The Limits of Residential Appraisal Accuracy: A Tale of Two Cities

by
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Most people would be shocked by just how dispersed the opinions of value from educated and competent professionals using the same market information on the same subject property, when no information is given about the selling price. Depending on the uniqueness of the neighborhood, a plus or minus range of 10% should not be unexpected. This means a home with an average value of $300,000 may be appraised at $270,000 by one appraiser and $330,000 by another, both competent and aware of the market conditions.

With most residential appraisals being procured for the purpose of supporting the mortgage market we have historically observed the need for a single point value estimate. The uncertainty and trend around this value are important pieces of information which could be utilized in assessing the risk of loss by the mortgage provider. Historically we have seen appraisers compelled to produce a single value along with the implied origination LTV, loan to value ratio, which is essential for compliance with mortgage market rules. Today a market condition addendum, known as 1004MC is required, which provides additional information about the value trends.

Here we examine the limits of accuracy in attempting to pin down a single value, via a tale of two cities, more precisely two submarkets. First, we will discuss why prices may vary. Second, we provide a comparison between a very homogeneous submarket and a very heterogeneous submarket to see how diverse normal ranges in prices an appraiser might observe in the process of formulating value. The conclusion is that pinpoint values are challenging enough in homogeneous markets but especially difficult in markets where all the homes are unique. This is why the market trends analysis and uncertainty are appropriate inclusions in a report used for mortgage underwriting.

Why do we observe market price uncertainty?

There is a range of prices over which any particular property will sell at any point in time. Most of the reasons for price dispersion for very similar property are well known, but not well documented. They include:

1) **Tastes and preferences** differ and while many properties are fairly comparable, there are still nuances and décor that influence value to unique buyers which remain unobservable. The more unique and custom the home the greater we should expect the variance on opinions of value. Even homogeneous homes may have several nuances that are unique such as location on the street, orientation to the sun, an old stately large shade tree, a strange choice of interior paint or carpet colors and so forth.
2) **Unobserved variables** are always a possible source of value estimate distortions. Beyond the standard checklist of age, size, bedrooms, baths, fireplaces and so forth, we may have unobserved features such as extraordinary wine racks, extraordinary sound systems, extra thick walls with added insulation, higher

quality than normal windows, high quality wall art murals or painted ceilings, cedar closets and a whole host of features that maybe be atypical for the neighborhood. Even if the appraiser is able to spot these nuances and find out current costs to reproduce, they have no easy task in assessing the contribution to value for the typical buyer of such property.

3) **Inaccurate information**, especially on comparable properties, is quite common. Many homeowners fix up basements, add built in features, remodel kitchens and bathrooms and do not pull a building permit (as required by law). While there is some risk to this behavior, the owner may be trying to keep property taxes lower and so is motivated to ignore the law. The result is that an added bathroom or remodeled kitchen does not show up in the public records. It may show up in multiple listing system (MLS) data or elsewhere, but there may be errors in the MLS data or omissions, some intentional by real estate agents. An ocean view may be shot via a large telescopic camera lens that makes it look like the comp sits right over the ocean. Reality suggests that there are trees and telephone lines in the way and that the sliver of an ocean view is miles away.
4) **Search costs** differ for buyers and the urgency to sell varies by sellers, which adds to price dispersion. Buyers that have a short time window in which to contract for a home, such as on a few weekend visits, may not have as much information as in town buyers and the costs to search may be high, given the flight costs, hotel costs and other factors adding to the urgency to find a home, perhaps a school schedule or job schedule. All of this results in the decision by some to buy with **less information**. The same is true on the seller side. An urgent need to move or cash out or a quick closing all hurt the negotiating ability of the seller and result in a lower than average price. Given these different urgencies to buy or sell, it is rational for these atypical buyers and sellers to pay more or receive less than normal, but such differences driving purchase prices are difficult for appraisers to detect.
5) **Distress sales** may be included as one where selling costs are high but there may be other factors including stigma, or the lack of warrantees that affect discounts for such sales. The discounts which have ranged from 20% to much higher figures, depending on the market, suggest that such sales should not be comps for a subject property where distress is unusual. Still such sales add to price dispersion and uncertainty about value.[1]
6) **Financing** is well established as a cause of price variation, such as FHA or VA when the seller pays points and in turn requires a higher price than on conventional transactions. Seller financing at below market rates, while rare today, will in periods of higher interest rates be another source of price distortion. The appraiser can estimate these effects with discounted cash flow approaches, but the true influence remains an estimate and adds to the potential price distortions observed on comps.

Seasonality is well established as a factor driving sales volume, but seasonality also influences sales prices. We observe in many markets a plus or minus 3% or 4% range over of the course of a year, so that a comp selling in early January may require a positive

[1] See for example "Distressed Home Prices – the true Story" By Miller and Sklarz in Mortgage Banking, March 2009. Many other papers on this topic are worthwhile. See for example, "The Value of Foreclosed Property," by Anthony Pennington-Cross, Journal of Real Estate Research, 2006, 28(2), 193-214.

adjustment of 5% to estimate what it would sell for in June. Such short term adjustments might be picked up in time index trends, but often appraisers ignore the seasonality within a market.[2]

7) **Thin markets** always present a problem, making comparisons difficult and some localized markets reveal little transaction volume.

Given the factors above that can make value estimation difficult, how much volatility should we expect as a function of the heterogeneity of the market? While not a scientific study, we chose two extreme examples of housing markets to illustrate the point that any given house trades over a range of prices. This range is naturally larger in unique markets like La Jolla, California where all the homes are high-end custom homes and smaller in markets like the postal zip code, 08757, in Toms River, New Jersey, where size and age variation are minimal. We show Bing aerial maps of these two submarkets below. In Toms River, 08757, every month there are typically 50 to 140 sales. In La Jolla, 92037 the sales per month run also run about 50 to 135 per month.

Exhibit 1: Toms River, NJ, Zip Code 08757: A Homogeneous Submarket

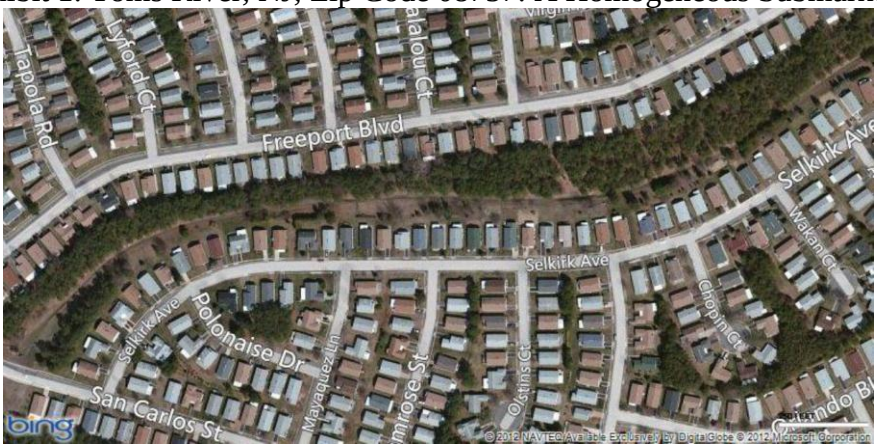
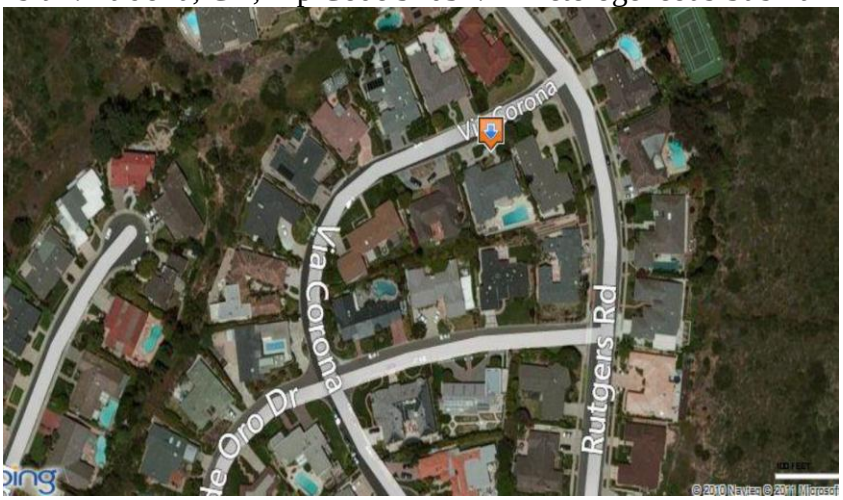


Exhibit 2: La Jolla, CA, Zip Code 92037: A Heterogeneous Submarket



[2] See "Correcting for the Effects of Seasonality on Home Prices" by Norm Miller, PhD, Vivek Sah, PhD, Michael Sklarz, PhD, and Stefan Pampulov, the Appraisal Journal, Winter, 2012.

Exhibit 3: Toms River 08757 Sales Price Per Square Foot Variation Around the Moving Average Price Trend

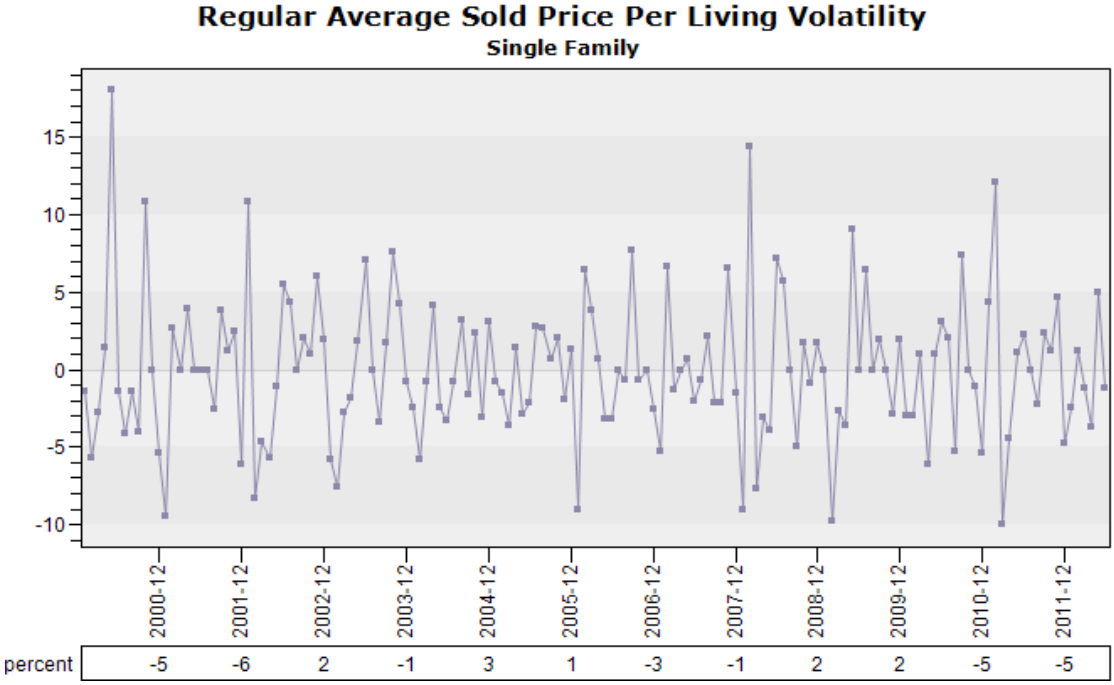
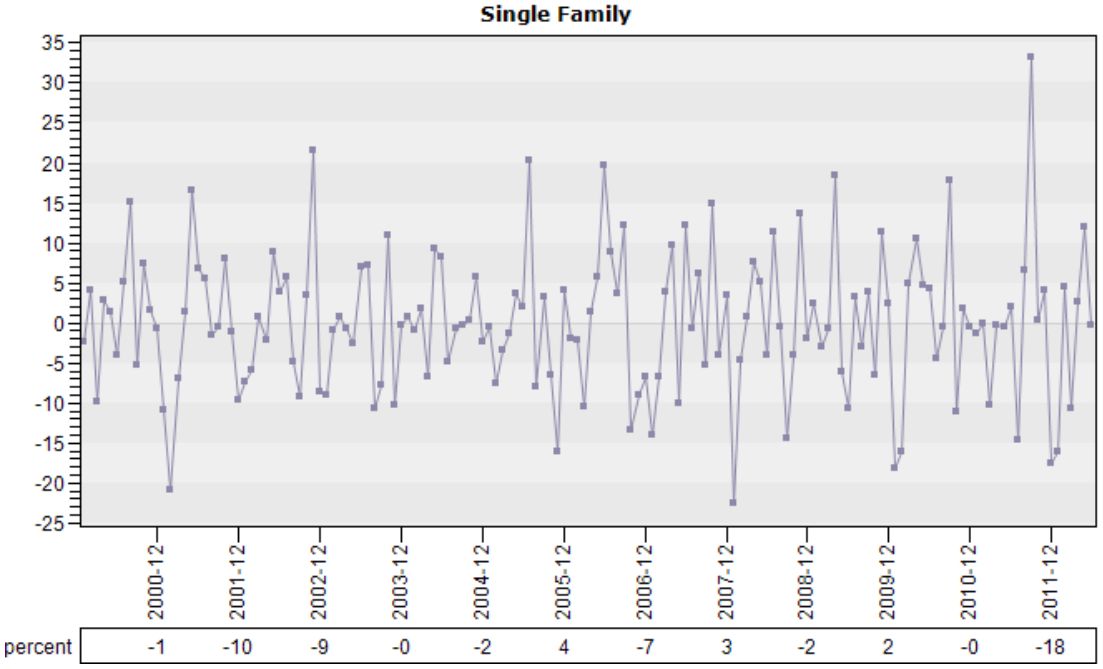
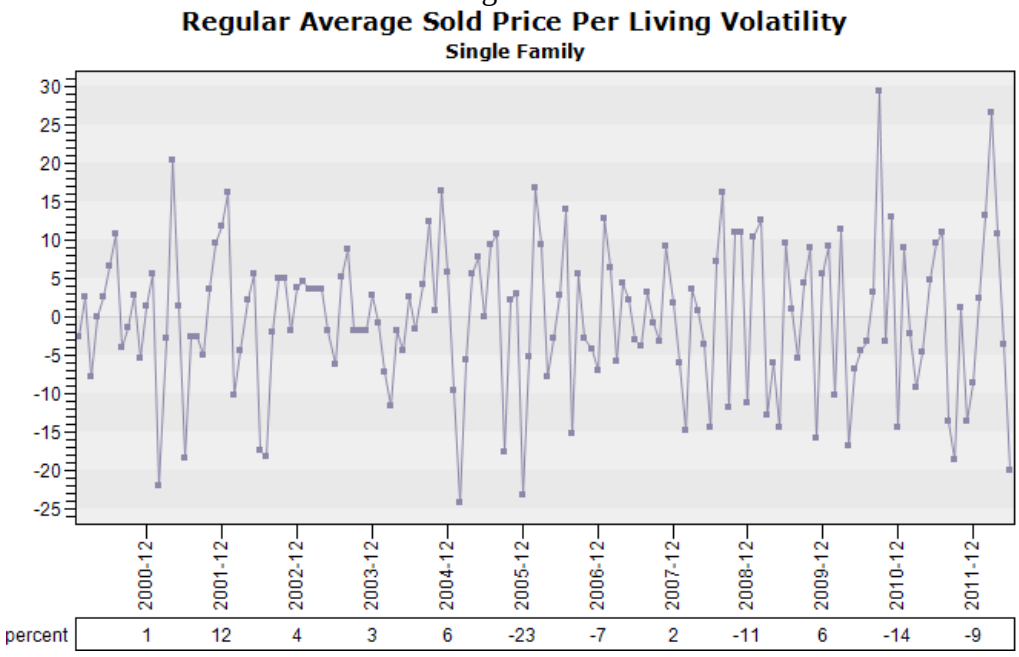


Exhibit 4: La Jolla, 92037, Sales Price Per Square Foot Variation Around the Moving Average Price Trend



Knowing that a zip code tends to be larger than a neighborhood, we take the price per square foot of all the sales and de-trend the prices using a Hodrick-Prescott Filter. The result shows the typical noise or price dispersion around the trend. We see that the zip code in Toms River has about half the volatility of La Jolla, but is still is about plus or minus 5%. This particular zip code was selected because it was the most homogeneous out of some 15,000 urban zip codes, with an active market based on significant sales volume. By comparison we observe plus or minus 10% to 15% in the La Jolla zip code selected. Drilling down to try and utilize a smaller geography more akin to a neighborhood, we selected a submarket surrounding a particular home within the Toms River zip code and show this in Exhibit 5. Here, we observe the problem of thinner markets, even with a very homogeneous set of homes, and the monthly volatility around the prices is closer to that observed in La Jolla, 92037. The point is that all markets exhibit variation in prices and that all homes can sell over a range of prices depending on the factors described above.

Exhibit 5: Neighborhood Within Toms River, NJ, 08757, based on the sold homes surrounding 22 Roxton Place.



Conclusions

All homes have a range of prices over which they may sell at any point in time and even in very homogeneous active markets, that range can easily run plus or minus 5%. Perhaps it is time to provide a confidence band range as well? This will shed light on the limits of appraisal as well as the riskiness of a particular estimate of the loan-to-value ratio, a common use of appraisals.

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Appendix 4: Sample of the State Foreclosure Rate Correlations MBA data 1972-2002 (Negative Correlations Shaded)

	AL	AK	AZ	AR	CA	CO	CT	DE	DC	FL
AL	1.00									
AK	0.48	1.00								
AZ	0.58	0.87	1.00							
AR	0.35	0.65	0.65	1.00						
CA	-0.16	-0.40	-0.25	-0.40	1.00					
CO	0.26	0.78	0.88	0.69	-0.32	1.00				
CT	0.39	-0.20	-0.12	-0.26	0.69	-0.43	1.00			
DE	0.27	-0.32	-0.22	0.26	0.35	-0.34	0.58	1.00		
DC	0.05	-0.32	-0.26	0.07	0.55	-0.33	0.49	0.79	1.00	
FL	0.72	0.49	0.76	0.58	0.10	0.58	0.34	0.34	0.22	1.00
GA	0.89	0.39	0.50	0.52	-0.19	0.20	0.41	0.51	0.18	0.74
HI	-0.07	-0.38	-0.29	0.08	0.39	-0.25	0.25	0.72	0.87	0.18
ID	-0.05	0.25	0.38	0.81	-0.31	0.60	-0.49	0.21	0.09	0.37
IL	0.08	-0.26	-0.07	0.48	0.06	-0.04	0.04	0.78	0.67	0.31
IN	0.24	-0.11	0.03	0.62	-0.16	0.03	-0.01	0.76	0.48	0.35
IA	0.43	0.66	0.79	0.91	-0.33	0.85	-0.26	0.12	-0.08	0.73
KS	0.52	0.72	0.94	0.65	-0.18	0.87	-0.14	-0.14	-0.23	0.78
KY	0.17	-0.06	0.05	0.65	-0.29	0.09	-0.19	0.62	0.38	0.25
LA	0.49	0.83	0.85	0.91	-0.32	0.85	-0.17	0.05	-0.10	0.72
ME	0.42	-0.31	-0.17	-0.19	0.46	-0.52	0.86	0.62	0.40	0.27
MD	0.19	-0.30	-0.21	0.24	0.45	-0.28	0.57	0.96	0.88	0.36
MA	0.57	0.05	0.12	-0.24	0.39	-0.25	0.88	0.28	0.10	0.39
MI	0.24	-0.17	-0.01	0.55	-0.11	-0.05	0.03	0.76	0.47	0.30
MS	0.79	0.39	0.55	0.60	-0.22	0.30	0.31	0.47	0.05	0.75
MN	0.40	0.70	0.93	0.61	-0.16	0.94	-0.24	-0.25	-0.26	0.74
MT	0.09	0.58	0.68	0.80	-0.28	0.89	-0.43	-0.10	-0.15	0.56
NE	-0.01	0.22	0.50	0.51	-0.18	0.59	-0.51	-0.08	-0.08	0.33
MO	0.34	-0.10	0.09	0.56	0.07	0.00	0.23	0.86	0.63	0.48
NV	-0.17	0.10	0.40	0.39	0.01	0.60	-0.49	-0.10	0.04	0.31
NH	0.55	0.20	0.22	-0.11	0.34	-0.16	0.82	0.30	0.17	0.40
NJ	0.50	-0.09	0.00	-0.21	0.50	-0.36	0.95	0.50	0.33	0.41
NM	0.48	0.56	0.65	0.93	-0.29	0.61	-0.14	0.39	0.27	0.69
NY	0.38	-0.22	-0.18	-0.14	0.60	-0.47	0.97	0.72	0.57	0.33
NC	0.48	0.01	0.13	0.62	-0.12	0.01	0.25	0.83	0.47	0.51
ND	-0.07	0.47	0.63	0.48	-0.17	0.84	-0.50	-0.40	-0.31	0.40
OH	0.15	-0.20	0.01	0.51	-0.08	0.01	-0.08	0.67	0.50	0.27
OK	0.17	0.78	0.82	0.76	-0.28	0.96	-0.38	-0.26	-0.27	0.57
OR	-0.06	0.14	0.41	0.47	-0.16	0.59	-0.51	-0.08	-0.02	0.30
PA	0.45	-0.07	0.04	0.45	0.26	-0.13	0.56	0.95	0.73	0.53
RI	0.24	-0.44	-0.33	-0.34	0.73	-0.60	0.94	0.69	0.64	0.20
SC	0.40	0.16	0.34	0.79	-0.15	0.36	0.05	0.65	0.34	0.64
SD	-0.05	0.30	0.40	0.55	-0.45	0.66	-0.60	-0.17	-0.35	0.22
TN	0.62	0.16	0.24	0.63	-0.25	0.05	0.24	0.72	0.35	0.51
UT	0.20	0.43	0.64	0.78	-0.39	0.73	-0.51	0.04	-0.06	0.49
TX	0.58	0.83	0.90	0.73	-0.11	0.83	0.07	0.01	-0.13	0.82
VA	0.43	-0.17	-0.08	0.15	0.48	-0.32	0.82	0.91	0.75	0.48
VT	0.12	-0.08	0.02	-0.07	0.24	-0.13	0.27	0.15	0.22	0.11
WA	-0.07	0.04	0.30	0.64	-0.03	0.50	-0.34	0.33	0.28	0.40
WV	0.50	0.28	0.30	0.79	-0.29	0.20	0.10	0.66	0.37	0.53
WI	0.04	0.06	0.39	0.50	-0.12	0.51	-0.43	0.12	0.11	0.39

WY	0.02	0.54	0.69	0.56	-0.19	0.92	-0.46	-0.35	-0.33	0.47