Adjusting Seller-Financed Selling Prices to Their All-Cash Equivalent Value

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There are two basic categories of selling prices reported in *Bizcomps* and the IBA databases: those with 100% cash payment at close of escrow, and those that are partially financed by the seller via a seller carry-back promissory note. Most business valuation books that address this subject note that the selling prices of businesses partially financed by the seller tend to be higher than all-cash-at-closing transactions given identical seller's discretionary earnings.

According to Shannon Pratt, "the difference between transactions concluded for all cash and those involving seller financing is usually quite significant in the sale of small businesses and professional practices. This is because the rate of interest on contracts carried by the seller is usually far below a market rate of interest for any other comparable contract."[1] We find a similar position taken by Christopher Mercer in his discussion of fair market value when he states that "lenient [seller carry-back] terms combined with overstated prices must be discounted to current market rates and terms in order to replicate the cash-equivalent concept of fair market value.[2]

Likewise, Richard Houlihan and D. Grey Merryman state that "…if the consideration [offered for a business] is not all cash, review the value of the consideration to be given and compare it to the fair market value of the business (an all-cash offer is not the same as *20 percent down payment* with the remaining purchase price financed by a long-term, low-interest rate note secured by the business being purchased).[3]

This issue is demonstrated in Figure 1. The left-most distribution of selling-price-to-earnings ratios (SP/SDE ratios) is based on all transactions in the 2012 *Bizcomps* database that sold for all cash at closing. There is a very strong statistically significance difference (to be demonstrated momentarily) between the distributions of selling-price-to-earnings ratios for this group compared to the group where the selling prices were partially financed by the seller.[4]

This means that any transaction included in a statistical sample where the purchase price was partially financed by the seller must be adjusted to its theoretical all-cash-at-closing price to properly represent a sample transaction where the terms of sale comport with the definition of fair market value. "In determining fair market value, you need to convert the 'value' of any consideration received to its cash-equivalent basis. Researchers or practitioners who do not (or cannot) convert the proceeds reported in the databases to their cash-equivalent basis will come to faulty conclusions."[5, 6, 7]

Figures 2a and 2b on the following page, together with Appendix A, present the key data required to demonstrate that there is less than one chance in 2,000 that there is no difference among small businesses in the central tendency—i.e., 2a: weighted harmonic mean and 2b: arithmetic mean SP/SDE ratios—between all-cash-at-closing and financed transactions based on the *Bizcomps* sample data.[8]

Figure 1

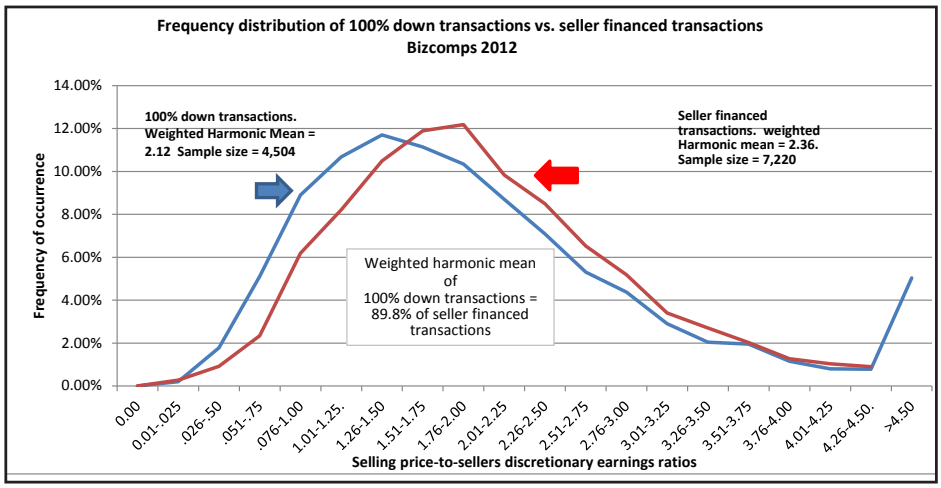

Figure 2a (Difference between means test based on the Weighted Harmonic Mean)

	Weighted Harmonic Mean	Number of Observations	standard Deviation	
Financed Transactions (whMean A)	2.36	7,220	5.07	
All Cash Transactions (whMean B)	2.12	4,504	2.77	
whMean A minus whMean B =	0.243			
Standard Deviation of whMean A minus Standard Deviation of whMean B =	0.0726			
Critical value to be less than	0.05%	This is the significance level--5 100's of 1%		
Critical Z Value (alpha or significance level)	99.95%	1 chance in 2,000 of being wrong		
Critical Value from Z Table	3.30	Standard Deviations for the difference of the sample means		
3.30 times .0726 =	0.2394			
.243 is greater than .2394 therefore the probability that whMean A and whMean B are different is 99.95%				

Figure 2b (Difference between means test based on the Arithmetic Mean)

	Arithmetic Mean	Number of Observations	standard Deviation	
Financed Transactions (Mean A)	2.60	7,220	5.07	
All Cash Transactions (Mean B)	2.21	4,504	2.77	
Mean A minus Mean B =	0.394			
Standard Deviation of Mean A minus Standard Deviation of Mean B =	0.0726			
Critical value to be less than	0.05%	This is the significance level--5 100's of 1%		
Critical Z Value (alpha or significance level).	99.95%	1 chance in 2,000 of being wrong		
Critical Value from Z Table	3.30	Standard Deviations for the difference of the sample means		
3.30 times .0726 =	0.2394			
.394 is greater than .2394 therefore the probability that Mean A and Mean B are different is 99.95%				

Figure 3[10]

Sale price	$125,000				
Down payment	$40,000	32.00%			
Amount Financed	$85,000	68.00%			
Financing period	5	Years			
Seller note's Interest Rate %	9.00%				
Prime rate on date of appraisal	8.25%				
Additional risk premium	***3.00%***				
Market interest rate	11.25%				
Year	1	2	3	4	5
Loan balance	$85,000	$68,000	$51,000	$34,000	$17,000
Principal payment	$17,000	$17,000	$17,000	$17,000	$17,000
Interest payment	$7,650	$6,120	$4,590	$3,060	$1,530
Total payment	$24,650	$23,120	$21,590	$20,060	$18,530
Present value of total payment	$22,157	$18,680	$15,680	$13,096	$10,874
Total present value	$80,487				
Plus down payment	$40,000				
Cash value	$120,487				

Unfortunately, there is no widely recognized best practice for adjusting seller-financed transactions to their theoretical all-cash-at-COE (close of escrow) equivalent value. Gary Trugman suggests forecasting all cash flows from the seller carry-back loan and discounting them to present value using the estimated market rate of interest as illustrated in Figure 3.[9]

The wild card in this method is the appraiser's assumed fair market value interest rate. In this example it is 11.25%--i.e., the prime rate on the date of the appraisal of 8.25% plus the appraiser's assumed additional risk premium of 3.0%. Thus by discounting the total annual payments to present value using an 11.25% interest rate equals $80,487. Add the down payment of $40,000 and the all-cash-at-COE price is $120,487.

I think that this is a reasonable adjustment methodology provided that the assumed additional risk premium--in this example, 3.0%--should be tailored to reflect the relative risk inherent in each comparable's terms of sale. For example, let's change the terms of sale in Figure 3 to the same selling price of $125,000 but with a down payment of only $5,000, a seller note's interest rate of 5%, an additional risk premium in this case of 5% and an eight year amortization period. This results in an all-cash-at-COE value of $94,721 as demonstrated in Figure 4.

Of course, the wild card remains the appraiser's assumed additional risk premium above the prime rate. However, the point of Figures 3 and 4 is to illustrate the significantly different estimated all-cash-at-COE selling price resulting from significantly different terms on the seller's note.

I propose a different adjustment methodology: adjust the selling price of each comparable that includes seller financing by the percentage difference between the weighted harmonic mean value of all seller-financed transactions and all full price paid at closing transactions in the 2012 *Bizcomps* database, a ratio of 89.8% as illustrated in Figure 1.

From Figure 1 we see that the weighted harmonic mean value of selling-price-to-seller's discretionary earnings for all seller-financed transactions is 2.36, and it is 2.12 for the all-cash-at- closing transactions. Thus, it is reasonable to downwardly adjust the actual selling price for each financed transaction in a statistical sample by 10.2% (multiply the actual value by .898—i.e., 2.12 ÷ 2.36). The advantage of this methodology is that it is simpler to apply in practice and it eliminates the need to develop and support an assumed unique additional risk premium for each seller-financed transaction. Given this methodology, the estimated all-cash-at-COE price for both of the above

examples would be $125,000 times .898 = $112,250. Compare this to the average adjusted price of the two examples of ($120,487 + $94,172) ÷ 2 = $107,329. That's less than a 5% difference between my proposed approach and the average of the two examples in this demonstration using Mr. Trugman's methodology.

There are a couple of issues to be aware of in my proposed adjustment methodology. First is that the downward adjustment percentage changes each year as new data is added to the *Bizcomps* database and old data is removed. Figure 5 is a cash versus terms analysis based on the 2011 edition of *Bizcomps* which indicates that the selling price of financed transactions should be multiplied by .9307.

The other thing to consider is that my "one size fits all" adjustment methodology requires that the number of comparables employed in the analysis must be large enough to allow a balancing of adjusted selling prices, because every adjustment will be either a little too much or not quite enough relative to the Trugman methodology.

Neither of the two adjustment methodologies presented are perfect; both have strengths and weaknesses. The advantage of the Trugman methodology is that each seller-financed comparable is subject to a tailor-made adjustment to its all-cash equivalent value. However, there are a few problems with this methodology. The first, although minor, is that this methodology is more time consuming relative to my suggested approach. A more significant problem is that this methodology is tied to movements in the prime rate. For example, if you substitute a 3.5% prime rate in Figure 3, then the all-cash value changes from $120,487 to $130,521 as reflected in Figure 6.

Thus implicit in the Trugman methodology is that seller-financed price negotiations between the sellers and buyers of small businesses are done while simultaneously incorporating consideration for the current prime rate as part of the negotiation process. As a practical matter, this is both unlikely and impossible to prove either way. Another challenge with the Trugman methodology is the need to select a unique additional risk premium for each comparable, and I presume, provide supporting narrative for it.

The advantage of my suggested adjustment methodology is that it is an empirically developed adjustment as opposed to Trugman's theoretical ap-

Figure 4

Sale price	$125,000							
Down payment	$5,000	4.00%						
Amount Financed	$120,000	96.00%						
Financing period	8	Years						
Seller note's Interest Rate %	5.00%							
Prime rate on date of appraisal	8.25%							
Additional risk premium	***5.00%***							
Market interest rate	13.25%							
Year	1	2	3	4	5	6	7	8
Loan balance	$120,000	$105,000	$90,000	$75,000	$60,000	$45,000	$30,000	$15,000
Principal payment	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000
Interest payment	$6,000	$5,250	$4,500	$3,750	$3,000	$2,250	$1,500	$750
Total payment	$21,000	$20,250	$19,500	$18,750	$18,000	$17,250	$16,500	$15,750
Present value of total payment	$18,543	$15,789	$13,425	$11,399	$9,662	$8,176	$6,906	$5,821
Total present value	$89,721							
Plus down payment	$5,000							
Cash value	$94,721							

Figure 5

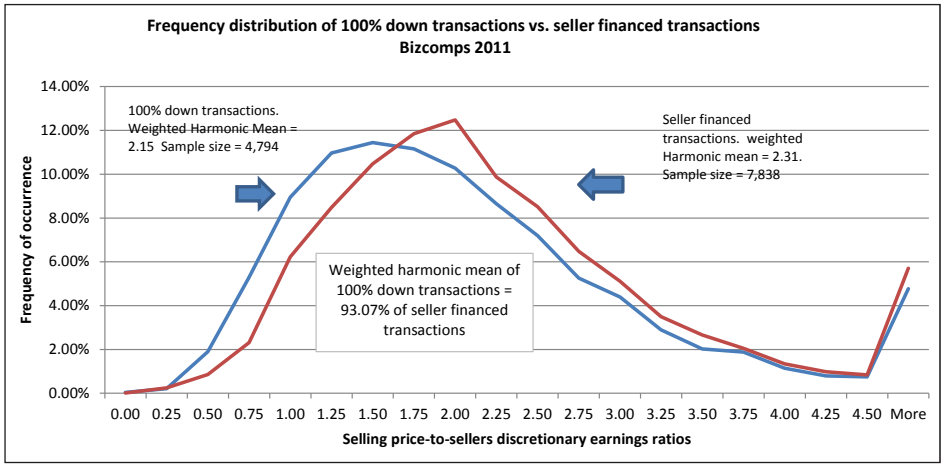

Figure 6

Sale price	$125,000							
Down payment	$40,000	32.00%						
Amount Financed	$85,000	68.00%						
Financing period	5	Years						
Seller note's Interest Rate %	9.00%							
Prime rate on date of appraisal	3.50%							
Additional risk premium	***3.00%***							
Market interest rate	6.50%							
Year	1	2	3	4	5	6	7	8
Loan balance	$85,000	$68,000	$51,000	$34,000	$17,000	$0	-$17,000	-$34,000
Principal payment	$17,000	$17,000	$17,000	$17,000	$17,000	$17,000	$17,000	$17,000
Interest payment	$7,650	$6,120	$4,590	$3,060	$1,530	$0	-$1,530	-$3,060
Total payment	$24,650	$23,120	$21,590	$20,060	$18,530	$17,000	$15,470	$13,940
Present value of total payment	$23,146	$20,384	$17,873	$15,593	$13,525	$11,651	$9,955	$8,423
Total present value	$90,521							
Plus down payment	$40,000							
Cash value	$130,521							

proach. On the other hand, my adjustment is a "one size fits all" average adjustment that will systematically over-adjust about half of the seller financed comparables and under-adjust about half. The best way to overcome this weakness is to employ a reasonably large sample size, which I think should be close to around 30 transactions whenever possible.

Considering all of the foregoing from a big-picture perspective—the "30,000 foot view" so to speak—may cause one to question the very viability and reliability of developing a value opinion based on the market approach using seller-financed comparable transaction data. This is a legitimate concern. The way that I address this concern is to routinely produce a linear regression analysis of the comparables' discretionary earnings and selling prices where all seller-financed transactions have been adjusted to their cash-equivalent value. My subjectively selected decision point is an r-squared coefficient of .70. If the r-squared coefficient is equal to or greater than .70, then I will give significant weight to the market approach in my final value conclusion. The higher the r-squared coefficient is above .70, the more weight I ascribe to the resulting value indication. Conversely, the lower the r-squared coefficient is below .70, the less weight I ascribe to the resulting value indication. Generally, I will give it no weight at all if the r-squared coefficient is equal to or less than .40.

Appendix A

Stat1600 **Z Table**

Table B. Cumulative standard Gaussian distribution. Table entries are cumulative probabilities ($P(Z \leq c)$), where c is a nonnegative number and $Z \sim N(0, 1)$.

c	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
0.0	.5000	.5040	.5080	.5120	.5160	.5199	.5239	.5279	.5319	.5359
0.1	.5398	.5438	.5478	.5517	.5557	.5596	.5636	.5675	.5714	.5753
0.2	.5793	.5832	.5871	.5910	.5948	.5987	.6026	.6064	.6103	.6141
0.3	.6179	.6217	.6255	.6293	.6331	.6368	.6406	.6443	.6480	.6517
0.4	.6554	.6591	.6628	.6664	.6700	.6736	.6772	.6808	.6844	.6879
0.5	.6915	.6950	.6985	.7019	.7054	.7088	.7123	.7157	.7190	.7224
0.6	.7257	.7291	.7324	.7357	.7389	.7422	.7454	.7486	.7517	.7549
0.7	.7580	.7611	.7642	.7673	.7704	.7734	.7764	.7794	.7823	.7852
0.8	.7881	.7910	.7939	.7967	.7995	.8023	.8051	.8078	.8106	.8133
0.9	.8159	.8186	.8212	.8238	.8264	.8289	.8315	.8340	.8365	.8389
1.0	.8413	.8438	.8461	.8485	.8508	.8531	.8554	.8577	.8599	.8621
1.1	.8643	.8665	.8686	.8708	.8729	.8749	.8770	.8790	.8810	.8830
1.2	.8849	.8869	.8888	.8907	.8925	.8944	.8962	.8980	.8997	.9015
1.3	.9032	.9049	.9066	.9082	.9099	.9115	.9131	.9147	.9162	.9177
1.4	.9192	.9207	.9222	.9236	.9251	.9265	.9279	.9292	.9306	.9319
1.5	.9332	.9345	.9357	.9370	.9382	.9394	.9406	.9418	.9429	.9441
1.6	.9452	.9463	.9474	.9484	.9495	.9505	.9515	.9525	.9535	.9545
1.7	.9554	.9564	.9573	.9582	.9591	.9599	.9608	.9616	.9625	.9633
1.8	.9641	.9649	.9656	.9664	.9671	.9678	.9686	.9693	.9699	.9706
1.9	.9713	.9719	.9726	.9732	.9738	.9744	.9750	.9756	.9761	.9767
2.0	.9772	.9778	.9783	.9788	.9793	.9798	.9803	.9808	.9812	.9817
2.1	.9821	.9826	.9830	.9834	.9838	.9842	.9846	.9850	.9854	.9857
2.2	.9861	.9864	.9868	.9871	.9875	.9878	.9881	.9884	.9887	.9890
2.3	.9893	.9896	.9898	.9901	.9904	.9906	.9909	.9911	.9913	.9916
2.4	.9918	.9920	.9922	.9925	.9927	.9929	.9931	.9932	.9934	.9936
2.5	.9938	.9940	.9941	.9943	.9945	.9946	.9948	.9949	.9951	.9952
2.6	.9953	.9955	.9956	.9957	.9959	.9960	.9961	.9962	.9963	.9964
2.7	.9965	.9966	.9967	.9968	.9969	.9970	.9971	.9972	.9973	.9974
2.8	.9974	.9975	.9976	.9977	.9977	.9978	.9979	.9979	.9980	.9981
2.9	.9981	.9982	.9982	.9983	.9984	.9984	.9985	.9985	.9986	.9986
3.0	.9987	.9987	.9987	.9988	.9988	.9989	.9989	.9989	.9990	.9990
3.1	.9990	.9991	.9991	.9991	.9992	.9992	.9992	.9992	.9993	.9993
3.2	.9993	.9993	.9994	.9994	.9994	.9994	.9994	.9995	.9995	.9995
3.3	.9995	.9995	.9995	.9996	.9996	.9996	.9996	.9996	.9996	.9997
3.4	.9997	.9997	.9997	.9997	.9997	.9997	.9997	.9997	.9997	.9998

Z Table Critical Value = 3.30

Toby Tatum, MBA, CBA is the owner of Alliance Business Appraisal in Reno, Nevada. He is both a practicing business appraiser and business broker. He is the author of Anatomy of A Business Purchase Offer: Step-by-Step Procedures for Preparing a Successful Offer, 2nd Edition, Transaction Patterns: Obtaining Maximum Knowledge from the Bizcomps Database *and* Pricing A Small Business For Sale: A Practical Guide for Business Owners, Business Brokers, Buyers and Their Advisors.

ENDNOTES

1. Shannon Pratt, et. al, *Valuing Small Businesses and Professional Practices, 3rd Edition*, Copyright 1998 by McGraw-Hill, p. 490.
2. Z. Christopher Mercer, *Quantifying Marketability Discounts*, Copyright 1997 by Z. Christopher Mercer, Peabody Publishing, LP, p. 8.
3. Richard Houlihan and D. Grey Merryman, The Investment Banker's Perspective on Due Diligence for Mergers, Acquisitions, and Securities Offerings, *Handbook of Business Valuation, 2nd Edition,* Thomas L. West and Jeffery D. Jones, Editors, Copyright 1999 by Thomas L. West, published by John Wiley & Sons, p. 50.
4. This analysis excludes all reported transactions where seller's discretionary earnings were equal to or less than zero and where sales revenue was reported as zero.
5. Shannon Pratt & Roger Grabowski, *Cost of Capital: Applications and Examples, Third Edition,* Copyright 2008 by John Wiley & Sons, Inc., p. 445.
6. Although I have yet to find a definition of 'cash equivalents' in the business valuation literature, I have found it defined in a purchase contract. It was defined as (a) marketable direct obligations issued or unconditionally guaranteed by the United States Government or issued by any agency thereof and backed by the full faith and credit of the United States, in each case maturing within one year from the date of acquisition thereof; (b) commercial paper maturing no more than one year from the date issued and, at the time of acquisition, having a rating of at least A-1 from Standard & Poor's Rating Agency or at least P-1 from Moody's Investors Service, Inc., and; (c) certificates of deposit or bankers' acceptances maturing within one year from the date of issuance thereof issued by, or overnight reverse purchase agreements from, any commercial bank organized under the laws of the United States of America or any state thereof or the District of Columbia having combined capital and surplus of not less than $100,000,000.
7. *Cash equivalent price* is defined as "a price expressed in terms of cash, as distinguished from a price expressed totally or partly in terms of the face amounts of notes or other securities that cannot be sold at their face amount." Appraisal Institute, *The Dictionary of Real Estate Appraisal, 4th ed.* "Cash equivalents include U.S. government Treasury bills, bank certificates of deposit, bankers' acceptances, corporate commercial paper and other money market instruments." http://www.answers.com/topic/cash-equivalent.
8. To make sense of Figures 2a and 2b go to the website presented below and watch the **KHAN*Academy*** video presentation on the hypothesis test for different means. http://www.khanacademy.org/math/statistics/v/hypothesis-test-for-difference-of-means . Refer to Figures 2a, 2b and Appendix A as you watch Mr. Khan's presentation. Mr. Khan's online video presentations on understanding statistical analysis have been viewed over 162 million times. They're pretty good.
9. Gary Trugman, *Understanding Business Valuation, Third Edition,* copyright 2008 by the American Institute of Certified Public Accountants, p. 253.
10. I'm using a prime rate of 8.25% rather than the current prime rate so that this presentation appears the same as it does in Gary Trugman's book.