0%	2.17	0.49	4.0%	23.5%	95
MN	500,000	12.6%	3.57	0.49	5.7%	22.7%	124
CA	600,000	18.2%	2.33	0.40	7.9%	28.8%	911
ID	577,000	16.0%	2.57	0.39	9.8%	26.0%	150
CO	703,000	18.0%	2.42	0.43	13.0%	19.9%	472
FL	586,000	21.7%	2.01	0.42	14.2%	17.2%	2617
TX	580,000	19.9%	2.08	0.40	14.6%	22.9%	335
GA	742,000	18.8%	2.34	0.43	16.7%	19.1%	424
AZ	535,000	22.2%	2.34	0.50	23.5%	26.1%	436
	Median	18.0%	2.33	0.40	2,237		
	Average	17.7%	2.39	0.41	* 7.0% * 24.2%		
	Standard Deviation	2.9%	0.358	0.056	(* Total US Growth Rates)		
	Coefficient of Variation	0.163	0.150	0.138			
Comparables were selected from BIZCOMPS Database of 10,065 transactions.							
Transactions of \$250,000 and higher were selected							
Only States with more than 40 transactions were included in the analysis.							
Population growth is the annual growth rate of the state from 2000 to 2007.							

A second test was run comparing the growth rate of household income within a state with the Gross Revenue Multiples earned by companies sold in that state. The percentage change in median household income from 2000 to 2007 for each state was regressed against the median Gross Revenue Multiples earned by companies sold in that state. The hypothesis here is that communities enjoying surging income levels will attract buyers of businesses who perceive investment opportunities. The regression only produced an R-Squared of 0.0006; i.e., there was virtually no correlation between rising incomes and the Gross Revenue Multiples earned in a given region. Therefore, that hypothesis is rejected.

However, a multiple regression analysis was performed combining the population growth rate and the income growth rate of a region and comparing them with the Gross Revenue Multiples. The combination produced an R-Squared of 0.35. The value suggests that communities enjoying higher population growth and a higher growth in household income may produce transactions with higher Market Value Multiples.

Given that population growth may have a positive effect on the Gross Revenue Multiples at the state level, we can draw the conclusion that high-growth communities within the state should also enjoy higher multiples than low-growth communities. Therefore, this report will research

the growth rates of the community or market area that the Subject serves and compare it to the growth rate of the entire state or country.

From Exhibit XV we can see that the population growth and growth in household income for California are about at the median level of other states. The research would then suggest that California businesses should also sell at Gross Revenue and Cash Flow Multiples that are near the median values found in other states, and in fact, the data bears this out. Both the Gross Revenue Multiples and Cash Flow Multiples of companies sold in California were exactly equal to the median values found in all major states.

**Analysis:** The search criteria used for selecting comparables from the various databases, therefore, will include all transactions regardless of their location. However, an adjustment to the Gross Revenue Multiplier will be made if the community or region that the subject serves has a population growth rate and income growth that is significantly above or below the median for the whole state.

#### 6.2.4 SIMILARITY OF COMPARABLES: THE PRINCIPLE OF SUBSTITUTION

“The theory of the Market Approach to valuation is the economic principle of substitution: One would not pay more than one would have to pay for an equally desirable alternative.”<sup>4</sup> The operative words “equally desirable or similar” often create debate. A business owner is quick to point out the many unique characteristics of his company that make it distinctive in the marketplace and, therefore, should add to its value. The owner’s customers will make those same distinctions, which is why they patronize the owner’s business. A buyer, however, typically does not make those distinctions. For the most part, a buyer of a small business is buying a job, a job that must support the lifestyle to which he is accustomed. We have actually seen a buyer submit an offer on a grocery store, but then subsequently buy an X-ray equipment servicing business instead. The reason he did not buy the grocery store was not because it did not have eight-foot high gondolas, or was not affiliated with the right franchisor, but rather, the X-ray equipment company simply just made more money. Clearly, a buyer’s search criteria are just not detail oriented.

As was previously mentioned, the Market Approach is a buyer-driven analysis. Thus in searching for comparable sales, it is not essential that the comparable be an exact match to the subject company. The ease with which buyers choose between different types of businesses means that fairly broad classifications of businesses tend to exhibit similar value characteristics. The buyer will simply not pay more for a business when there is an equally desirable substitute offered at a lower price.

**Analysis:** The search for comparables will begin by searching for transactions by Standard Industrial Classification (SIC) groupings. This is a table of business classifications produced by the U.S. Department of Labor’s OSHA division in which all similar businesses are grouped into one of more than 2,000 separate categories.<sup>5</sup>

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<sup>4</sup> Shannon P. Pratt, The Market Approach to Valuing Businesses, (New, York, John Wiley & Sons, Inc.), p.xxxiv

<sup>5</sup> U.S. Department of Labor- OSHA Division, <http://www.osha.gov/pls/imis/sicsearch.html>

The size of a company, in terms of its gross revenues, has a direct bearing on its value.

Exhibit XVI Cash Flow Multipliers by Size of Company

**Analysis:** The size criteria used to select guideline companies were those businesses whose revenues fell roughly in the \$500,000 to \$1,000,000 range. Often it is difficult to find enough comparables within a given revenue range similar to the Subject. Therefore, in order to get a sample of reasonable size, it may be necessary to select somewhat larger or smaller guideline companies. In this case it is important that the average revenue size of the whole sample be fairly close to the subject's revenue history.

The last filter criteria applied to the remaining database was to eliminate any transaction with negative or near zero earnings. Companies with earnings that are negative or near zero will produce SDE Multipliers that are negative or extraordinarily high, causing averages and standard deviations to be skewed inappropriately. By way of example: selling price = \$400,000, revenues = \$1,000,000, and SDE = \$25,000. The resulting SDE Multiplier = 16 ( $\$400,000 \div \$25,000$ ). One would normally draw the conclusion from a SDE Multiplier of 16 that the company sold for an extraordinarily high price. In this case, it was just the result of a very small denominator – Cash Flow.

Of the 6,279 transactions matching the initial search criteria in the Pratt's Stats database, 843 were found to have SDE Multipliers that were greater than 10.0 or less than zero. The median Discretionary Earnings Profit Margin (SDE%) ( $\text{SDE} \div \text{Total Revenue}$ ) for this group was only 4.4%, whereas, the median for the entire Pratt's Stats database was 19.3%. Thus companies with SDE Multipliers greater than ten are more than likely to be unprofitable companies. Since discretionary earnings are the denominators in the SDE Multiplier equations, the high multiples earned for this group are clearly a function of a very low earnings level rather than a high price level. In addition, this group also yielded a very high Coefficient of Variation of 127.2%. The 843 transactions in this group are, therefore, loaded with outliers with distorted multiples.

**Analysis:** Companies with SDE Multipliers that are negative or greater than ten will be rejected from the analysis.

#### 6.2.7 SELECTION OF APPROPRIATE COMPARABLE DATA

The above six sections have set up the filtering process that will be applied when selecting comparable transactional data. These selected guideline companies are considered to possess a higher degree of similarity to the Subject's characteristics and, therefore, are directly comparable.

The Subject Company is classified under SIC Codes #8249, 8299 and 73, Vocational Trade School and Business Services. Companies listed under these classifications may not be identical to the subject; however, they may possess many similar characteristics. From a buyer's perspective, then, most of the companies within this group would be equally desirable choices.

The search criteria used for selecting comparables from the databases, therefore, began by searching SIC Codes #8249, 8299 and 73. A total of 2659 comparables were found in the Pratt's Stats database, 1266 were found in the BIZCOMPS database, and 77 were found in the IBA database. The selection was further filtered to include just those companies whose revenues were between \$500,000 to \$1,000,000, with the transactions occurring after 2001 and whose description of operations was similar to the Subject (i.e. Vocational Trade School). A total of six comparables were found in the Pratt's Stats database, 10 were found in the BizComps database, and two were found in the IBA database.

Specific details on all of these companies can be found in the appendix beginning on Page 73.

#### 6.2.8 IDENTIFYING OUTLIERS IN THE SELECTED SAMPLE OF COMPARABLES

##### 6.2.8.1 COEFFICIENT OF VARIATION

After taking into consideration the filters described in the above six paragraphs, we may find that the sample of comparables that we have selected may be as few as ten to twenty-five transactions. The risk in using a smaller sample of comparables is that one or more "outlying" comparables can significantly distort the ratio analysis of the entire sample. By "outlying" we mean that the Market Value Multipliers produced by the single guideline company are so far above or below the other observations that it caused the group's overall averages to be skewed.

Thus when trying to measure where the market is, it is accepted practice to use the median of a sample rather than its average. The average of a sample will be affected more by a single outlier than the median. Regardless, both measures are at risk of sampling error due to small sample size. For that reason, standard deviation and coefficient of variation tests will be run on the sample which will then be compared to the entire Pratt's Stats database of 11,500 companies.

Standard deviation is a statistical tool that measures the spread between the multipliers of each individual comparable and the corresponding average for the entire sample of comparables. In other words, the standard deviation measures the degree of variability or dispersion within a sample. However, when comparing our small selection of comparables to the entire Pratt's Stats database, the standard deviations of the two samples, by itself, does not tell us which sample is more accurate. For that determination we use the coefficient of variation (CV). CV equals the standard deviation of the sample divided by its average. The degree of dispersion within the sample is measured as a percentage of that sample's average. For example, if a sample's average Cash Flow Multiplier was 5.0 and its standard deviation was 1.5, statistically speaking, approximately 16% of all comparables would have a multiplier above 6.5 ( $5.0 + 1.5$ ), and 16% would have a multiplier below 3.5 ( $5.0 - 1.5$ ). The CV would indicate that the remaining 68% of the observations has a multiplier that is within plus or minus 30% of the average ( $1.5 \div 5.0$ ). Thus the coefficient gives us a tool that measures how tightly packed around the average that the majority of (i.e. 68%) the comparables in a sample are. A sample where the majority of the comparables are within plus or minus 20% of the average is a much more meaningful sample than one in which the majority is within plus or minus 40% of the average. If one sample has a much lower CV than the second, we can assume that the second sample has one or two outlying observations that may be distorting its overall average and, thereby, giving us a false read of the market.

The best way of defining CV is through an example. Sample #1 in Exhibit XVII contains the Cash Flow Multipliers of six sales transactions. The sample's median is 4.5 and its average is 4.6. Sample #2 also contains the Cash Flow Multipliers of six transactions. This sample has an average of 4.6, the same that was found in Sample #1. However, the median was a moderately lower 4.0.

Exhibit XVII Example Coefficient of Variation

Cash Flow Multipliers		
	Sample #1	Sample #2
Transaction #1	4.6	7.7
#2	4.0	2.0
#3	4.4	3.0
#4	4.7	9.0
#5	5.7	1.0
#6	4.0	5.0
Median	4.5	4.0
Average	4.6	4.6
Stand Deviation	0.63	3.2
Coef of Variation	14%	69%

In choosing which sample is a more accurate measure of the market, we could simply look at the six observations in Sample #1, and intuitively we know that 4.5 is a good guess of where that market is. When looking at Sample #2, we have no clue as to what a good guess would be. Sample #2's observations appear to be randomly scattered and any guess may be way off the mark. The CVs for these two samples statistically tell us what we already detected from visual inspection. The CV for Sample #1 was only 14%, whereas #2 was 63%.



Given the choice between the two samples, Sample #1 produces, by far, a better indication of where the market is as evidenced by its much lower CV value.

As noted by Shannon Pratt, “All else being equal, multiples [derived from a sample database] exhibiting low Coefficients of Variation tend to more accurately reflect market consensus with respect to value.”<sup>6</sup> Mr. Pratt also notes, “When Market Value Multiples among companies are tightly clustered, this suggests that these are the multiples that the market pays most attention to in pricing companies ... in that industry.”<sup>7</sup>

Three different Market Value Multipliers will be used in this report. Standard deviations and CV's will be calculated for each sample which will then be compared to the entire Pratt's Stats database of 11,501 transactions. If either sample produces significantly higher coefficients, we will reduce its weighting, or eliminate it altogether when reconciling all the calculated values to obtain a single value conclusion.

#### 6.2.8.2 REGRESSION ANALYSIS

The next phase in the process of selecting a suitable sample of comparables is to attempt to identify individual observations within that sample that might be so far out of alignment with the rest of the sample that it is distorting our view of where the market is.

Regression analysis is a statistical tool that we will use that compares various key characteristics of each guideline company (gross revenues, SDE, inventory, FF&E, and SDE%) with its selling price. If each of these key characteristics is plotted on a graph, the regression calculation produces a line that will be the "best fit" between those points versus the selling prices. The regression line, referred to as the Market Line, therefore, is the measurement representing the closest relationship between these key variables and the selling prices of all the observed companies in the sample.

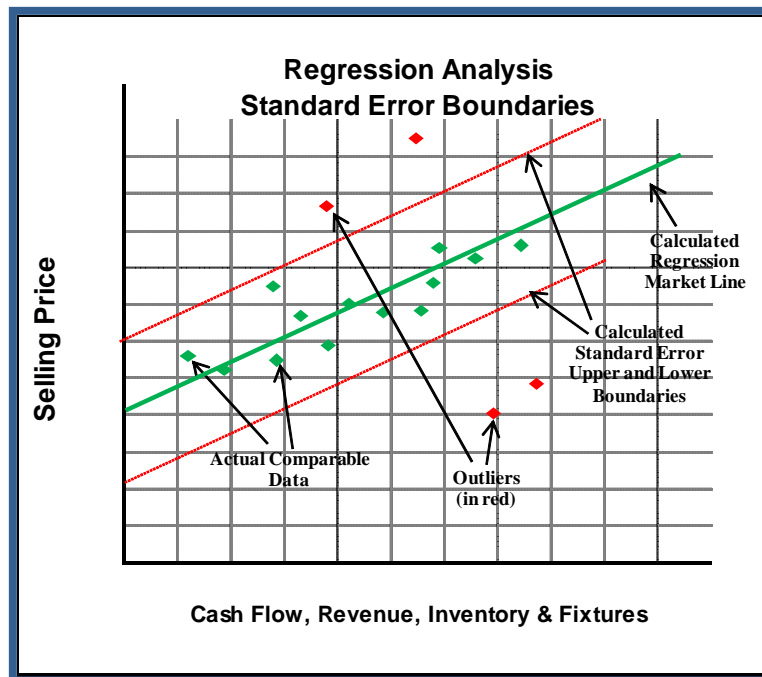
Those guideline companies whose actual selling price is radically different from the price indicated by the Market Line (i.e. they are significantly out of alignment with the rest of the market) can now be easily identified. The regression analysis not only plots a line that best represents where the market is, but also calculates what is referred to as standard error lines. The standard error is a statistical measurement similar to standard deviation in that it calculates the upper and lower boundaries between which most of the comparables should theoretically fall. Those comparables that fall outside these boundaries are companies whose selling prices were so far above or below the rest of the market that their transactional data must be considered flawed. These “outliers,” as they are referred to, will be removed from our sample of comparables.

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<sup>6</sup> Shannon Pratt, *The Market Approach to Valuing Businesses*, (John Wiley and Sons, Inc., 2001), p. 212

<sup>7</sup> Ibid., p. 133

## Exhibit XVIII Outliers Identified by Standard Error



The example in Exhibit XVIII graphed the points of 17 comparables on a chart (13 green and 4 red). The regression analysis calculated a Market Line (in green) that is the closest fit to all those points. The regression also calculated a standard error which indicates theoretical boundaries (in red) in which approximately 16% of all companies should fall above the upper boundary line and 16% should fall below the lower boundary line. Four observations (in red) fell outside these boundaries and, therefore, are not considered representative of the market. The observations that fall outside the standard error boundaries will be considered outliers.

After the outliers have been removed from our initial sample of comparables, we end up with a sample that is even smaller. As noted above, smaller samples carry a greater risk that one or two observations may still skew the results and present a false read of the market. Therefore, we will apply the CV test described in Paragraph 5.2.8.1 above to the second, smaller sample. If the new smaller sample produces CV ratios that are lower than those observed in the original sample, we will conclude that the smaller sample is a more accurate read of the market.

### 6.3 PROCEDURES USED IN THE DIRECT MARKET DATA METHOD

Once a sample of comparables that statistically represents the market has been selected, we can now apply various procedures to it that will ultimately determine the value of our Subject.

The following are the four procedures that will be used in the Market Approach:

#### 6.3.1 GROSS REVENUE MULTIPLIER – (Selling Price ÷ Gross Revenues)

This method is a simple ratio of a company's selling price divided by its gross revenues. Companies within a specific industry classification have a tendency to exhibit similar relationships between their revenues and selling price. Selling price and gross revenues of a company are readily obtainable, making this method easy to apply. However, it does not consider the company's profitability or asset valuation in the equation. Therefore, this method, if used by itself, may produce a misread of a company's potential value.

### 6.3.2 CASH FLOW MULTIPLIER – (Selling Price ÷ Discretionary Earnings)

This method is the ratio of a company's selling price divided by its Discretionary Earnings (SDE). It should be noted that the database sources used in the Direct Market Data Method calculate earnings differently than the way we calculated Net Cash Flow in the Income Approach. SDE is calculated by removing all owner's salaries and perquisites (such as health benefits, personal autos, etc.) from expenses. Interest, depreciation, income taxes, any one-time expense or income, and any non-operating expense or income are also removed from the income statement. The resulting Seller's Discretionary Earnings is that cash flow which the owner has at his disposal for his salary and perquisites, his loan payments, and his capital expenditures. (The terms "Seller's Discretionary Earnings" and "Cash Flow" are used interchangeably in the following Market Approach discussion.)

However, the same problem with the Gross Revenue Multiplier exists with the Cash Flow Multiplier. That is, the ratio only focuses on one aspect of the company's operations, its discretionary earnings. Therefore, if used by itself, this ratio may produce a misread of the company's value. For that reason the Market Approach typically includes both ratios to estimate the value of a business.

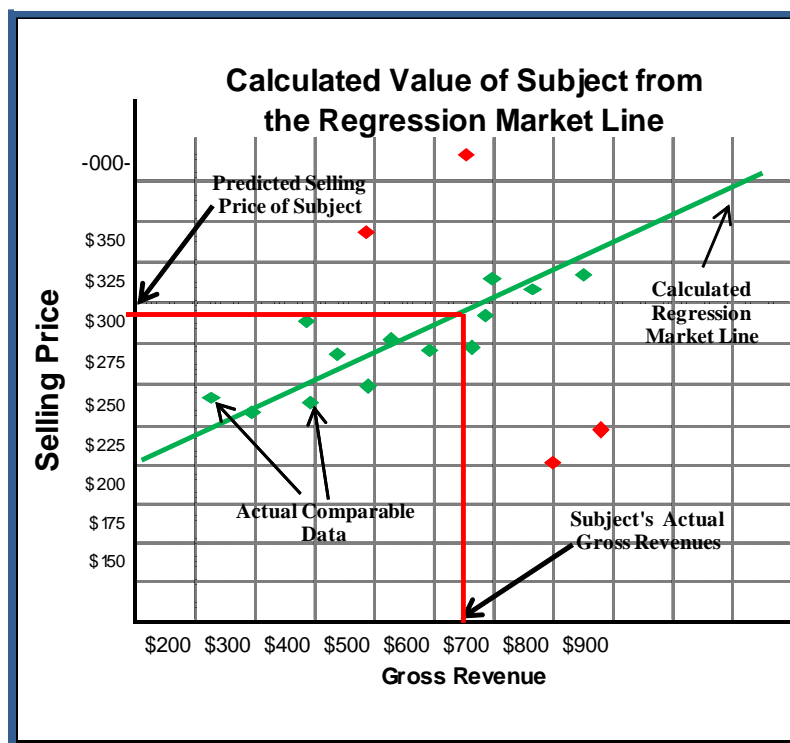
### 6.3.3 ENTERPRISE VALUE + INVENTORY – (Selling Price – Inventory ÷ Cash Flow)

Under certain circumstances, however, using the above two methodologies can still produce inaccurate results when valuing businesses that derive the bulk of their revenues from the sale of inventory. For example: it was determined that the average hardware store sells for .45 times its gross revenue and 3.30 times its SDE. In our search, we find two guideline companies, each doing \$900,000 in gross revenues and \$125,000 in SDE; yet one sold for \$400,000 and the second for \$600,000. The anomaly can probably be explained by the fact that the first store had \$200,000 in inventory while the second had \$400,000.

The Enterprise Value + Inventory methodology deducts the volatile inventory component from the selling price of the business. The difference is then divided by the company's SDE. The resulting ratio can be used to determine what is referred to as the Enterprise Value of the business; that is, the value of a business excluding its inventory. By using this methodology in the two above examples, we find that Enterprise Value for both businesses was 1.60 [Store #1 =  $(\$400,000 - 200,000) \div \$125,000$ ; Store #2 =  $(\$600,000 - 400,000) \div \$125,000$ ]. We can then use this ratio to estimate the value of a third hardware store which generated, say, \$1,450,000 in gross revenues, \$200,000 in SDE and had \$375,000 in inventory. Store #3's Enterprise Value is \$320,000 ( $\$200,000 \times 1.60$ ); its total value including inventory is, therefore,  $\$320,000 + \$375,000$ , or \$695,000. The Cash Flow Multiplier by itself would have predicted only \$660,000 ( $3.30 \times \$200,000$ ) and the Gross Revenue Multiplier would have predicted \$652,500 ( $.45 \times \$1,450,000$ ). When reconciling these three Market Value Multipliers to estimate the value of this third hardware store, we might consider giving additional weighting to the Enterprise Value because this store primarily generates its revenue from the sale of Inventory.

#### 6.3.4 FOUR REGRESSION CALCULATIONS TO BE USED

Exhibit XIX Example Regression Analysis



(gross revenues, SDE, inventory, and FF&E) with its respective selling price. The regression produces a formula, then, from which we can input our subject's four actual variables and calculate its probable selling price. For demonstration purposes a simplified regression analysis is graphed in Exhibit XIX above. The values for the selling price and the gross revenues of 17 comparables were plotted on the chart and a regression line was then calculated. The subject company's gross revenues of \$700,000 is then located on the horizontal X-axis. By moving vertically from that point to the regression Market Line we can then identify the probable selling price of \$300,000 from the vertical Y-axis on the left side of the chart.

The remaining three regression calculations to be used in this report will compare the discretionary earnings profit margin (SDE%) of the comparables against their respective Cash Flow Multipliers, Revenue Multipliers, and Enterprise Multipliers. These three tests are discussed in greater detail below.

Each of the four regression tests to be used in the analysis will produce an R-Squared factor which measures how closely all the comparables fit to their respective Market Lines. An R-Squared of 0.0 means that the calculated Market Line had no predictive value whatsoever. An R-Squared of 1.0 means that the Market Line exactly predicted the selling price for each of the comparables. Thus R-Squared gives us a means to compare how good each regression was at predicting the Subject's value in much the same manner as the CV ratio did in the sampling tests done earlier in the report. Thus in the final reconciliation at the end of this report, the predicted

We have discussed above how regression analysis helped us identify outliers within our initial sample of comparables. The resulting smaller sample has now been statistically cleaned up and, therefore, should give us a more accurate read of the market. As was also noted, the regression analysis calculates a formula from which a line can be graphed that best represents that specific market. By plotting our Subject's actual variables on the chart, the Market Line will then enable us to determine the probable value of the Subject Company.

Our Market Approach will employ four different regression calculations. The first is referred to as a Multiple Variable Regression Analysis. This statistical tool simultaneously compares four key variables of each comparable

selling prices calculated by each of the four regression tests will be weighted using their respective R-Squared factors as guidelines.

### 6.3.5 DISCRETIONARY EARNINGS PROFIT MARGIN (SDE%) – (SDE ÷ Revenues)

IRS Ruling 59-60 instructs business appraisers to give considerable weighting to a company's profitability when determining its value.<sup>8</sup> As such we observe the subject's cash flow growth over the previous several years and identify all the drivers that created that growth. We also look at the subject's local market and how it will affect its operations and consider the prospects for its continued growth in the future. We then compared the subject's balance sheet and P&L ratios to a database of thousands of similar companies to determine the subject's relative strength compared to its peer group. *The question is, then, once we have determined that our subject is better than its peer group, what is the market willing to pay for that?*

When trying to make a direct comparison of the subject to companies that have recently sold, the available databases of sold comparables do not provide us with much financial information. The only effective tool available is to compare each company's discretionary earnings profit margins (SDE%). This simple ratio, discretionary earnings divided by gross revenues, gives us the means to directly compare the relative performance of companies in terms of their profitability and how it affects the selling price of the business. Generally speaking, when comparing companies of similar size and SIC classification, those which have higher SDE% tend to be the more dominant

Exhibit XX Discretionary Earnings Profit Margin  
by Size of Company

Total Transactions	Sales Range	Median Cash Flow Profit Margin
5,002	\$0-\$500,000	24.7%
897	\$500,000-\$1,000,000	18.4%
309	\$1,000,001-\$2,000,000	15.6%
231	\$2,000,001-\$5,000,000	14.7%
143	\$5,000,001-\$8,000,000	13.3%
242	\$8,000,001-\$25,000,000	14.6%
284	\$25,000,001+	11.4%
<b>Overall Totals</b>		
<b>7144</b>	<b>All Transactions</b>	<b>20.2%</b>
The following transactions were eliminated from the above analysis to avoid potential distortions:		
1) Corporate Stock Sales		
2) Assets Sales where liabilities were assumed.		
3) Companies with negative cash flow		
4) Companies with Cash Flow Multipliers over 10.0		
Pratts Stats Database of 13998 transactions, 8/10/09.		

players within their markets. They can command higher prices for their products and services, and they control expenses more efficiently than their competition.

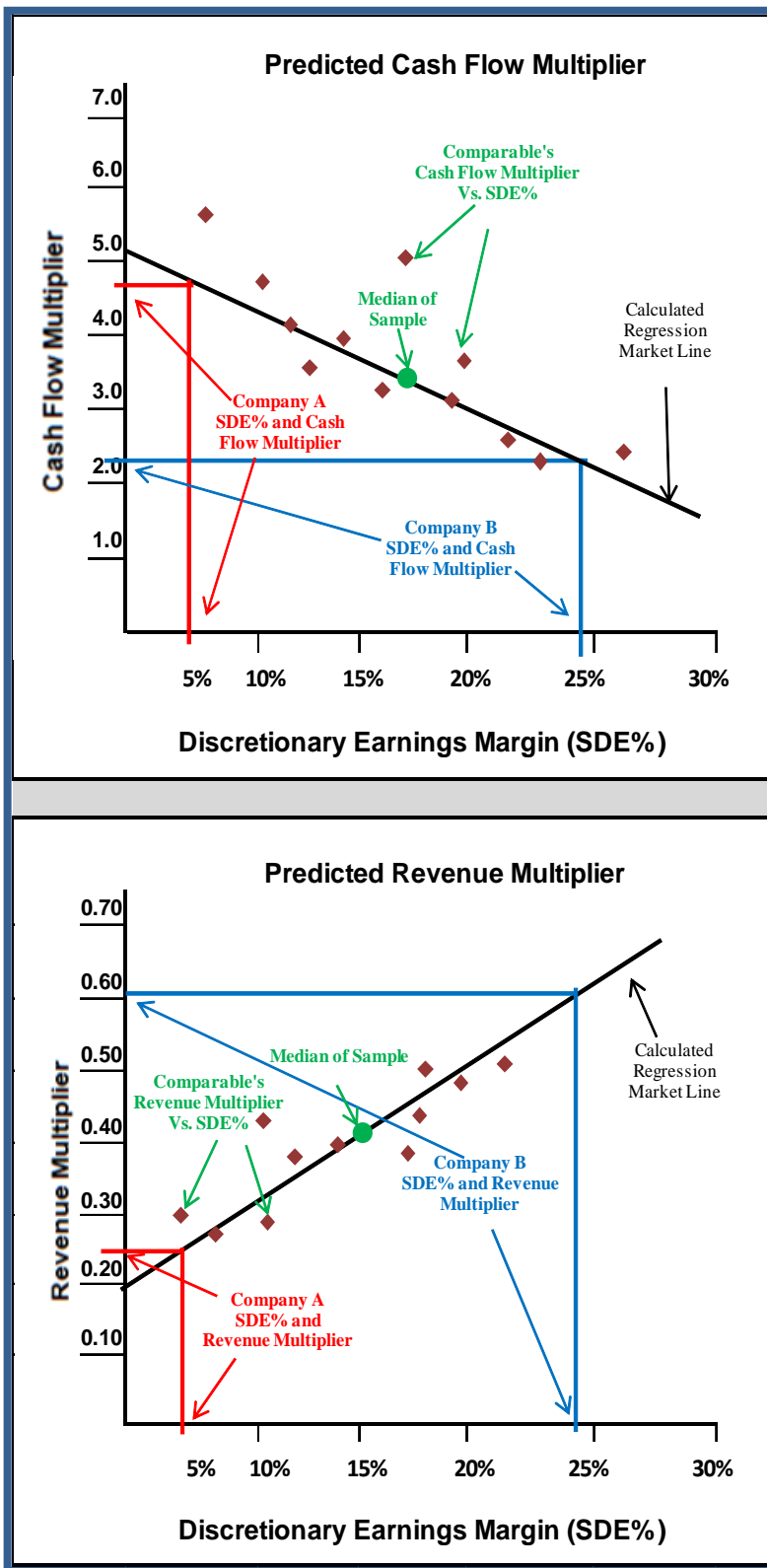
Since this one measure of a company's profitability will be used extensively in the following Market Approach, it is important to understand all the subtleties behind it.

#### 6.3.5.1 SIZE OF COMPANY VS. ITS DISCRETIONARY EARNINGS PROFIT MARGIN (SDE%)

First, from Exhibit XX we can see that *the larger the company is, the lower its SDE%*. This appears to be a direct contradiction to what we observed in the previous section above, i.e., the larger the company the higher its Cash Flow Multiplier. This apparent anomaly can be explained as follows:

<sup>8</sup> Internal Revenue Service, Revenue Ruling 59-60, 1959, [http://www.hantzmonwiebel.com/live\\_data/documents/ruling-59-60.pdf](http://www.hantzmonwiebel.com/live_data/documents/ruling-59-60.pdf), section 5, p.5

Exhibit XXI Predicting Multipliers Using SDE%



In smaller companies under \$500,000 in revenue, the owner typically manages all facets of the entire business by himself. He is the salesman, marketing manager, HR manager, and bookkeeper. All the profits flow to the owner to compensate him for all these jobs. As we see from Exhibit XX, companies that size generate cash flow at an average of 24.7% of every dollar of revenue. For a \$500,000 company, then, that would translate to \$123,500 in Discretionary Earnings. From Exhibit XVI we saw that a \$500,000 company would sell for 2.11 times its earnings, which in our example would be \$260,585.

For this company to grow to \$2 million, however, the owner must now hire a bookkeeper, an HR manager, and possibly a CFO. The company is now too big for the owner to do everything himself. A \$2 million company typically earns \$312,000 in discretionary earnings (\$2 million x 15.6% [from Exhibit XX]). Thus when a company grows from \$500,000 to \$2 million, the additional \$1.5 million in sales added \$188,500 in earnings which only yields an SDE% of 12.6% ( $\$188,500 \div \$1,500,000$ ).

Thus the \$2 million company in the above example produced higher levels of gross revenues and discretionary earnings yet earned a lower SDE%. The importance of this peculiarity is that in using SDE% to predict the value of a business, it becomes increasingly essential to select a sample of comparables that are as close in revenue size to the subject as possible, and that are from similar SIC

classifications. Otherwise, we might look at the 24.7% SDE% of a \$500,000 company and draw the false conclusion that it deserves better Market Value Multipliers than the \$2 million which only produced an SDE% of 15.6%.

#### 6.3.5.2 THE LEVEL OF A COMPANY'S SDE% VS. ITS CASH FLOW MULTIPLIER

A second oddity that one must be aware of when comparing the companies of similar size and SIC classification is that: *the higher their SDE%, the lower their Cash Flow Multipliers tend to be*. This seemingly contradicts everything we know about Market Approach science. We just presumed that highly profitable companies that enjoyed higher profit margins would also earn higher Cash Flow Multipliers than their underperforming counter-parts. This is not the case!

From Exhibit XVI we observed that larger companies generally earned higher Cash Flow Multipliers and Revenue Multipliers. Clearly, the size of a company is a major driver to the size of its Cash Flow Multiplier. However, if we look at companies within a narrow range of revenues we can see that there is a considerable range in their respective multipliers. For example, companies with revenues in the \$1 million to \$2 million range earned a median 2.77 Cash Flow Multiplier which, on the average, was considerably higher than the 2.11 multiplier earned by \$500,000 companies. Yet, when we look at the *range of multipliers* for the \$1 to \$2 million group we find that the lower quartile only earned a 1.86 multiplier whereas, the upper quartile earned 4.07. *This range of multipliers within a specific size grouping can largely be explained by the level of a company's SDE%.*

A statistical analysis of the Pratt's Stats database clearly shows this relationship.

A regression analysis was initially performed on the entire Pratt's Stats database of 11,500 sold transactions comparing a company's SDE% with its corresponding Cash Flow Multiplier.<sup>9</sup> The R-Squared of the regression was only .18. Since this factor is low (0 means no correlation and 1.0 means perfect correlation), one could not conclude that SDE% is a good indicator of a company's Cash Flow Multiplier. However, when we filter the Pratt's Stats database further by including only companies near the same revenue level as the subject and that are in a similar SIC Code, the resulting regression produces an R-Squared significantly higher, usually from .40 to .70 or more. *In other words, when we select a small sample of companies that have a similar revenue level and SIC Code as the subject, the subject's SDE% becomes a reasonably good predictor of its potential Cash Flow Multiplier.*

However, from the upper graph in Exhibit XXI we note that the regression Market Line is in a *downward slope*. This means that as a company's SDE% increases, we move to the right on the horizontal X-axis. However, the regression Market Line shows that we will also be moving downward on the vertical Y-axis, indicating a decreasing Cash Flow Multiplier. Thus for a given level of revenue, those companies that are more profitable and therefore, have a higher SDE%, will generally earn a lower Cash Flow Multiplier.

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<sup>9</sup> The database was first filtered by removing all transactions where Cash Flow Multipliers were greater than 10 or less than 0, and all corporate stock transfers. There were 4,811 transactions in this filtered sample.

This oddity is easily explained by the example diagrammed in the upper half of Exhibit XXI. Company A (diagrammed in red lines), with revenues of \$500,000 and discretionary earnings of \$24,000, sold for \$110,000. Therefore, its SDE% is  $\$24,000 \div \$500,000 = 4.8\%$ , and, its Cash Flow Multiplier is  $\$110,000 \div \$24,000 = 4.6$ . (Observe where the red lines cross the horizontal axis at 4.8% and vertical axis at 4.6.) Company B (diagrammed in blue), also with \$500,000 in revenues, but with \$125,000 in discretionary earnings, sold for \$300,000. As we would expect, Company B sold for more money because it had higher earnings (in absolute dollar terms). However, Company B only produced a Cash Flow Multiplier of 2.4 ( $\$300,000 \div 125,000$ ), but had a high SDE% of 25% ( $\$125,000 \div \$500,000$ ). (Observe where the blue lines cross the horizontal axis at 25% and vertical axis at 2.4.) Company A's high Cash Flow Multiplier was not a function of a high selling price, but rather the function of a very low level of discretionary earnings, the denominator of the equation.

Appraisers often use the median Cash Flow Multiplier for the whole sample of comparables to value a business. In the above example, the median was 3.5. If we merely used the median Cash Flow Multiplier to estimate Company A and B's probable selling prices, we would have priced A at \$84,000 ( $3.5 \times \$24,000$ ) and B at \$437,500 ( $3.5 \times \$125,000$ ). We would have been way low on the first valuation and way high on the second. However, by using the regression formula and subject's SDE% to calculate its Cash Flow Multiplier, we would have determined that the company with a low SDE% would have earned a high Cash Flow Multiplier (4.6), which yielded a lower price of \$110,000, and the company with the high SDE% would have earned a low Cash Flow Multiplier (2.4), which still yielded a higher price of \$300,000. Thus by using regression analysis the resulting predicted values of the two companies would be much more accurate.

When regressing the SDE% against the Revenue Multipliers of a sample of comparables, the resulting R-Squared factor is even more compelling than we found above when regressing SDE% against the Cash Flow Multipliers. The R-Squared factor typically rises as high as .80 or more, indicating that there is a very strong correlation between a company's SDE% and its Revenue Multiplier. In addition, Revenue Multipliers follow a more logical pattern. From the graph at the bottom half of Exhibit XXI we can see that companies with a higher SDE% also earn higher Revenue Multipliers, just the opposite of what we saw with the Cash Flow Multipliers.

By applying the data from the example above to the graph in the bottom half of Exhibit XXI, we see that Company A only had a SDE% of 4.8% and, as a result, the regression equation predicted a weak Revenue Multiplier of .22. Company B, however, had a strong SDE% of 25% and, accordingly, earned an equally strong Revenue Multiplier of .60.

Again, if we only decided to use the sample's median Revenue Multiplier of 0.40, the calculated value for both companies would have been the same - \$200,000 ( $.40 \times \$500,000$ ). Simple logic would tell us that both companies are not worth the same; even though they both generated \$500,000 in revenues, the second company earned five times as much cash flow! *The Regression properly accounts for the difference in a company's profitability when calculating the Gross Revenue Multiplier, whereas, the median of the sample does not.*



From all the above statistical testing we can conclude that comparables within narrow revenue range and in the same SIC classification behave in similar and predictable ways, a point appraisers have always contended. By using Regression Analysis we employ that similarity by using a company's SDE% to predict its Revenue Multiplier, Cash Flow Multiplier, and Enterprise Multiplier.

## 7.0 RECONCILIATION OF MARKET APPROACH MULTIPLIERS

### 7.1 BUILDING THE SAMPLE TO BE USED IN THE ANALYSIS

The Pratt's Stats, BIZCOMPS, and IBA databases were searched for transactions in Standard Industry Classification code #8249, 8299 and 73\*\*. The Comparables Analysis Table in Exhibit XXII below shows the operating ratios of 18 businesses that were selected by using the filtering criteria discussed in Section 5.2 above.

Observations	Exhibit XXII   Comparables Analysis									
	Listing Price	Selling Price	Gross Revenues	Revenue Multiplier	Cash Flow	SDE%	Cash Flow Multiplier	Inventory	Enterprise Multiplier	Fixtures & Equip
1	255,000	255,000	856,000	0.30	100,000	11.7%	2.55	30,000	2.25	78,000
2	300,000	300,000	511,000	0.59	64,000	12.5%	4.70		4.70	25,000
3	325,000	325,000	546,000	0.60	72,000	13.1%	4.54		4.54	80,000
4		1,100,000	889,000	1.24	135,000	15.1%	8.17	3,000	8.15	300,000
5	600,000	495,000	861,000	0.57	145,000	16.8%	3.41	5,000	3.38	40,000
6	275,000	245,000	610,000	0.40	110,000	18.0%	2.23		2.23	75,000
7	600,000	600,000	784,000	0.77	172,000	21.9%	3.49	5,000	3.46	40,000
8	460,000	235,000	566,000	0.42	160,000	28.3%	1.47		1.47	163,000
9	595,000	595,000	810,000	0.73	253,000	31.2%	2.35	20,000	2.27	37,000
10	289,000	289,000	639,000	0.45	219,000	34.3%	1.32	30,000	1.18	15,000
11		1,300,000	676,000	1.92	264,000	39.1%	4.92		4.92	20,000
12		570,000	530,000	1.08	210,000	39.6%	2.71	24,000	2.60	75,000
13	176,000	340,000	448,000	0.76	181,000	40.4%	1.88		1.88	14,000
14	547,000	547,000	718,000	0.76	293,000	40.8%	1.87	2,000	1.86	75,000
15	600,000	600,000	583,000	1.03	257,000	44.1%	2.34		2.34	25,000
16	900,000	930,000	789,000	1.18	351,000	44.5%	2.65		2.65	10,000
17	450,000	450,000	570,000	0.79	256,000	44.9%	1.76		1.76	17,000
18	650,000	580,000	560,000	1.04	310,000	55.4%	1.87	15,000	1.82	250,000
Avg:	468,000	542,000	664,000	↓	197,000	↓	↓	15,000	↓	74,000
	Selling Price Listing Price   = 100.6%			Gross Rev		CF Margin Range	Cash Flow Range		Enterprise Range	
		Median =	0.76			32.8%	2.45*		2.30*	
		Average =	0.81			30.7%	3.01*		2.97*	
		Standard Deviation =	0.39			13.76%	1.69*		1.70*	
		Coefficient of Variation =	48.2%			44.9%	56.1%		57.4%	
* Companies with Cash Flow Multiples that are negative or greater than 10 are ignored in this calculation.										

All the transactions in the databases are presumed to be "Asset Sales," or, transactions that can be reconciled to Asset Sale Pricing; that is, their selling prices are comprised of Inventory,

Fixtures, and Intangibles only. Those companies exhibiting very high Revenue Multiples often have either real estate, accounts receivable, or other non-operating assets included in their reported selling price, and, the transactional data neglected to disclose this fact. Many of the comparables with low Revenue Multiples may have reported their selling prices net of inventory, or, the buyer assumed some of the liabilities of the company, thereby reducing the price. Again, the transactional data may not have disclosed this fact. It only takes one or two comparables in a small sample with improper sales data to distort the Market Value Multiples.

In order to test the predictive value of a small sample, we can compare the variability of the observations in the sample with that of the entire database. The relative variability is measured by the Coefficient of Variation (CV) -- the lower the coefficient, the higher the predictive value of the sample. The findings are as follows:

Exhibit XXIII   Coefficients of Variation of Sample vs. Total Database  
(18 Observations)

Database Exhibit XVI & Exhibit XXII	Gross Income Multiplier	Cash Flow Multiplier	Enterprise Value Multiplier
Sample –18 Observations	48.2%	56.1%	57.4%
Total Database -7,144 Obs. Pratt's Stats-Any State	87.4%	67.7%	69.3%

The three procedures applied to the 18 observations in the sample yielded significantly lower degrees of variability than the entire Pratt's Stats database. Therefore, we can assume that this sample is a reasonably good measure of the identified market size and should have good predictive abilities. To further test the predictive abilities of this sample of guideline companies, a regression analysis was done.

## 7.2 REGRESSION TEST

The regression test takes the four main variables describing each guideline company's operations (inventory, SDE, FF&E, and gross revenues) and plots them against the company's selling price. From this test we can statistically identify those comparables that are "outliers," that is, those companies whose selling prices are well above or below what the rest of the market earned.

The 18 comparables from Exhibit XXII above were regressed at a 95% confidence level, and, the results are shown in the Exhibit XXIV below.

The test yielded an R Squared factor of 0.51. A factor of zero (0.0) means that the sample had no predictive characteristics at all, whereas, a 1.0 indicates perfect predictability. A .50 factor suggests modest predictability. The test also produces a Standard Error, which is a statistical measurement similar to the Standard Deviation. That is, 16% of the predicted values will exceed the actual selling price of the company by the Standard Error, and, 16% will be less.

In the sample of comparables shown below, five such comparables were found to have calculated values that deviated from the actual selling price by more than, or less than, the Standard Error. These guideline companies are considered 'outliers' and were removed from the sample. One company sold for \$1,100,000, whereas, the regression predicted a much lower \$827,587. A second company sold for \$235,000 with the regression predicting a much higher \$508,421. A third sold for \$1,300,000 with a prediction of \$701,011. A fourth sold for \$570,000 with a prediction of \$290,224. The fifth company sold for \$547,000 with a prediction of \$806,929.

Observations	Exhibit XXIV   Regression Analysis									
	Actual Values For Comparables						Calculated Values			
	Gross Revenues	Cash Flow	Inventory	Fixtures	Actual Sold Price		Predicted Price	\$ Difference	% Difference	
1	856,000	100,000	30,000	78,000	1	255,000	355,292	(100,292)	39.3%	
2	511,060	63,803		25,000	2	300,000	204,730	95,270	-31.8%	
3	545,958	71,656		80,000	3	325,000	285,525	39,475	-12.1%	
4	889,423	134,602	3,000	300,000	4	1,100,000	827,587	272,413	-24.8%	
5	861,000	145,000	5,000	40,000	5	495,000	637,761	(142,761)	28.8%	
6	610,000	110,000		75,000	6	245,000	408,528	(163,528)	66.7%	
7	784,000	172,000	5,000	40,000	7	600,000	611,881	(11,881)	2.0%	
8	566,000	160,000		163,000	8	235,000	508,421	(273,421)	116.3%	
9	810,000	253,000	20,000	37,000	9	595,000	639,289	(44,289)	7.4%	
10	639,000	219,000	30,000	15,000	10	289,000	316,672	(27,672)	9.6%	
11	676,000	264,000		20,000	11	1,300,000	701,011	598,989	-46.1%	
12	530,000	210,000	24,000	75,000	12	570,000	290,224	279,776	-49.1%	
13	448,000	181,000		14,000	13	340,000	340,242	(242)	0.1%	
14	718,000	293,000	2,000	75,000	14	547,000	806,929	(259,929)	47.5%	
15	582,955	256,837		25,000	15	600,000	604,412	(4,412)	0.7%	
16	789,000	351,000		10,000	16	930,000	950,590	(20,590)	2.2%	
17	570,000	256,183		16,788	17	450,000	585,965	(135,965)	30.2%	
18	560,000	310,000	15,000	250,000	18	580,000	680,941	(100,941)	17.4%	
19					19					
20					20					
21					21					
22					22					
23					23					
24					24					
	= Outliers									

**= Outliers**

Actual Data Capitol Services, Inc.		Regression Coefficients	Calculated Price
Total Sales	\$568,518	x 0.9394 =	534,090
Total Cash Flow	\$265,547	x 1.7206 =	456,907
Total Inventory	\$4,000	x (8.9672) =	-35,869
Total Net Fix. & Ten. Imp.	\$25,000	x 0.6272 =	15,681
Regression Intercept Value =			-400,843
<b>Price Predicted by Regression Market Line =</b>			<b>569,966</b>
Upper 16% (one Std Error) = + \$240,735			810,701
Lower 16% (one Std Error) = - \$240,735			329,231

**R Square = 0.51**  
**Standard Error = \$240,735**  
**CV = 44.4%**

An R Square value of 0.0 means the above sample had no predictive value. An R Square of 1.0 means the sample had perfect predictive values. A value over .50 means the above sample had a reasonably good predictive value.

### Regression Formula:

**Sales x 0.9394 + Cash Flow x 1.7206 + Inventory x -8.9672 + Fixtures x 0.6272 + (\$400,843) = Calculated Price**

These five outlying comparables were removed from the sample and the remaining sample of thirteen comparables was regressed a second time. The results are shown in the two tables below. The refined Regression Analysis produced an R Squared of 0.89 which is a significant improvement over the original sample of 18 indicating that it is a superior measure of the market. The Regression Equation that was constructed is shown at the bottom of the table. The actual values for the Subject's four variables of Inventory, FF&E, Cash Flow, and Revenues were input into this equation to solve for the Subject's estimated selling price. The mid-range predicted value was \$546,687; the upper range was \$627,545; and, the lower range was \$465,828.

Observations	Exhibit XXV Refined Regression Analysis									
	Actual Values For Comparables					Calculated Values				
	Gross Revenues	Cash Flow	Inventory	Fixtures	Actual Sold Price	Predicted Price	\$ Difference	% Difference		
1	856,000	100,000	30,000	78,000	1 255,000	271,808	(16,808)	6.6%		
2	511,060	63,803		25,000	2 300,000	210,352	89,648	-29.9%		
3	545,958	71,656		80,000	3 325,000	259,757	65,243	-20.1%		
4	861,000	145,000	5,000	40,000	4 495,000	552,608	(57,608)	11.6%		
5	610,000	110,000		75,000	5 245,000	366,834	(121,834)	49.7%		
6	784,000	172,000	5,000	40,000	6 600,000	541,931	58,069	-9.7%		
7	810,000	253,000	20,000	37,000	7 595,000	564,882	30,118	-5.1%		
8	639,000	219,000	30,000	15,000	8 289,000	298,296	(9,296)	3.2%		
9	448,000	181,000		14,000	9 340,000	354,496	(14,496)	4.3%		
10	582,955	256,837		25,000	10 600,000	576,638	23,362	-3.9%		
11	789,000	351,000		10,000	11 930,000	873,695	56,305	-6.1%		
12	570,000	256,183		16,788	12 450,000	564,601	(114,601)	25.5%		
13	560,000	310,000	15,000	250,000	13 580,000	568,103	11,897	-2.1%		
14					14					
15					15					
16					16					
17					17					
18					18					
19					19					
20					20					

Applied Regression Coefficients			
Actual Data		Regression	Calculated
Capitol Services, Inc.		Coefficients	Price
Total Sales	\$568,518	x 0.7112 =	404,303
Total Cash Flow	\$265,547	x 1.6327 =	433,546
Total Inventory	\$4,000	x (8.4762) =	-33,905
Total Net Fix. & Ten. Imp.	\$25,000	x 0.2139 =	5,348
Regression Intercept Value =			-262,607
Price Predicted by Regression Market Line =			546,687
Upper 16% (one Std Error) =			+ \$80,858
Lower 16% (one Std Error) =			- \$80,858

**R Square = 0.89**

**Standard Error = \$80,858**

**CV = 17.5%**

An R Square value of 0.0 means the above sample had no predictive value. An R Square of 1.0 means the sample had perfect predictive values. A value over .50 means the above sample had a reasonably good predictive value.

**Regression Formula:**

**Sales x 0.7112 + Cash Flow x 1.6327 + Inventory x -8.4762 + Fixtures x 0.2139 + (\$262,607) = Calculated Price**

Observations	Exhibit XXVI Refined Comparables Analysis									
	Listing Price	Selling Price	Gross Revenues	Revenue Multiplier	Cash Flow	SDE%	Cash Flow Multiplier	Inventory	Enterprise Multiplier	Fixtures
1	255,000	255,000	856,000	0.30	100,000	11.7%	2.55	30,000	2.25	78,000
2	300,000	300,000	511,000	0.59	64,000	12.5%	4.70		4.70	25,000
3	325,000	325,000	546,000	0.60	72,000	13.1%	4.54		4.54	80,000
4	600,000	495,000	861,000	0.57	145,000	16.8%	3.41	5,000	3.38	40,000
5	275,000	245,000	610,000	0.40	110,000	18.0%	2.23		2.23	75,000
6	600,000	600,000	784,000	0.77	172,000	21.9%	3.49	5,000	3.46	40,000
7	595,000	595,000	810,000	0.73	253,000	31.2%	2.35	20,000	2.27	37,000
8	289,000	289,000	639,000	0.45	219,000	34.3%	1.32	30,000	1.18	15,000
9	176,000	340,000	448,000	0.76	181,000	40.4%	1.88		1.88	14,000
10	600,000	600,000	583,000	1.03	257,000	44.1%	2.34		2.34	25,000
11	900,000	930,000	789,000	1.18	351,000	44.5%	2.65		2.65	10,000
12	450,000	450,000	570,000	0.79	256,000	44.9%	1.76		1.76	17,000
13	650,000	580,000	560,000	1.04	310,000	55.4%	1.87	15,000	1.82	250,000
14										
15										
16										
17										
18										
19										
20										
Avg:	463,000	462,000	659,000	↓	191,000	↓	↓	18,000	↓	54,000
Selling Price Listing Price = 104.4%			Gross Rev		CF Margin Range	Cash Flow Range		Enterprise Range		
		Lower Quartile =	0.57		16.8%	1.88		1.88		
		Median =	0.73		31.2%	2.35		2.27		
		Upper Quartile =	0.79		44.1%	3.41		3.38		
		Lower 16% =	0.45		14.9%	1.65		1.58		
		Average =	0.71		29.9%	2.70		2.65		
		Upper 16% =	0.97		44.9%	3.75		3.72		
		Coefficient of Variation =	36.9%		50.2%	38.8%		40.4%		

The last point of analysis for the sample of 13 observations is the comparison of the Coefficients of Variation for each of the calculated Market Value Multiples with the CV's for the original sample of 18, as well as the entire Pratt's Stats database. Those statistics are compiled in Exhibit XXVII below. The three Market Value Multipliers in the second more narrowly defined sample of 13 observations all produced lower (superior) Coefficients of Variation. The smaller sample also produced a higher (superior) R Squared factor. Thus, the smaller sample appears to be a better indicator of the market than the sample with 18 observations. The Market Value Multipliers calculated from this sample will, therefore, be used in the analysis, and, the results from the larger database will be rejected.

Exhibit XXVII Coefficients of Variation of Samples vs. Total Database  
(18 Observations vs. 13 Observations)

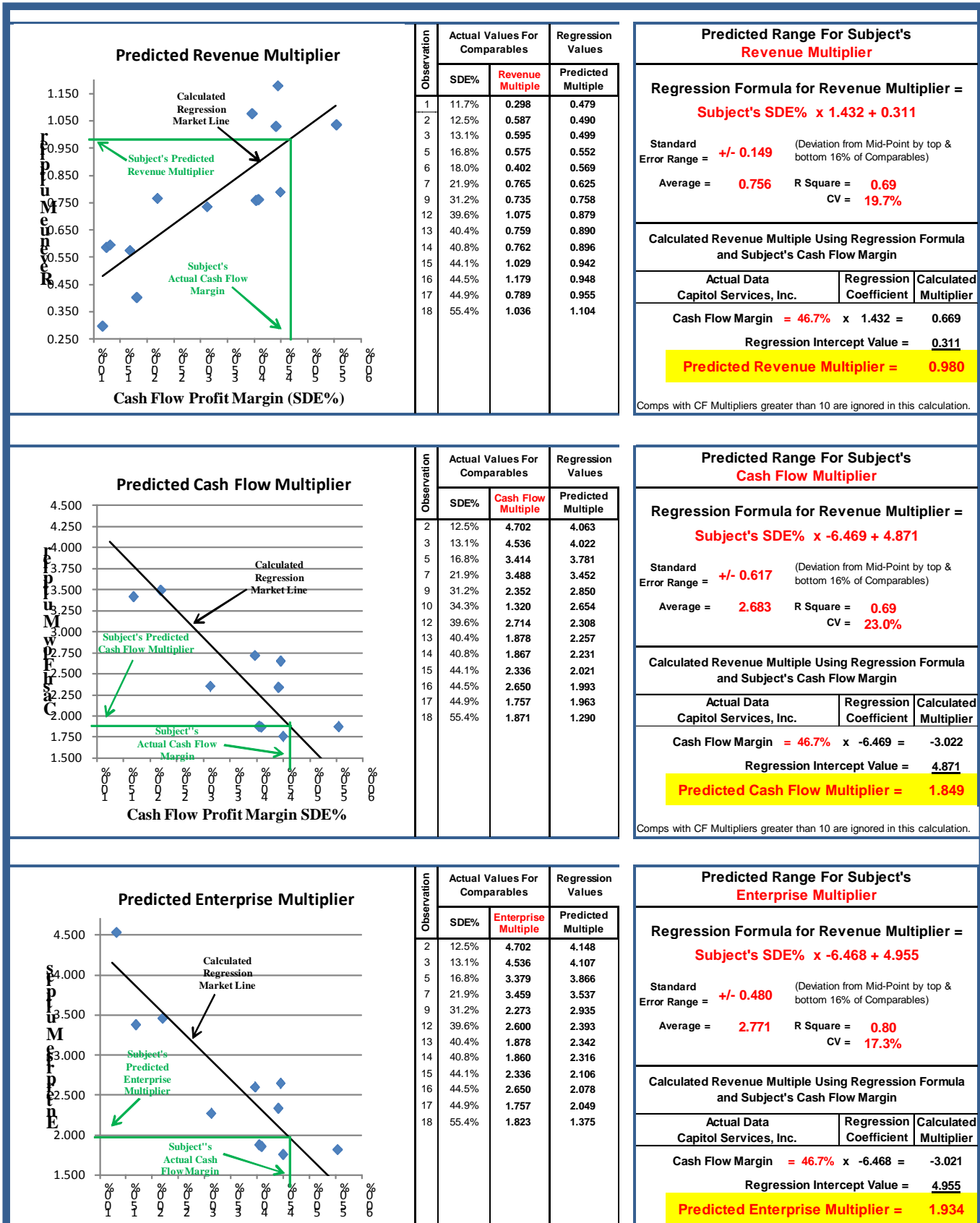
Database, Exhibit XVI, Exhibit XXII, & Exhibit XXVI	Gross Income Multiplier	Cash Flow Multiplier	Enterprise Value Multiplier	Regression Analysis
Sample –13 observations	36.9%	38.8%	40.4%	17.5%
Sample –18 Observations	48.2%	56.1%	57.4%	44.4%
Total Database–7,144 Obs. Pratt’s Stats	87.4%	67.7%	70.5%	

### 7.3 CALCULATING THE THREE MARKET MULTIPLIERS

From the above analysis, we have arrived at a range of values for our Subject by means of the Multiple Variable Regression Analysis, which is the first of the four procedures that we are using in the Market Approach. The remaining three procedures will calculate the values for the Revenue, Cash Flow, and Enterprise Multipliers. As noted earlier we will perform a regression analysis on each of the comparables’ three Market Value Multipliers against its SDE% (Cash Flow Profit Margin). From each regression, then, we will obtain an equation that calculates the Market Line for the Subject’s Revenue Multiplier, Cash Flow Multiplier, and Enterprise Multiplier. By “plugging” in our Subject’s SDE% into the regression equations, we will solve for the Subject’s three Market Value Multipliers. *The resulting values, then, are the Multipliers that the market expects given the level of the Subject Company’s Cash Flow Profit Margin.*

Below are the details of that analysis:

# Exhibit XXXIII Calculation of the Three Market Value Multipliers





The predicted multipliers calculated by inputting the Subject's SDE% of 46.7% into the above regression formulas are summarized as follows:

Revenue Multiplier:

$$\text{Subject's SDE\%} \times 1.432 + 0.311 = \underline{0.98}$$

Cash Flow Multiplier:

$$\text{Subject's SDE\%} \times -6.469 + 4.871 = \underline{1.849}$$

Enterprise Multiplier:

$$\text{Subject's SDE\%} \times -6.468 + 4.955 = \underline{1.934}$$

#### 7.4 APPLYING THE MARKET VALUE MULTIPLIERS

We have now calculated the Market Value Multipliers based on the three procedures above plus the regression formula from the multiple regression analysis in Exhibit XXV. These four methods will produce values that represent the market's expectations given the level of the Subject's SDE%. However, the calculated values represent the "closest fit" of the observations found in the market place at the Subject's current level of profitability.

According to Shannon Pratt, "Simply applying the chosen measure of central tendency of a group of guideline company multiples more often than not fails to capture differences in the characteristics between our subject company and the guideline companies as a group. ... a company with an above average return on sales [a reference to SDE% or similar profit margin measure] would usually be accorded an above average price/sales or MVIC/sales multiples. ... Keep in mind that the two factors that influence the selection of multiples of operating variables the most are the growth prospects of the subject company relative to the guideline companies and the risk of the subject company relative to the guideline companies." To that end Mr. Pratt suggests, one might adjust an observed multiple upward or downward by a percentage, or, even place it in the upper or lower quartile of the sample's range.<sup>10</sup>

Thus, if we have reason to believe that the Subject's profitability will change at a greater rate than its peer group in the future, we should consider adjusting the calculated multipliers up or down before we apply them to our Subject. For example, if we believe the Subject might double its SDE% in the coming years, while the rest of its peers only increase by 50%, we have justification for increasing the calculated multipliers. However, if we expect the Subject to improve its profitability at a similar rate as its peers, then even though the Subject's profitability is higher, it is still at the same level of profitability *relative* to its peers and its position on the calculated Market Line will be the same. If such is the case, no adjustment to the multipliers is warranted.

In that light, we should consider such things as: will the Subject's market grow more rapidly than that of its peers? Are there any major changes expected in the Subject's current mode of operations that may significantly change its profitability in the future?

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<sup>10</sup> Shannon Pratt, The Market Approach to Valuing Businesses, (New York: John Wiley & Sons, Inc, 2000), p.134

The Subject's SDE%, which was used to calculate its Market Value Multipliers, was in the upper range exhibited by the comparables group. We must then consider whether the Subject's financial condition or market strength might change this level of profitability, thus giving reason to adjust its multipliers up or down.

From the financial statement analysis we determined that the Company's ability to generate cash flow was far superior to its peer group. The fact that the Subject's SDE% is in the upper range exhibited by the comparables group clearly supports that. However, its overall market conditions lagged far behind the rest of the nation. The collapse of the real estate market was far worse in California, Nevada, and Arizona than most of the rest of the nation. The Subject's decline in revenues from 2007 to 2010, which was far below its peer group, reflects the economic stresses that exist in this market. Current economic indicators are that the construction market is beginning to recover from its historic lows and that new contractor entity formations will accelerate through 2016. However, the Subject's market has a much deeper hole to dig out from and its recovery may continue to lag behind the rest of the nation. As such, compared to its peer group, we would expect the Subject's market demographics to continue to act as a depressant on its revenue and cash flow growth in the future. Accordingly, a downward adjustment to the calculated Market Value Multipliers appears warranted based on the Subject's demographics.

Thus, even though we observed that the Subject's Discretionary Earnings Profit Margin (SDE%) was above the upper range compared to the guideline data, all factors considered, a downward adjustment to the Subject's Market Value Multipliers is warranted. Therefore, the Market Value Multipliers to be selected will be in between the mid and upper range exhibited by the guideline data rather than the upper range. The selected Market Values are as follows:

**Exhibit XXIX Market Value Multiples Applied to Subject**

<b>Range of Market Value Multiples at Different Levels of Profitability</b>					
<b>SDE% Range</b>	<b>Gross Revenue</b>	<b>Cash Flow</b>	<b>Enterprise Value</b>	<b>Regression</b>	
<b>Lowest 16% of Comps have SDE% of 14.9%</b> =	<b>0.52</b>	<b>3.91</b>	<b>3.99</b>	<b>465,828</b>	
<b>Mid Range of Comps have SDE% of 29.9%</b> =	<b>0.74</b>	<b>2.94</b>	<b>3.02</b>	<b>546,687</b>	
<b>Highest 16% of Comps have SDE% of 44.9%</b> =	<b>0.95</b>	<b>1.96</b>	<b>2.05</b>	<b>627,545</b>	
<b>Subject's SDE% = 46.7%</b>	<b>Revenue Multiplier</b>	<b>Cash Flow Multiplier</b>	<b>Enterprise Multiplier</b>	<b>Multi-Variable Regression</b>	<b><i>The selected Market Value Multiples are between the mid and upper range of the Regression Market Line</i></b>
<b>Subject's Operation =</b>	<b>\$568,518</b>	<b>265,547</b>	<b>265,547</b>		
<b>Multiplier at Subject's Level of Profitability =</b>	<b>x 0.85</b>	<b>x 2.45</b>	<b>x 2.53</b>	<b>587,116</b>	
<b>Inventory =</b>			<b>672,966</b>		
<b>Indicated Value =</b>	<b>481,503</b>	<b>650,561</b>	<b>676,966</b>	<b>587,116</b>	

## 8.0 RECONCILIATION OF ALL METHODOLOGIES

It is rare that the various Approaches used would produce similar values. Each method is looking at different aspects of the company, so, it is reasonable to expect that they would produce different values as a result. Internal Revenue Ruling 59-60 requires that at least 50% of a value's weighting should be placed on income-based methodologies. According to the Uniform Standards of Professional Appraisal Practice (USPAP), "an appraiser must reconcile the indications of value resulting from the various approaches to arrive at the value conclusion." A simple average does not satisfy the standard, but rather, the appraiser must evaluate the relative merits of each procedure to form a conclusion. "The value conclusion is the result of the appraiser's judgment."<sup>11</sup>

The various indications of value developed by the different procedures are now weighted and the final Valuation Conclusion is calculated. The discussion of the basis for the weightings follows the exhibit below.

### Exhibit XXX Valuation Conclusion

100% Controlling Interest in Capitol Services, Inc.			
Valuation Method	Indicated Value	Confidence Weighting	Weighted Estimate
Adjusted Book Value Method	Not Used	-0-	-0-
Market Approach			
Guideline Public Company Method	Not Used		
Mergers and Acquisitions Method	Not Used		
Prior Transactions	N/A	-0-	-0-
Buy-Sell Agreement	N/A	-0-	-0-
Direct Market Data Method			
18 Observations Database	Not Used		
13 Observations Database			
Gross Revenue Multiplier	\$481,503	22%	\$105,931
Cash Flow Multiplier	\$650,561	23%	\$149,629
Enterprise Value Multiplier	\$676,966	26%	\$176,011
Regression Analysis	\$587,116	29%	\$170,264
Income Approach			
Single Period Capitalization Method	Not Used		
Multi-Period Discount Method	Not Used		
<b>VALUE CONCLUSION (Rounded)</b>			<b>\$600,000</b>
100% Interest in the Common Shares of Capitol Services, Inc. =			<b>\$600,000</b>

*The above value is for a 100% Interest in Net Worth of Capitol Services, Inc. on a Controlling, Non-marketable Basis (Rounded) as of October 31, 2011. The above value includes inventory/work-in-progress of \$4,000.*

<sup>11</sup> Uniform Standards of Professional Appraisal Practice. The Appraisal Foundation, Washington, D.C., 2000, p. 65