Updated Analysis of the IBA Market Database

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The IBA Market Database continues to be challenged, ignored, and misused as a viable database to utilize as support for attaining a reliable metric in the business valuation process. Even though the database began in 1980, it is not "old" by any means. It is an invaluable tool that has been kept updated. It contains approximately 37,000 transactions of which 14,000 are within the last ten (10) years. In fact, most of this latter amount is within the last four to five (4 to 5) years.

It displays a trend over time that may easily be regressed to verify that it is a cogent contributor to our valuation research.

We should not dismiss the earlier years because of age. We also should not dismiss the location if it is not in the subject company's state, nor should we dismiss the revenue size for being too small.

I would suggest that we first look at the complete database within the chosen Standard Industrial Classification (SIC) or North American Industry Classification System (NAICS) code. Time has proven that the metrics in the comparative price to sales and price to earnings have remained very relational, and that basic economic theory has supported. Remember that when sale prices rise, the metric utilized as it compares to the revenue (for instance) will virtually stay static. By that I mean even though a business ten years from now may cost the buyer more in future dollars than it would cost today, the relationship of the price to sales ("revenue," "gross") relationship will be close to the metric in today's value relationship.

KeyValueData maintains the IBA Market Database today. It enables us to control our "picks." But I caution against "cherry picking" transactions because they will be easily challenged by an experienced practitioner. Shannon P. Pratt suggested many years ago a twenty (20) times relationship. This is better explained as follows for choosing specific transactions:

Example:

Company Revenue = $2,800,000

Ten Below = one-tenth = $280,000
($280,000 x 10 = $2,800,000)

Ten Above = ten times = $28,000,000
($28,000,000 / 10 = $2,800,000)

This would be the selected range for similar companies to the subject company revenue. If the selections are kept to this range with all transaction research, we cannot be accused of cherry picking. Do not attempt to eliminate the outliers. They are the transactions that are well below and well above the trendline and seem to be far away from the "cluster." They are still a part of transactional history for the particular business code. Eliminating them would permit another valuator to accuse us of cherry picking results. Remember, that when we choose the "median" (most centrist) metric and *not* the mean (average) metric, we will effectively eliminate the outliers.

At random, I chose SIC code #7363 (staffing agencies) and found 38 transactions. The business descriptions varied, but were pretty much on point. I then selected the "Direct Market Data Method Report" bar at the bottom and it opened a new Excel workbook; don't forget to enable the macros or the process will not work.

The worksheets are "instructions," "extended data," select trans," "trans selected," "limits," "tools," and "statistics." There are more worksheets to the right of "statistics," but I want to draw attention specifically to "price to sales (0)" and "price to DE (0)."

Extended Data displays all of the information that was reported for each transaction including (to name a few) the number of full-time and part-time employees, transaction terms, and miscellaneous information.

Select Trans permits the valuator to do just that (read the pop-up for directions) by right-clicking the selected cell to change it from true (to select) to false (not to select).

Trans Selected provides the pool of selected transactions from above.

Limits provides specific statistics for the price to sales and price to discretionary earnings ("DE").

Tools permits us to make further selections based on minimum and maximum ranges and sorting preferences.

Statistics presents a graph for all of the transactions found and the transactions selected. It provides the low, high, mean, median, standard deviation, coefficient of variation, harmonic mean, and count for the sales, discretionary earnings, price, price/sales, and price/DE.

Price to Sales (0), which just means that the data is shown as a whole and not split into halves, quarters, etc., is demonstrated in graph format.

Price to DE is also shown as described above.

NOW back to Statistics.

We want the coefficient of variation ("CV") to be a number *below* one (1.0) for better reliability. The harmonic mean is a metric that (in my opinion) should be ignored. The arithmetic mean is a simple *average* of returns (middle value), the geometric mean is the compound rate of return (highest value), and the harmonic mean is utilized to mitigate the influence of large outliers and increases the weight of the small values (lowest value). Those who use the harmonic mean risk undervaluing the subject company.

The CV can fool us. Unlike the standard deviation, it cannot be used directly to construct confidence intervals for the mean. The CV may provide a false sense of confidence that the mean or median result is a reliable metric.

Therefore, we *must prepare regression analyses on our data points for reliability for our conclusion of value*.

This brings us to the reprint of my white paper on regression analysis and the reliance on the IBA Market Database.

From the Archives:

ANALYZING THE IBA MARKET DATABASE TRANSACTIONS RESULTS

Many articles have been written about The Institute of Business Appraisers' (IBA) database. Some have been critical stating that it is dated and without enough data points. The following presentation provides ample statistics to dispel the cynics and provides cogent reliable results that will enable business valuation professionals the tools to rely upon when including the database within valuation reports.

The IBA SIC Code Data Used in the Analyses

The following SIC Codes were used to determine to what extent they each provided reliable results for the direct market transactional data method:

1. SIC Code #2752, Commercial Printing—Lithographic
2. SIC Code #5992, Florists
3. SIC Code #7231, Beauty Shops

The IBA Market Database Study

The data was analyzed with the use of the regression analysis within Excel (found within the toolbar under Tools/Data Analysis/Regression). Regression simply trends the relationship results (in this instance: sales price to gross sales or sales price to seller's discretionary earnings) of the known ratios to establish a variance to a trendline. A trendline is the "line" which intersects the results approximating the most centrist straight line. Each ratio results in being a specific distance from the trendline; the closer the result is to the trendline the more reliable the data becomes. This regression technique is known as R-squared or the coefficient of determination. The R-square yields a measure of the result from zero to one (0-1.0). An R-square result that is closer to zero (0) demonstrates a lack of reliability, while an R-square result that is closer to one (1.0) demonstrates a high reliability. Therefore, an R-square result that is greater than 0.500 for all of the data graphed is more reliable than an R-square that is below 0.500. The results in the analyses that are greater than 0.500 are noted in bold type in the following graphs.

First, each SIC code was stratified into prescribed segments. Then the price/gross and the price/earnings ratios for each segment were sorted to determine the high, low, mean and median. Finally, the ratios for each segment were examined by using regression analysis ("R^2") to determine the reliability of the results.

The following presents the basic information, the segments, and the results for each SIC code:

#2752—Commercial Printing: Data Information and Segments Defined

The database contained 316 transactions through February 7, 2005. Five (5) transactions were removed for the following reasons: two (2) transactions disclose only a sales price, one (1) discloses negative earnings, and two (2) disclose unusually high price/earnings ratios.

The data was then divided into following segments for extracting and comparing the results, as follows:

1. The entire database sans the five (5) transactions eliminated and described above; 311 transactions.
2. Annual gross sales from $0 to $100,000.
3. Annual gross sales from $100,001 to $200,000.
4. Annual gross sales from $201,000 to $300,000.
5. Annual gross sales from $0 to $300,000.
6. Annual gross sales from $300,001 to $600,000.

7. Annual gross sales from $600,001 to $900,000.
8. Annual gross sales from $900,001 to $1,200,000.
9. Annual gross sales from $0 to $600,000.
10. Annual gross sales from $600,001 to $1,200,000.
11. Annual gross sales from $1,200,001 to $5,000,000.
12. Annual gross sales from $5,000,001 to $23,000,000.
13. Sales transactions with a geographic state from the east coast (MA, ME, CT, NY, PA, MD, NC, GA, FL and "Mid-Atlantic").
14. Sales transactions with a geographic area other than from the east coast.
15. Transactions with sales dates from 1970 through 1989.
16. Transactions with sales dates from 1990 through 2004.
17. Transactions with sales dates from 2000 through 2004.

The results shown to the right for SIC code #2752 leads to the following conclusions.

Clearly, Segment 13 (sales transactions in the east coast) discloses the best combined results for the price/gross and price/earnings ratios. The R^2 is well above 0.500 for both ratios; 0.804 and 0.945, respectively. Segment 14 (sales transactions other than in the east coast) also results in an R^2 above 0.500; 0.924 and 0.740, respectively.

It is interesting that, Segment 1 (comprising 311) came in a tie for third place; 0.887 and 0.718, respectively. Also, several other segments results in at least one (1) ratio in excess of the R^2 midpoint of 0.500.

#2752—Commercial Printing: Results

PRICE/GROSS							
Segment	High	Low	Mean	Median	R^2	Ranking	Number of Transactions
1	3.080	0.040	0.607	**0.520**	**0.887**	**2**	311
2	3.080	0.160	0.923	0.690	0.202	-	44
3	1.500	0.100	0.572	**0.520**	0.181	-	82
4	3.010	0.090	0.541	0.450	0.071	-	68
5	3.080	0.090	0.638	**0.520**	0.229	-	194
6	1.230	0.120	0.552	0.540	0.141	-	57
7	0.830	0.240	0.591	0.560	0.259	-	23
8	0.920	0.290	0.520	0.420	0.343	-	7
9	3.080	0.090	0.618	**0.520**	0.446	-	251
10	0.920	0.240	0.575	0.550	0.265	-	30
11	2.000	0.040	0.606	0.510	0.201	-	19
12	0.700	0.290	0.452	0.420	**0.666**	**5**	11
13	3.010	.0180	0.720	0.560	**0.804**	**4**	89
14	3.080	0.040	0.579	0.510	**0.924**	**1**	183
15	3.000	0.160	0.638	0.485	**0.584**	**6**	78
16	3.080	0.040	0.603	0.530	**0.870**	**3**	227
17	3.010	0.310	0.963	0.610	0.051	-	6
Median	3.010	0.120	0.603	**0.520**	0.265		

PRICE/EARNINGS							
Segment	High	Low	Mean	Median	R^2	Ranking	Combined Ranking
1	37.000	0.520	3.564	2.220	**0.718**	**7**	**3**
2	37.000	0.580	5.113	2.920	0.169	-	-
3	27.200	0.630	3.166	2.000	0.192	-	-
4	28.570	0.520	2.811	1.855	0.144	-	-
5	37.000	0.520	3.360	1.970	0.331	-	-
6	6.500	1.180	2.603	2.600	0.446	-	-
7	9.640	1.390	2.871	2.365	0.168	-	-
8	23.080	2.310	6.906	2.740	**0.909**	**3**	-
9	37.000	0.520	3.184	2.045	**0.590**	**8**	-
10	23.080	1.390	3.678	2.510	0.333	-	-
11	13.060	1.480	4.041	3.410	**0.805**	**4**	-
12	28.000	3.930	10.889	4.940	0.228	-	-
13	11.500	0.630	2.677	**2.300**	**0.945**	**2**	**1**
14	37.000	0.580	3.712	2.080	**0.740**	**5**	**2**
15	333.330	0.580	12.040	2.700	0.105	-	-
16	28.570	(6.670)	3.094	2.140	**0.735**	**6**	**3**
17	2.690	1.470	2.074	1.820	**0.998**	**1**	-
Median	28.000	0.630	3.360	**2.300**	0.446		

Consider, though, the near "perfect" regression for Segment 17 (all sales from 2000 through 2004) for the price/earnings ratio of 0.998. It demonstrates a median price/earnings ratio of 1.820, which is well below the median of the medians of 2.300 for the group. This might indicate that the most recent sales illustrate a decline in the multiple and based on the appraiser's analyses might be the "correct" ratio to use.

It is remarkable to note that Segment 1 exhibits results, which could be relied upon for the entire spectrum of the transactions. Sometimes companies with greater sales would command a greater ratio; however, Segment 1 seems to demonstrate that this might possibly not be the case. Also, Segment 1's median result of 0.520 equals the median of the medians. It should be noted that Segment 14's price/gross ratio, which is ranked number 1, is only 0.010 less than the median of the medians.

#5992—Florist: Data Information and Segments Defined

The database contained 303 transactions through February 7, 2005. Two (2) transactions were removed because they contain incomplete information. One (1) transaction discloses only a sales price, while the other transaction discloses only an annual sales amount and a discretionary earnings amount.

The data was divided into the following segments for extracting and comparing the results, as follows:

1. The entire database sans the two (2) transactions eliminated and described above; 301 transactions.
2. Annual gross sales from $0 to $100,000.
3. Annual gross sales from $100,001 to $200,000.
4. Annual gross sales from $201,000 to $300,000.
5. Annual gross sales from $0 to $300,000.
6. Annual gross sales from $300,001 to $600,000.
7. Annual gross sales from $600,001 to $900,000.
8. Annual gross sales from $900,001 to $1,200,000.
9. Annual gross sales from $0 to $600,000.
10. Annual gross sales from $600,001 to $1,200,000.
11. Sales transactions with a geographic state from the east coast (MA, ME, CT, NY, PA, MD, NC, GA, FL and "Mid-Atlantic").
12. All other sales transactions with a geographic state other than from the east.
13. Transactions with sales dates from 1982 through 1989.
14. Transactions with sales dates from 1990 through 2004.
15. Transactions with sales dates from 2000 through 2004.

The above results for SIC code #5992 leads to the following conclusions:

Clearly, Segment 12 (sales transactions other than in the east coast) discloses the best combined results. The R^2 is well above 0.500 for the price/gross ratio (0.708) and above 0.500 for the price/earnings ratio (0.570). Segment 13 appears to exhibit the best results; however, the price/earnings regression ratio is too close to 0.500 and would be less reliable.

Segment 11 (sales transactions in the east coast) demonstrates only one (1) R^2 result above 0.500, that being the price/gross ratio. However, even though Segment 12's price/gross ratio R^2 result (0.708) is far superior to Segment 11's result (0.596), the median result is only

#5992—Florists: Results

PRICE/GROSS							
Segment	High	Low	Mean	Median	R^2	Ranking	Number of Transactions
1	3.310	0.070	0.438	**0.380**	**0.653**	**3**	301
2	3.310	0.210	0.675	0.495	0.012	-	48
3	1.860	0.070	0.394	**0.380**	0.109	-	114
4	0.810	0.110	0.361	0.330	0.152	-	67
5	3.310	0.070	0.443	**0.380**	0.281	-	229
6	1.520	0.070	0.419	0.355	0.107	-	58
7	0.710	0.240	0.427	0.390	0.070	-	7
8	0.640	0.260	0.449	0.490	0.370	-	7
9	3.310	0.070	0.438	**0.380**	0.454	-	287
10	0.710	0.240	0.438	0.400	0.370	-	14
11	3.310	0.090	0.472	**0.380**	**0.596**	**5**	112
12	1.320	0.070	0.433	0.390	**0.708**	**2**	135
13	1.320	0.160	0.465	0.400	**0.845**	**1**	68
14	3.310	0.070	0.428	0.365	**0.607**	**4**	224
15	3.310	0.070	0.539	0.440	**0.585**	**6**	31
Median	1.860	0.070	0.438	**0.380**	0.371		

PRICE/EARNINGS							
Segment	High	Low	Mean	Median	R^2	Ranking	Combined Ranking
1	41.000	0.310	2.620	1.830	0.394	-	-
2	27.000	0.350	3.851	**1.940**	0.015	-	-
3	11.670	0.310	1.942	1.430	0.179	-	-
4	41.000	0.700	2.939	1.780	0.196	-	-
5	41.000	0.310	2.565	1.720	0.231	-	-
6	15.880	0.350	2.612	2.075	0.087	-	-
7	7.970	1.910	4.001	2.770	0.005	-	-
8	3.830	2.130	2.706	2.480	**0.856**	**1**	-
9	41.000	0.310	2.575	1.800	0.282	-	-
10	7.970	1.910	3.462	2.650	0.346	-	-
11	15.880	0.310	2.616	1.880	0.177	-	-
12	41.000	0.440	3.025	1.980	**0.570**	**2**	**1**
13	41.000	0.550	4.062	2.280	**0.512**	**3**	**2**
14	11.670	0.310	2.260	1.780	0420	-	-
15	7.970	0.350	2.583	2.090	0.073	-	-
Median	15.880	0.350	2.620	**1.940**	0.231		

a one hundredth difference (0.390 to 0.380).

Also note that Segment 1's price/gross ratio R^2 result (0.653), which is for the entire database, demonstrates a median result (0.380) equal to the result in Segment 11 and again is only a one hundredth difference from Segment 12's median result. Further note that the median of the median results for the price/gross ratio is 0.380.

The results for the price/earnings are more puzzling. Only Segment 8 and to some degree Segment 12 exhibits R^2 results that could easily be relied upon. However, while Segment 8's regression result (0.856) is the highest, its median result (2.480) is the third highest. And while Segment 12's R^2 result (0.570) is the second highest, its median result (1.980) is within 0.040 of the result for the median of the medians. This certainly raises the question, should Segment 8 still be ignored?

Since seller's discretionary earnings are company specific, this study purports to illustrate that the price/earnings ratio is not a very stable barometer to guide and gauge any ratio reliance. The only ratio that may be gleaned from this particular set of ratios is possibly the median of the medians (1.940) as a "tool" for a sanity check.

#7231—Beauty Shops: Data Information and Segments Defined

The database contained 329 transactions through February 7, 2005. Nine (9) transactions were removed for the following reasons: eight (8) transactions only disclose a sales price, while the remaining transaction has an unusually high gross sales of $12,472,000.

The data divided into the following segments for extracting and comparing the results, as follows:

1. The entire database sans the nine (9) transactions eliminated and described above; 320 transactions.
2. Annual gross sales from $0 to $100,000.
3. Annual gross sales from $100,001 to $200,000.
4. Annual gross sales from $201,000 to $300,000.
5. Annual gross sales from $0 to $300,000.
6. Annual gross sales from $300,001 to $600,000.
7. Annual gross sales from $600,001 to $900,000.
8. Annual gross sales from $900,001 to $1,200,000.
9. Annual gross sales from $0 to $600,000.
10. Annual gross sales from $600,001 to $1,200,000.
11. Sales transactions with a geographic state from the east coast (MA, ME, CT, NY, PA, MD, NC, GA, FL and "Mid-Atlantic").
12. All other sales transactions with a geographic state other than from the east.
13. Transactions with sales dates from 1983 through 1989.
14. Transactions with sales dates from 1990 through 2004.
15. Transactions with sales dates from 2000 through 2004.

The results on the next page for SIC code #7231 leads to the following conclusions:

Clearly, Segment 13 (sale transactions with dates from 1983 through 1989) discloses the best combined results. The R^2 is nearly perfect for the price/gross ratio (0.999) and above the midpoint for the price/earnings ratio (0.632). However, even though Segment 11's price/gross ratio is only slightly below (0.461) the 0.500 midpoint

#7231—Beauty Shops: Results

PRICE/GROSS							
Segment	High	Low	Mean	Median	R^2	Ranking	Number of Transactions
1	4.000	0.040	0.367	0.300	**0.910**	**2**	320
2	4.000	0.070	0.534	0.430	0.250	-	86
3	1.460	0.060	0.330	**0.280**	0.094	-	102
4	0.630	0.100	0.299	**0.280**	0.015	-	48
5	4.000	0.060	0.398	0.330	0.297	-	236
6	0.750	0.050	0.264	0.220	0.094	-	64
7	2.890	0.040	0.517	0.220	0.005	-	9
8	0.330	0.040	0.157	0.150	0.012	-	9
9	4.000	0.050	0.369	0.300	0.407	-	300
10	2.890	0.040	0.337	0.180	0.052	-	18
11	1.460	0.040	0.333	**0.280**	0.461	-	144
12	1.200	0.070	0.375	0.320	**0.706**	**3**	115
13	1.060	0.070	0.404	0.355	**0.999**	**1**	50
14	4.000	0.040	0.358	**0.280**	0.206	-	261
15	2.890	0.070	0.396	0.270	0.181	-	52
Median	2.890	0.050	0.367	**0.280**	0.206		

PRICE/EARNINGS							
Segment	High	Low	Mean	Median	R^2	Ranking	Combined Ranking
1	24.000	0.120	2.038	1.380	0.118	-	-
2	20.000	0.290	2.289	**1.385**	0.456	-	-
3	21.000	0.250	1.847	1.200	0.094	-	-
4	3.000	0.450	1.493	1.350	0.321	-	-
5	21.000	0.250	1.924	1.350	0.377	-	-
6	24.000	0.120	2.148	1.555	0.046	-	-
7	22.470	0.270	4.471	1.610	0.031	-	-
8	2.200	0.740	1.298	1.255	0.488	-	-
9	24.000	0.120	1.977	1.365	0.265	-	-
10	22.470	0.270	2.884	1.410	0.005	-	-
11	24.000	0.120	2.077	1.420	0.336	-	-
12	21.000	0.540	2.078	1.400	**0.552**	**2**	**2**
13	21.000	0.570	2.773	1.620	**0.632**	**1**	**1**
14	24.000	0.120	1.928	1.350	0.102	-	-
15	22.470	0.120	2.334	1.420	0.016	-	-
Median	22.470	0.250	2.077	**1.385**	0.265		

for the R^2, its median (0.280) matches the median of the median results for the group as a whole.

It should be significantly noted that Segment 1's price/gross ratio R^2 result (0.910), which is for the entire database (sans removals), demonstrates a median result (0.300) only 0.020 greater than the median of the median results (0.280). Also, Segment 1's price/gross median is only 0.020 lower than Segment 12's median result of 0.320.

The results for the price/earnings ratio are puzzling here as well. Only Segments 12 and 13 exhibit R^2 results that could be reasonably relied upon. Note, while Segment 12's R^2 result (0.552) is almost too low, its median result (1.400) is only 0.015 above the median of the medians. Also note that while Segment 1's R^2 result is the lowest (0.118), its median result (1.380) is, basically, equal to the median of the median results (1.385). Even though Segment 12's median result is only 0.015 greater than the median of the medians, a valuator must use experience to determine which ratio to implement.

Again, since seller's discretionary earnings are company specific, this SIC code study purports to illustrate that in this particular instance the price/earnings ratio is not a very stable barometer to guide and gauge any ratio reliance. The only ratio that may be gleaned from this particular set of ratios is possibly the median of the medians (1.385) as a "tool" for a sanity check.

Further Study Analyses by Geographic, Time and Size Effects

GEOGRAPHIC EFFECTS:

SIC Code #2752—Commercial Printing

Segment 14, all other sales transactions with a geographic state other than from the east, was ranked number one when the price/gross ratio was analyzed (Figure 1).

Segment 13, sales transactions with a geographic state from the east, exhibited a combined number one ranking with a number four ranking when the price/gross ratio was analyzed, and a number two ranking when the price/earnings ratio was analyzed (Figure 2).

SIC Code #5992—Florists

Segment 12, all other sales transactions with a geographic state other than from the east, exhibited a combined number one ranking with a number two ranking when the price/gross ratio and the price/earnings ratio were analyzed (Figures 3a and 3b).

SIC Code #7231—Beauty Shops

Segment 12, all other sales transactions with a geographic state other than from the east, exhibited a combined number two ranking with a number three ranking when the price/gross ratio was analyzed and a number two ranking when the price/earnings ratio was analyzed (Figures 4a and 4b).

Figure 1

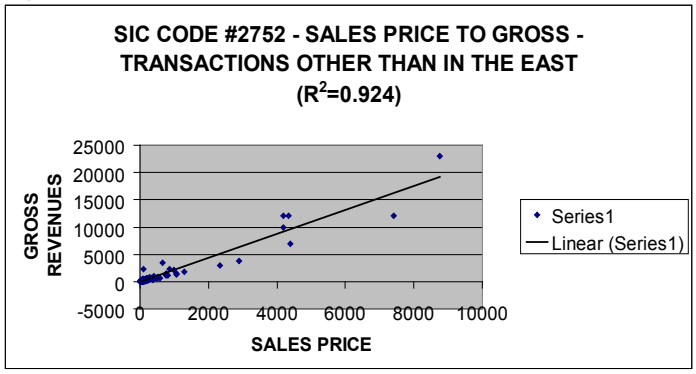


Figure 2

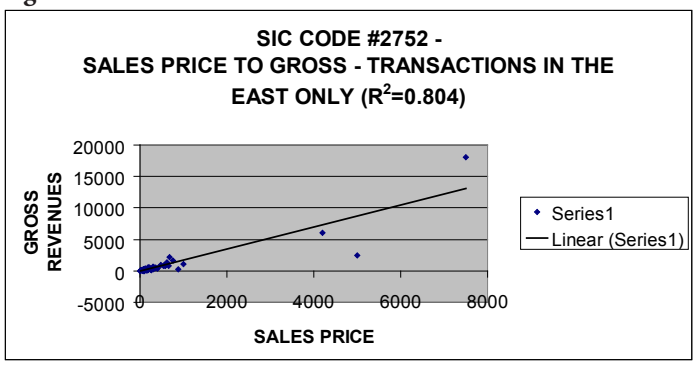


Figure 3a

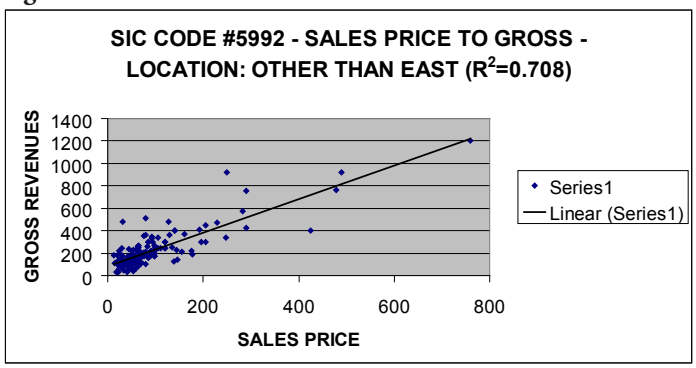


Figure 3b

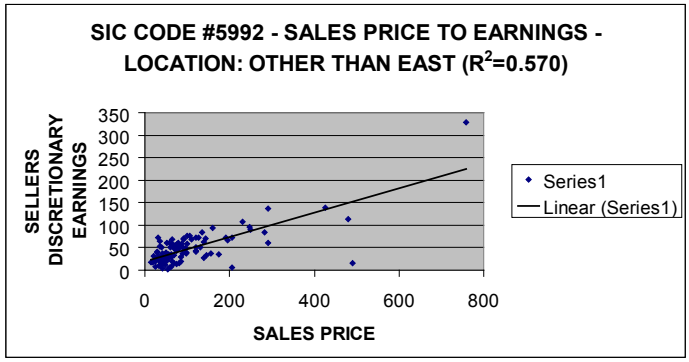


Figure 4a

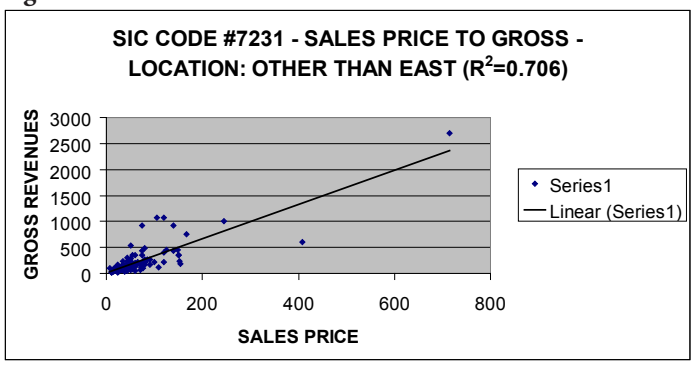
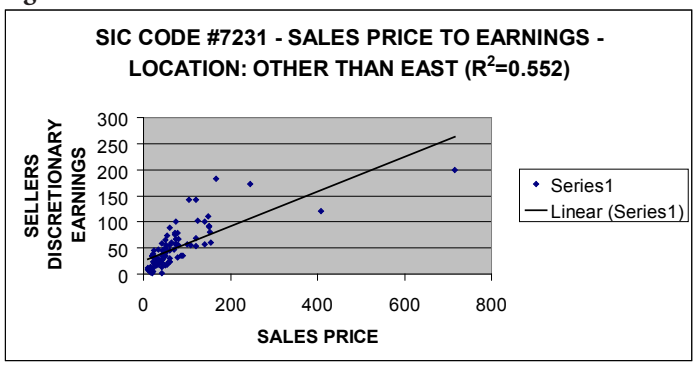


Figure 4b



TIME EFFECTS:

SIC Code #2752—Commercial Printing

Segment 16, transactions with sales dates from 1990 through 2004, exhibited a combined number three ranking with a number three ranking when the price/gross ratio was analyzed and a number six ranking when the price/earnings ratio was analyzed (Figures 5a and 5b).

However, Segment 17, transactions with sales dates from 2000 through 2004, exhibited a number one ranking when the price/earnings ratio was analyzed (Figure 6).

SIC Code #5992—Florists

Segment 13, transactions with sales dates from 1982 through 1989, exhibited a combined number two ranking with a number one ranking when the price/gross ratio was analyzed and a number three ranking when the price/earnings ratio was analyzed (Figures 7a and 7b).

SIC Code #7231—Beauty Shops

Segment 13, transactions with sales dates from 1983 through 1989, exhibited a combined number one ranking with a number one ranking for both the price/gross ratio and the price/earnings ratio when they were analyzed (Figures 8a and 8b).

Figure 5a

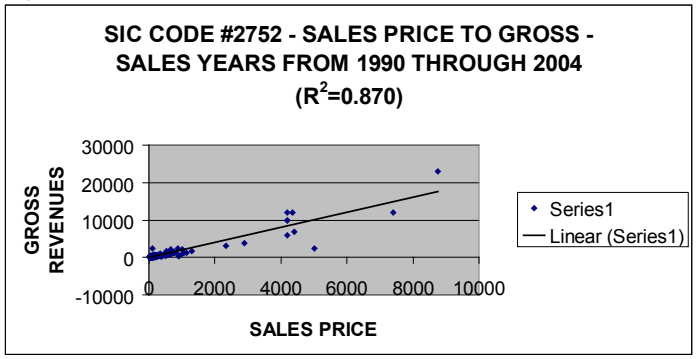


Figure 5b

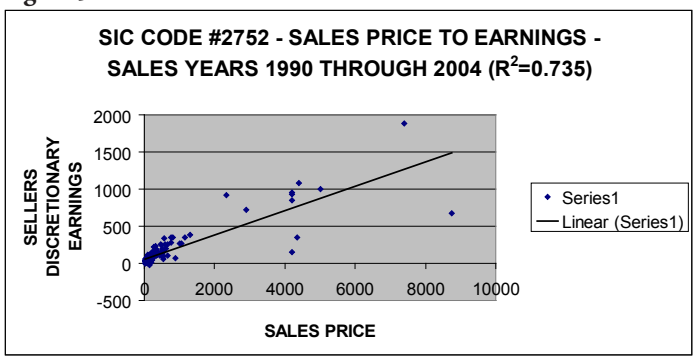


Figure 6

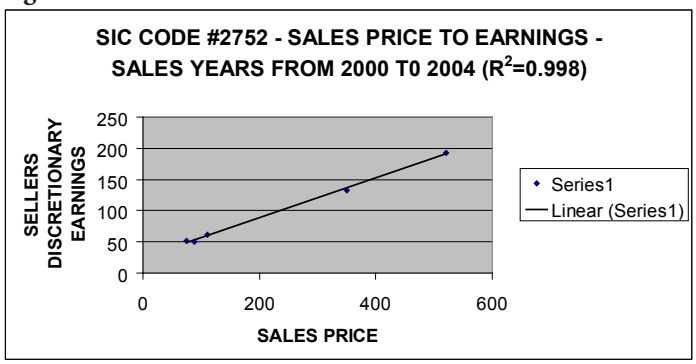


Figure 7a

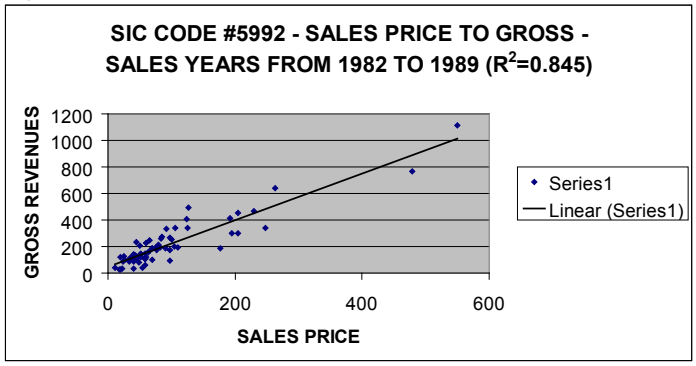


Figure 7b

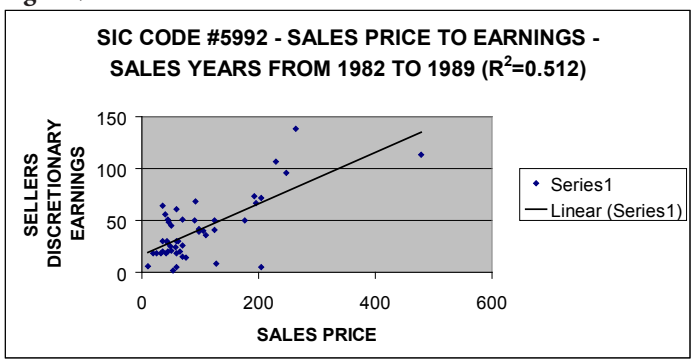
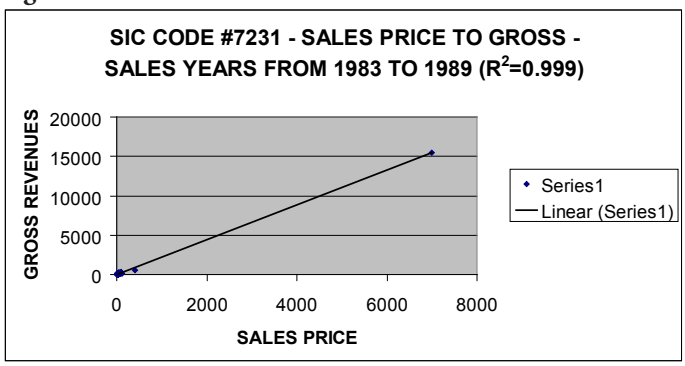


Figure 8a



SIZE EFFECTS (Gross Sales Range):

SIC Code #2752—Commercial Printing

Segment 1, the entire database sans the five (5) transactions eliminated, exhibited a combined number three ranking with a number two ranking when the price/gross ratio was analyzed and a number seven ranking when the price/earnings ratio was analyzed (Figures 9a and 9b).

SIC Code #5992—Florists

Segment 1, the entire database sans the two (2) transactions eliminated (three hundred one transactions), exhibited a number three ranking when the price/gross ratio was analyzed (Figure 10).

Segment 8, annual gross sales from $900,001 to $1,200,000, exhibited a number one ranking when the price/earnings ratio was analyzed.

SIC Code #7231—Beauty Shops

Segment 1, the entire database sans the nine (9) transactions eliminated, exhibited a number two ranking when the price/gross ratio was analyzed (Figure 12).

STUDY CONCLUSION

"Older" data can still be very useful. This study in particular proves (specifically for these three (3) SIC Codes) that when *all of the transactions were considered* for the price/gross ratio for

Figure 8b

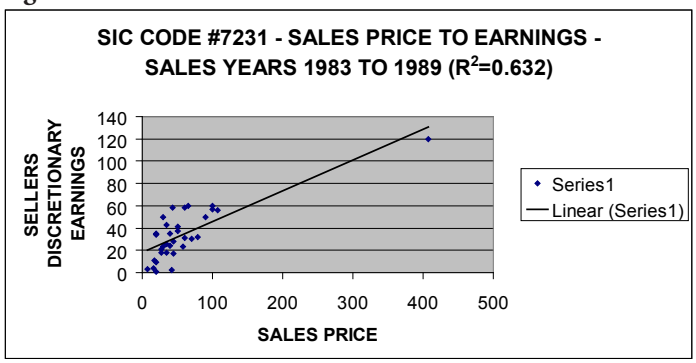


Figure 10

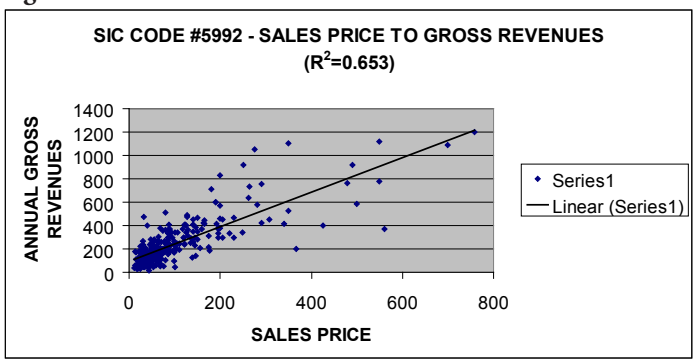


Figure 9a

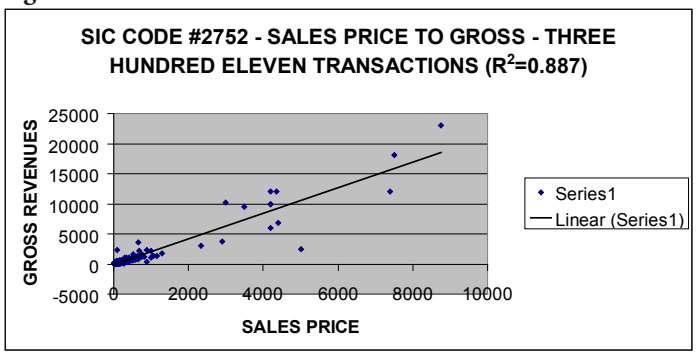


Figure 11

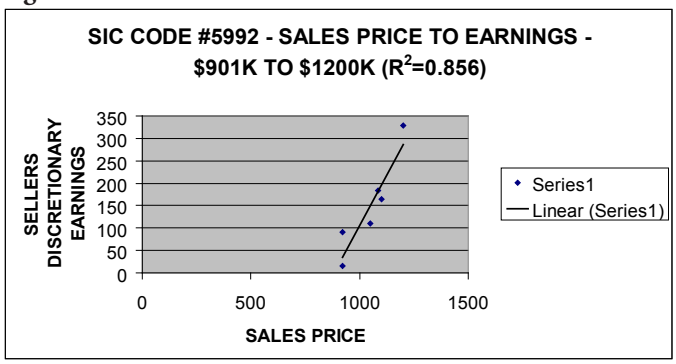


Figure 9b

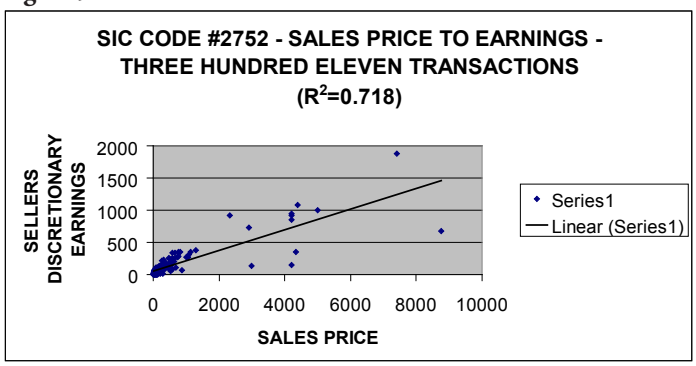
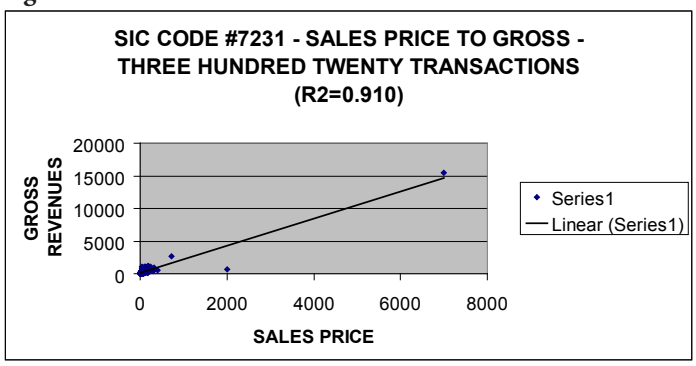


Figure 12



each SIC Code (Segment 1), it yields very high R^2 ratios with rankings of 2 to 3. For SIC Code #2752, it also yields a strong indication for the price/earnings ratio with a ranking of 7. *Time did not distort the R^2 ratio relationship*.

Also, for SIC code #2752, a high R^2 is realized for both the price/gross ratio and the price/earnings ratio (Segment 16) for sales dates from 1990 through 2004, for SIC Code #5992 a high R^2 is realized for the price/gross ratio (Segment 13) for sales dates from 1982 through 1989, and for SIC Code #7231 a high R^2 is realized for the price/gross ratio and a modest R^2 is realized for the price/earnings ratio (Segment 13) for sales dates from 1983 through 1989.

Therefore, *older data cannot be dismissed because of its age*. Remember that one constant remains true: while inflation occurs over time, the amount of return a business owner expects to receive from the sale of the business will be adjusted for the time value of money. This will usually keep the resulting ratio relationships reasonably consistent over time (It is to be understood that additional factors could and would cause the ratios to change upward for certain company specific acquired assets, i.e.market share, human capital, intellectual property, proprietary software, trade name, telephone number, website, infrastructure, contracts, special agreements, etc.).

Stratifying by gross sales within or near the range of the subject company's gross sales also yields valuable results. For SIC code #2752, a reasonably high R^2 is realized for the price/gross ratio (Segment 12) for the annual gross sales ratio from $5,000,001 to $23,000,000. However, the price/earnings ratio exhibits more results with a higher R^2; Segment 8 (annual gross sales from $900,001 to $1,200,000) and Segment 11 (annual gross sales from $1,000,001 to $5,000,000). For SIC Code #5992 only the price/earnings ratio for Segment 8 with a ranking of #1 exhibits a very high R^2.

Location is also thought to be a predominant factor when considering the data. This proves to be a strong indication for relying on the ratios as well. For SIC Code #2752, Segment 13 (sales from the east coast) exhibits very high R^2s for both the price/gross ratio and the price/earnings ratio. Segment 14 (sales from other than the east coast) exhibits a very high R^2 for the price/gross ratio and a strong indication for the price/earnings ratio. For SIC Code #5992, Segment 11 (sales from the east coast) exhibits a moderate R^2 for the price/gross ratio, while Segment 12 (sales from other than the east coast) exhibits a reasonably strong R2 indication for the price/gross ratio and a modest R^2 indication for the price/earnings ratio. Finally, for SIC Code #7231, only Segment 12 (sales from other than the east coast) exhibits reliable results for both the price/gross ratio (strong) and the price/earnings ratio (moderate).

Basically, the foregoing study illustrates that when a business valuator does not take the time to trend the IBA transactional market data results, it is almost impossible to verify the reliability of the data. Even if the data is identified as reliable, will the valuator realize the degree or strength of reliability that exists in the results?

Furthermore, without determining the R-square and the adjusted R-square (Excel also calculates this) the valuator cannot trust or use the results. If untested results are included in a report, the valuator will be open to scrutiny and questions as to the reliability of the value conclusion.

A valuator must fully understand how to use published data, regardless of what database is used, to ensure that the determined results will reflect properly to the subject company's value. Even if the resulting report will not be litigated, it is wise to follow procedures that will result in the best professional practices.

The IBA Market Database is the largest database in existence. Even though there may be a limited number of data points, it still affords us with a wealth of information with which to analyze, interpret, and assist us in the process of producing reliable business valuation conclusions.

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