



**Reclaiming the Billion Dollar Alternative Valuation
Market:
*The Collateral Valuation Report***

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Overview

Even before there was a sub-prime crisis, even before there was a meltdown of Wall Street and much of the nation's financial infrastructure-there have been systemic and undeniable issues with the manner in which property values were analyzed and valuation products provided to the various stakeholders that rely on collateral values.

Some would argue that major systemic changes have not occurred since the Great Depression, when the majority of the economic theory and appraisal techniques were born aggregated or synthesized. In many ways, this demonstrates the current disconnect that has occurred within the collateral valuation process. While ever greater amounts of data have become available-the tools to parse and analyze remain woefully inadequate to the task.

The underlying questions remains: if more is known about the valuation of residential collateral-could better decisions be made to benefit all parties and stakeholders in the marketplace? The examination of these questions and the solutions offered form the basis for this white paper.

Introduction

What are the lessons to be learned from the events of 2007-2009, and how will the valuation profession move forward to ensure the public trust? Can valuation professionals provide services that meet the needs of their clients, but infuse their expertise and market knowledge by providing clients with products and services that enhance the accuracy of collateral valuation? Lenders have been relying on esoteric collateral valuation products in recent years-principally Broker Price Opinions (BPOs) that financial services clients have eschewed over traditional products provided by appraisers.

In the 3rd Quarter 2008 issue of **Valuation Magazine**, the author examined the current landscape of valuation, and made the following observations:

It has long been assumed by appraisers that AVMs have stolen much of the appraisal business they used to get. While it is true that AVMs have emerged over the last decade as a viable collateral valuation alternative in certain circumstances, there are other products, (termed "Gap" products) such as Broker Price Opinions (BPOs) that are responsible for the lion's share of the revenue loss, replacing URARs and 2055's with cheaper, faster alternatives. For too long the financial markets have focused on Broker Price Opinions (BPO) to gauge the appropriateness of a loan and the underlying collateral. Even though most lenders will admit they utilize BPOs more for the general market information they provide than for the ultimate value they conclude, the truth of the matter is that they are being used in quantities that would shock and dismay appraisers.

Characteristics of a Successful Solution

Valuation professionals must determine how to effectively mine data throughout their markets, understand their customer's needs, and provide meaningful analysis based on their experience. They must embrace technologies that will provide cutting-edge and unique market information, but also must provide personalized market insight. Appraisers must continue to develop the knowledge base and skill-set in order to position them as the most knowledgeable player at the property and neighborhood levels. In this way, appraisers can provide keen insights to assist in the decision-making process.

Ultimately, the answer is to truly change the appraisal paradigm. Appraisers need data sifted, analyzed and pushed to them. Alternative information should be suggested and presented. Adjustments should be extracted from the market and offered and interpreted by the appraiser. All of the essential data necessary for whole market analysis should be provided to enable a more complete understanding of the subject and its market.

Mainstreaming Statistical Analytics and Regression

Further evidence of the need for appraisers to analyze and document the results of this analysis is being examined in courtrooms. Recent court decisions, including the Seventh Circuit's Guardian Pipeline decision, clearly supports a wider use of statistical techniques such as multiple regression analysis in valuation proceedings in place of the long-standing matched pair comparison canon. ("Expert Testimony: Regression Analysis and Other Systematic Methodologies" Colwell, Heller, Trefzger 2009). It is clearly only a matter of time before such analytics will be demanded in more traditional analysis as well. The implementation of a more robust market analysis in the form of the 1004MC is the first step in requiring a more scientific analysis of markets and data.

Is it logical to assume that the work of a valuation professional, augmented by more robust statistical analysis and techniques-could ultimately result in more supportable valuation that has the analytical support of sophisticated data analysis? Rather than attempting to build the best models by attempting to eliminate the appraiser component, it seems most appropriate to enhance the valuation professional with the mathematical rigor of appropriate statistics. Ultimately, it would seem that integrating the strengths of regression with the inherent skill-set of appraisers would yield the best of both techniques.

The concept of applying advanced analytics to residential property information is the critical driver to a better understanding of the market. This basically means taking raw data, applying statistical analysis to the data, and deriving meaningful outcomes that permit effective decisions to be made regarding adjustments, underlying adequacy of the data, and supporting valuation in the marketplace. A hands-on approach that delivers practical applications is the only acceptable route towards equipping appraisers with the skill-sets that will be required for more rigorous analysis of data. Taking the theoretical and making it practical will provide a best

practices perspective that can demonstrate the cost/benefit of using advanced techniques effectively.

Discussions with industry experts reveal that the availability of an interactive, appraiser-driven product would open a floodgate of acceptance by appraisers, and additionally, satisfy lender demands for a more advanced understanding of market dynamics. Valuation professionals will be able to leverage this technology towards other valuation processes, providing enhanced market opportunities. With markets declining in most parts of the country, there is recognition that a solid, supportable value has merit and must be the ultimate goal.

The Development of a Meaningful Solution

In 2006, Bradford Technologies Inc. began the development of an interactive software application-CompCruncher, which would integrate data and analytics in a robust and comprehensive fashion. The idea was to empower appraisers with the most sophisticated tools possible, and create operational efficiencies that would improve the valuation process and their bottom line. The goal included transparency, whole market analysis, and the integration of sophisticated regression analysis at the core of the application. The goal was to meld an appraiser's experience, judgment and local knowledge with the ability to quickly parse and understand data.

The most important core feature of the product, however, was that the appraiser be in control at all times of the data, the analysis and the outcome. As a USPAP compliant product, the appraiser had to be confident in the valuation process and the product produced.

Recognizing that most appraisers do not have a working knowledge of regression analysis, and not wanting to offer a black box to the industry, one of the product requirements is a working knowledge and demonstrated competency in basic statistics in order to understand the underlying processes being employed in the CompCruncher application. An educational curriculum was developed and deployed, with a rigorous testing process that was required before a user could operate the application.

Using CompCruncher, an appraiser could deliver a Collateral Valuation Report (CVR), in essence a summary appraisal report, significantly faster than a traditional 1004. The amount of data, analysis and transparency in the process would be enhanced, and all relevant stakeholders would be served in the process.

CompCruncher Data Analysis and Value Conclusions

How accurate is CompCruncher and the Collateral Valuation Reports (CVR) that it produces? At its core-CompCruncher is as accurate as the appraiser driving the application. In this respect it is no different than any traditional appraisal. In examining the 1004, for example, the accuracy of the appraisal is a function of how accurately the appraiser performs the analysis. The

appraiser must extract data from the market, consider comparable sales, apply adjustments to those sales, and conclude a value that is supported by the relevant data they have considered. The same process must be considered when evaluating the accuracy of an appraiser utilizing CompCruncher to derive a value for a given property.

Enhancing the process for the appraiser, CompCruncher brings unprecedented amounts of data to the appraiser's desktop, including public record, MLS, imagery, flood, census and predictive forecasting, to provide a comprehensive base of data to begin the analysis.

The four components of the analytics that are applied include:

1. **Comprehensive data analysis of the delineated neighborhood (similar to the 1004MC)**
2. **A regression analysis model confirmed and modified by the appraiser**
3. **Comparable sales ranked for characteristic similarity, proximity and currency of sale by CC and the appraiser**
4. **Comparable listings ranked for characteristic similarity, proximity and currency of listing by CC and the appraiser**

The appraiser considers the information in a reconciliation process that weighs all relevant data.

The final value selected calls upon the appraiser's local area knowledge and expertise, as well as their judgment on the strengths and weaknesses of any one given data set or indication of value.

Standards Used in CompCruncher

The CompCruncher application was built with the assistance and guidance of appraisers, reviewers, and USPAP experts, who considered all of the applicable elements that were required to support a credible value. The entire body of knowledge was utilized. One of the chief architects was the co-author of the two existing foundational books "***A Guide to Appraisal Valuation Modeling***" and "***Practical Applications in Appraisal Valuation Modeling***" and the upcoming 2010 publication by the Appraisal Institute: "***Visual Valuation: Integrating Geographic Information and Valuation Modeling Solutions***". In addition, guidelines from all relevant white papers on testing, and the recommendations of the International Association of Assessing Officers (IAAO) and the Collateral Assessment Technologies Committee (CATC) of the Real Estate Information Providers Association (REIPA).

Source Documents:

The Collateral Valuation Report (CVR) produced by the CompCruncher application, has been designed in conformance with all available technology, data and statistical processes, generally accepted to represent the state of industry, including:

Uniform Standards of Professional Appraisal Practice:

Standard 6 and Advisory Opinion 18

Joint Industry Task Force on Automated Valuation Models:

Standards and Testing Guidelines

International Association of Assessing Officers:

Standard on Ratio Studies

Mass Appraisal of Real Property

Standard on Automated Valuation Models

Appraisal Institute:

A Guide to Appraisal Valuation Modeling

Practical Applications in Appraisal Valuation Modeling and Design

The Appraisal of Real Estate 13th Edition

The Analysis Process

The appraiser is trained in a manner sufficient to understand the various statistical measures outlined in the CompCruncher application. The statistical measures defined within the analysis allow the appraiser to understand the data and draw certain conclusions based on the accuracy of the data, the amount and quality of the data, and the measures of statistical significance and accuracy of the analysis applied.

Competence

The appraiser completing the Collateral Valuation Report asserts that they have undergone sufficient training, and further, have an understanding of the statistical measures underlying the regression component of the process to generally understand the method and manner of analysis: The appraiser does not assert that they are statisticians. They are, however, aware of the basic guidelines pertaining to the use of the statistical analysis tool to analyze small market datasets, and as such, are capable of understanding the analysis and methodology in a manner sufficient to render a credible estimate of value in tandem with the other data and analysis present in the report. The final value conclusion is the appraiser's own, and is based on the appraiser's knowledge and experience in the field of appraisal. The data and analysis in this report, whether through direct information or through derived statistical information, aids the appraiser in understanding the dynamics of the market and the neighborhood.

Raw Data Regression Accuracy

The raw regression values represent a starting point, from which the appraiser analyzes the strength of the regression relationship. The results are consistent as sample size increases. Larger tests in Denver, Colorado, in which actual sales prices were used as the measurement benchmark, resulted in overall initial values, prior to the appraiser's fine-tuning of the raw regression outcome, that were on average, within 8.1% of the actual sales price, based on absolute values. The computed sales ratio (predicted price divided by sale price) resulted in a value of 1.01, which means that on average, **the predicted values for the sample of 165 properties were within 1% of the actual sales price.** (This type of analysis does not consider absolute value differences, and so will have a different outcome, given that some predicted values will be higher and some predicted values will be lower than the sales price). It is important to note that the IAAO AVM standards for regression of this type have an acceptable range of .95 to 1.05. The performance of CompCruncher falls perfectly within the range for performance measures in all tests performed.

Accuracy of the Analytic Process

Once this has been completed, the appraiser considers the "best" comparable sales, and applies adjustments; uses the "best" sales listings and applies adjustments, and finally, uses their own local knowledge and judgment to reconcile neighborhood data, regression statistics, sales and listings to a final value estimate.

In blind-test comparisons with actual 1004 appraisals performed by appraisers in four cities: **Denver, Phoenix, Minneapolis and Houston**, appraisals performed at the desktop level by appraisers on properties that had previously been appraised (with a full interior field inspection), resulted in values that were within **+/- 6.6%** of appraised values.

In instances in which an exterior field inspection accompanied the CompCruncher process, concluded values were within **2%** of actual sales price in a field test in Minneapolis. This further enhancement of the accuracy is based on an appraiser's ability to further refine a value based on observing the subject and the neighborhood.

Testing Comparison Methodology

There are a significant range of differing techniques that could be used to gauge the accuracy of the CompCruncher application. Given the smaller neighborhood environment in which the analysis occurs after the appraiser delineates the boundary of the analysis, simplicity of statistical analysis was determined to be appropriate. The ultimate measure of accuracy comes from a consideration of how well the analytics compare to a benchmark such as sales price. The sale price of a given property is the "gold standard" of what the most likely value for that property is based on an actual market transaction. The industry standard for such measures, as indicated by CATC is as follows from their website:

Q: What is a reasonable range for values to fall within compared to the sale price?

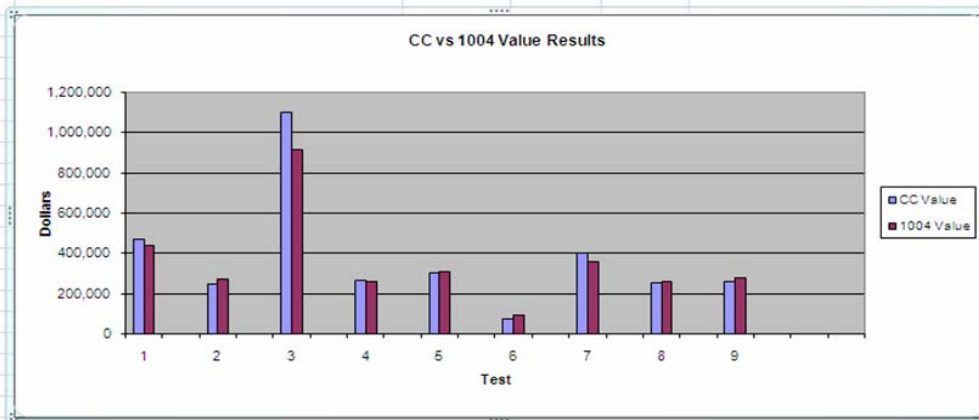
A: The true value of a property is what a buyer and seller agree upon in the absence of fraud or duress. It is widely accepted that each purchase transaction is unique, resulting in natural variances in actual purchase prices for properties that are identical. While every lender will have to establish a reasonable variance tolerance according to its own lending guidelines, industry literature suggests that a range of plus or minus 6 to 12 percent is acceptable.

The IAAO, in its benchmark Standard on Automated Valuation Models, states that a sample of properties should have predicted valuation outcomes that are within **95% to 105%** of the actual sales prices in order to be credible.

Test Parameters

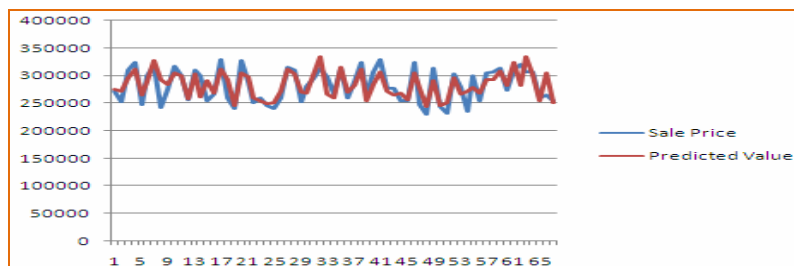
Tests have been performed in varying sample sizes, in Denver, Phoenix, Minneapolis and Houston. Smaller samples have been employed using actual appraisers to see how the outcome compares to both sales and previously performed appraisals that included interior inspections of the subject properties. Results from the smaller test environments are demonstrated as follows:

A	B	D	F	G	H
Test	Property Address	Comp Crunche Value	Appraisal Value	Value%	Difference
1	4635 E Lafayette Blvd Phoenix, AZ	473,000	440,000	7.50%	Sale at \$500k
2	20632 North Stonegate Sun City West, AZ	250,000	275,000	-9.09%	
3	15532 East Greystone Drive Fountain Hills, AZ	1,100,000	915,000	20.22%	Unknown GLA unfinished lower level
4	13408 West Cabrillo Drive Sun City West, AZ	268,000	260,000	3.08%	
5	3430 N. Mtn Ridge Unit 60 Mesa, AZ	305,000	312,000	-2.24%	
6	1345 E. Desert Fern Trail Casa Grande, AZ	77,000	90,000	-14.44%	Strange Little House
7	9412 North Broken Bow Fountain Hills, AZ	400,000	360,000	11.11%	
8	22528 North Pandano Sun City West, AZ	254,000	259,900	-2.27%	Actual Sale Price-No Appraisal
9	23309 North Las Positas Drive Sun City West, AZ	260,000	280,000	-7.14%	Actual Sale Price-No Appraisal



Large tests have also been performed in which sales samples are first examined in their “raw” state, (i.e. applying regression before an appraiser examines the outcome to apply their appraisal judgment) and then afterwards, as appraisers apply a critical eye towards improving the accuracy of the predicted valuation outcome.

The IAAO, in its benchmark Standard on Automated Valuation Models, states that a sample of properties should have predicted valuation outcomes that are within **95% to 105%** of the actual sales prices in order to be credible. In the following representative smaller test sample in Denver, Colorado, the overall performance comparing sales to predicted values resulted in a variance of less than 8% initially, based on the results of the raw regression analysis performed on the dataset. Once the appraiser examined the regression and using their judgment and appraisal expertise, the overall deviation from sales prices dropped to less than 5%.



Larger Tests

Tests ranging from 150 to 300+ properties have been performed, and the results are available upon request. On the following pages are the detailed outcomes of one such test, in which the raw regression results are displayed on a property-by-property basis.

The results of this test, which included 165 properties that sold in the 12 months prior to August 2009, are detailed as follows:

Overall Sales Ratio	1.00098	
Standard Deviation	0.0562	0.0562
Average Absolute Deviation	0.0816	0.0816
Average Difference	10.01%	
Median	0.0745	

The results are impressive even in their raw state (not having been modified by an appraiser) demonstrate a sales ratio of 101% (compared to the 95% to 105% that is the acceptable IAAO range). The median differentiation is 7.45% and the average difference is 10%. These statistics are meaningful by any measure, but also demonstrate the accuracy that can result from small market models in which the appraiser has defined the neighborhood specifically. This is unique from the standpoint in which all AVMs are built in the United States for either private sector or assessment purposes. Usually it is not cost effective for vendors to apply regression at such a granular level. Accordingly, they are built on the super-neighborhood or metro-level in most cities. This results in economies of scale, but the loss in accuracy is apparent and ongoing.

The Collateral Valuation Report is the result of data analysis at its most granular level- i.e. the neighborhood that has the most direct impact on the subject. Regression has been constructed to consider the most consistently relevant variables, such as GLA, baths, site size, age and sales trends. An appraiser critically examines each of the variable outcomes to determine if they make appraisal sense. This melding of appraisal judgment and statistical analysis is unprecedented in valuation product options, and results in a credible and transparent valuation for collateral valuation use.

Conclusions: The Efficacy of the CompCruncher Process

Based on all of these considerations, the Collateral Valuation Report (CVR) produced by an appraiser utilizing the CompCruncher application will generate an accurate and supportable value, with robust data, analysis and transparency. The availability of new tools and technology such as CompCruncher that interact with and enhance an appraiser's ability to analyze the market and deliver meaningful information to clients will change the face of valuation.

The blueprint for the future is being developed now. It is up to the profession to examine how to meet the needs of clients in innovative and ultimately more satisfying ways. In this way, valuation professionals can truly achieve a lasting and meaningful change in how they are perceived by the real estate industry and others for whom they provide services.



COMPARISON OF SALE PRICES TO PREDICTED VALUES

Testing for Valuation Performance

REPRESENTATIVE DENVER NEIGHBORHOOD HR-89

The following data analysis considers a representative neighborhood in Denver, Colorado drawn from data extracted during August 2009. This data is the first run of a regression analysis process based on a neighborhood drawn by an appraiser. It should be noted that the regression model has not been altered by the appraiser. Any effort by the appraiser comes later in the application/appraisal process.

The outcome of this initial regression run shows that CompCruncher can derive an initial value that is equal to or better than any vendor-built AVM on the market today. What distinguishes this regression run is that the appraiser can then examine the output and model accuracy as well as the appropriateness of the individual component outcome, and can then refine and specify a value for a given subject property that is more accurate and applicable to a single property than any AVM could ever be.

COMPARISON BETWEEN SALE PRICES AND RAW COMPCRUNCHER PREDICTED VALUES: NBHD DENVER-HR89

Sale Price	Predicted Value	Difference	Sales Ratio	% Difference Between Sale Price and Predicted Value	Absolute Value
385000	383464	1536	1.00	0.4%	0.004005505
370000	376146	-6146	0.98	-1.63%	0.016340502
412000	343821	68179	1.20	19.83%	0.198297826
315000	360369	-45369	0.87	-12.59%	0.125896027
348000	310234	37766	1.12	12.17%	0.121734124
389000	384657	4343	1.01	1.13%	0.011291752
375000	355603	19397	1.05	5.45%	0.054547381
412500	360614	51886	1.14	14.39%	0.143883899
379900	375067	4833	1.01	1.29%	0.012885094
477000	402797	74203	1.18	18.42%	0.184220066
290000	302791	-12791	0.96	-4.22%	0.042244964
353000	368278	-15278	0.96	-4.15%	0.041485474
450000	394682	55318	1.14	14.02%	0.140159576
320000	318025	1975	1.01	0.62%	0.006211232
330000	346561	-16561	0.95	-4.78%	0.047786735
424900	412658	12242	1.03	2.97%	0.02966685
314000	328358	-14358	0.96	-4.37%	0.04372799
390000	328672	61328	1.19	18.66%	0.186594655
297000	336606	-39606	0.88	-11.77%	0.117663284
438000	390885	47115	1.12	12.05%	0.120533842
341500	301732	39768	1.13	13.18%	0.131797713
305000	330713	-25713	0.92	-7.78%	0.07775054
277900	282282	-4382	0.98	-1.55%	0.015522758
255000	277302	-22302	0.92	-8.04%	0.080424481
343000	371258	-28258	0.92	-7.61%	0.076114213
260000	298761	-38761	0.87	-12.97%	0.129737722
307500	307122	378	1.00	0.12%	0.001231816
301500	343480	-41980	0.88	-12.22%	0.122218419
500000	423453	76547	1.18	18.08%	0.180769472
355000	365436	-10436	0.97	-2.86%	0.028557464
378000	369559	8441	1.02	2.28%	0.022841704

277500	267746	9754	1.04	3.64%	0.036428121
389000	392594	-3594	0.99	-0.92%	0.009154441
325000	335681	-10681	0.97	-3.18%	0.031820091
320000	372640	-52640	0.86	-14.13%	0.141261328
274500	325439	-50939	0.84	-15.65%	0.156522869
266700	300264	-33564	0.89	-11.18%	0.111782159
310000	366598	-56598	0.85	-15.44%	0.15438718
260000	303531	-43531	0.86	-14.34%	0.143414276
365000	381398	-16398	0.96	-4.30%	0.042993802
412000	391856	20144	1.05	5.14%	0.051407794
265000	307391	-42391	0.86	-13.79%	0.137906161
267500	296855	-29355	0.90	-9.89%	0.098887999
311000	314309	-3309	0.99	-1.05%	0.010527499
304500	304271	229	1.00	0.08%	0.000753666
367230	327221	40009	1.12	12.23%	0.122267423
325000	342084	-17084	0.95	-4.99%	0.04993974
380000	373658	6342	1.02	1.70%	0.016973602
467000	470924	-3924	0.99	-0.83%	0.008331669
380000	381292	-1292	1.00	-0.34%	0.003387922
306700	315955	-9255	0.97	-2.93%	0.029290761
330000	313467	16533	1.05	5.27%	0.052742691
299500	257460	42040	1.16	16.33%	0.163287622
324000	300952	23048	1.08	7.66%	0.076585392
482650	426709	55941	1.13	13.11%	0.131098625
260000	275544	-15544	0.94	-5.64%	0.056411796
301000	322411	-21411	0.93	-6.64%	0.06640863
274900	305970	-31070	0.90	-10.15%	0.101545164
373300	312589	60711	1.19	19.42%	0.194221664
430000	393534	36466	1.09	9.27%	0.092663836
290000	308869	-18869	0.94	-6.11%	0.061091774
280000	272763	7237	1.03	2.65%	0.026533308
316500	321119	-4619	0.99	-1.44%	0.014383417
405000	424964	-19964	0.95	-4.70%	0.046977442
317500	323367	-5867	0.98	-1.81%	0.018144665
358500	391047	-32547	0.92	-8.32%	0.08323123
440000	411120	28880	1.07	7.02%	0.070246904
365000	388122	-23122	0.94	-5.96%	0.059573475
435500	412242	23258	1.06	5.64%	0.05641919
260000	277803	-17803	0.94	-6.41%	0.064085673
330000	330257	-257	1.00	-0.08%	0.000778875
279000	294367	-15367	0.95	-5.22%	0.052202298
417500	357747	59753	1.17	16.70%	0.167026728
315000	362063	-47063	0.87	-13.00%	0.12998593
459000	421642	37358	1.09	8.86%	0.088601853
304900	293748	11152	1.04	3.80%	0.037963304
317000	316476	524	1.00	0.17%	0.001654316
300000	285053	14947	1.05	5.24%	0.052435151
391000	348723	42277	1.12	12.12%	0.121235227
305000	290783	14217	1.05	4.89%	0.048893568
308000	344945	-36945	0.89	-10.71%	0.107103682

340000	314770	25230	1.08	8.02%	0.080153749
279850	272561	7289	1.03	2.67%	0.026743628
490000	413893	76107	1.18	18.39%	0.183881454
279900	334540	-54640	0.84	-16.33%	0.163328177
350000	388898	-38898	0.90	-10.00%	0.100020027
272000	268321	3679	1.01	1.37%	0.013711876
319500	322439	-2939	0.99	-0.91%	0.009115234
429000	422211	6789	1.02	1.61%	0.016079477
385000	389118	-4118	0.99	-1.06%	0.010582797
425000	378673	46327	1.12	12.23%	0.122338925
254918	239166	15752	1.07	6.59%	0.065862097
325000	309613	15387	1.05	4.97%	0.049697322
299900	303818	-3918	0.99	-1.29%	0.012897466
254500	249538	4962	1.02	1.99%	0.019882903
295000	299056	-4056	0.99	-1.36%	0.013563297
256000	247240	8760	1.04	3.54%	0.035429992
310000	353315	-43315	0.88	-12.26%	0.122595291
399500	408689	-9189	0.98	-2.25%	0.022484651
395000	436762	-41762	0.90	-9.56%	0.095617432
315000	314279	721	1.00	0.23%	0.002294397
388000	446364	-58364	0.87	-13.08%	0.130755102
317500	351711	-34211	0.90	-9.73%	0.097269803
445000	398412	46588	1.12	11.69%	0.116933223
445100	431581	13519	1.03	3.13%	0.031323465
320500	310012	10488	1.03	3.38%	0.033832453
311000	303561	7439	1.02	2.45%	0.024507115
329000	296982	32018	1.11	10.78%	0.107812155
275000	315109	-40109	0.87	-12.73%	0.127285309
349900	427337	-77437	0.82	-18.12%	0.181209159
392500	366369	26131	1.07	7.13%	0.071325128
310000	296237	13763	1.05	4.65%	0.046458832
420000	362233	57767	1.16	15.95%	0.159474135
271040	306065	-35025	0.89	-11.44%	0.114436123
300000	247295	52705	1.21	21.31%	0.213125655
371500	367284	4216	1.01	1.15%	0.01147833
305000	350454	-45454	0.87	-12.97%	0.129700756
264950	298318	-33368	0.89	-11.19%	0.111855268
255095	278458	-23363	0.92	-8.39%	0.08389983
290000	303336	-13336	0.96	-4.40%	0.043963896
377500	401937	-24437	0.94	-6.08%	0.060797855

475000	462607	12393	1.03	2.68%	0.026790298
366500	366843	-343	1.00	-0.09%	0.000935271
397000	448295	-51295	0.89	-11.44%	0.114423135
397000	359151	37849	1.11	10.54%	0.105383298
319000	299184	19816	1.07	6.62%	0.066231868
306000	292947	13053	1.04	4.46%	0.044556533
265000	349519	-84519	0.76	-24.18%	0.241814318
292500	333051	-40551	0.88	-12.18%	0.121755211
500000	428095	71905	1.17	16.80%	0.167966288
445000	391171	53829	1.14	13.76%	0.137610605
325000	318228	6772	1.02	2.13%	0.021280509
357900	384094	-26194	0.93	-6.82%	0.06819781
370000	445403	-75403	0.83	-16.93%	0.169291713
350000	306058	43942	1.14	14.36%	0.143572949
496000	440359	55641	1.13	12.64%	0.12635487
385000	436775	-51775	0.88	-11.85%	0.118539079
315000	345854	-30854	0.91	-8.92%	0.08920983
485000	437219	47781	1.11	10.93%	0.109284866
260000	257557	2443	1.01	0.95%	0.00948405
260000	237075	22925	1.10	9.67%	0.096701202
316000	333420	-17420	0.95	-5.22%	0.052245895
415000	361348	53652	1.15	14.85%	0.148477101
392000	392023	-23	1.00	-0.01%	5.83478E-05
275000	311478	-36478	0.88	-11.71%	0.117111669
457000	409068	47932	1.12	11.72%	0.117173045
254000	236453	17547	1.07	7.42%	0.074207347
255000	243643	11357	1.05	4.66%	0.046611639
325000	370597	-45597	0.88	-12.30%	0.123036539
298000	363015	-65015	0.82	-17.91%	0.17909705
438000	411040	26960	1.07	6.56%	0.065589051
298000	340370	-42370	0.88	-12.45%	0.124482719
270000	292371	-22371	0.92	-7.65%	0.076517104
261000	301886	-40886	0.86	-13.54%	0.135435524
375000	348705	26295	1.08	7.54%	0.075406928
285300	253563	31737	1.13	12.52%	0.125164592
400000	348776	51224	1.15	14.69%	0.146866788
263000	311461	-48461	0.84	-15.56%	0.155593008
480000	408591	71409	1.17	17.48%	0.174767957
494731	468532	26199	1.06	5.59%	0.055917496
449900	486250	-36350	0.93	-7.48%	0.074756067
494524	479442	15082	1.03	3.15%	0.031456683
485139	456927	28212	1.06	6.17%	0.061742541
460430	489796	-29366	0.94	-6.00%	0.059955081

0.056211
0.0816

Overall Sales Ratio	1.00098	
Standard Deviation	0.0562	0.0562
Average Absolute Deviation	0.0816	0.0816
Average Difference	10.01%	
Median	0.0745	