

Retrospective AVMs – How Do They Work & How Accurate Are They?

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Meat Loaf once sang, “It was long ago and it was far away, and it was so much better than it is today...” I’m not sure that he was contemplating property values, but the lyrics are applicable nonetheless. The decline in property values is creating significant interest in retrospective AVMs, which provide a property valuation estimate at a date in the past. Clients use these values for several purposes; the most common of which is repurchase risk management. As retrospective AVMs gain greater acceptance, it is appropriate to discuss how they are developed and what users can expect. While this article is based solely on CoreLogic retrospective AVMs and test results, it is meant to provide a good baseline for understanding retro tools and to suggest questions that users might want to ask retro AVM developers.

When we produce a retrospective AVM, our goal is to create the most accurate valuation possible on a given date in the past. This is different than replicating the value that the model would have produced had it been run on the historical date. As a result, users should expect retro values to differ from original values produced in the past. To understand retrospective valuation, it is necessary to give a short outline of how AVMs provide current values. At a high level, an AVM relies on four components to produce a value:

- ▶ Data – identifies the subject property, characteristics, and comparable properties;
- ▶ Comparable Property Selection – the set of properties upon which the valuation estimate will be based;
- ▶ Indexes – any method of valuing a property that uses recent sales must have a way to bring recent sale data forward to the current date; and
- ▶ Model – the algorithm that generates a value based on the input data.

Depending on the time elapsed between the current and retrospective dates, any or all of these components may change. For the purposes of this paper, let’s look at a specific example. We will assume that today is July 30, 2010 and we would like our AVM to estimate a property value for December 1, 2007. Our AVM will apply today’s model against today’s database including all comparable properties that sold prior to 12/01/07. As we’ll see, our retrospective AVM will most likely differ from what the same AVM result would have reported had it been run originally on 12/01/07.

Data – CoreLogic has updated data from county records, including updated property attributes, which may differ from what was known on 12/01/07. Also, CoreLogic has acquired new data sources, which reveal broader characteristic data on the subject and comparable properties than were available on 12/01/07.

Comparable Sales – Because we now have more property characteristic data, we can identify comparable properties that better resemble the subject property. Updated data also allows us to now consider comparable properties that sold prior to or on 12/01/07, but the sale was recorded after 12/01/07. These sales would not have been in our database for consideration on the retro date. Making better comparable selections and using very recent sales information will result in a more accurate AVM result.

Indexes – Similar to AVMs, indexes are based on all sales data available at the time the index is produced. As new sale transactions are incorporated into the database, indexes are updated to reflect the broader data. Depending on the timeliness of assessor recordings, it can take several months for all relevant sales information to be incorporated into an index. Between 12/01/07 and today, the indexes for the months immediately preceding the retro date would have adjusted to incorporate all relevant sale data. The adjusted indexes are more accurate than the preliminary indexes, which will lead to a more accurate valuation result.

Model – All CoreLogic models are continuously adjusted to produce the most accurate values possible, given the data we have available. Over time, our models have become significantly more accurate – even during times of market volatility. As a result, we calculate the retrospective AVM values using the best available current model methodology.

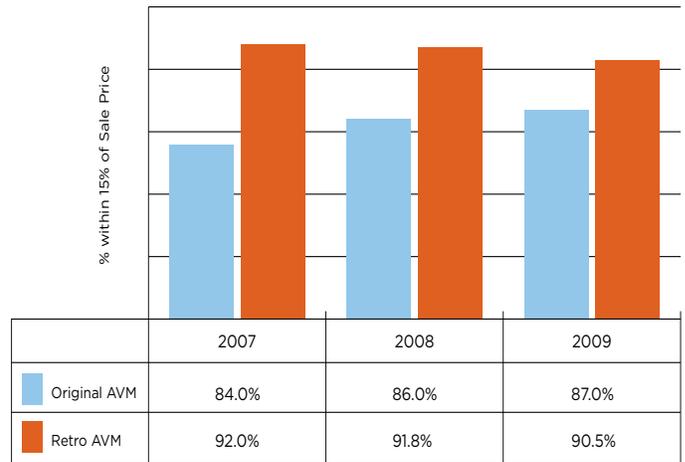
We know intuitively that the updated data, indexes and models should produce better results, but do they? And how much do retro values differ from the original results produced historically by the models? And does the length of elapsed time matter? To answer these questions, we performed a few tests. We created three test files – one each from 2007, 2008 and 2009. Each file contains the benchmark value (sale price), an original AVM, and a retrospective AVM run in 2010 under stringent blind-testing conditions to ensure the retrospective AVM had no knowledge of the actual sale price. The chart shows the accuracy of original and retrospective AVMs compared to sale prices.

The two bars “2007” reference a test file of property sales originally produced in 2007. The blue bar “2007” shows that 84% of the original AVMs from the 2007 test file were within 15% of the sale price. We also ran retrospective AVMs on each of these addresses, as of the day before the sale date¹. The 2007 orange bar means that 92% of the retrospective AVMs run on the 2007 data were within 15% of the sale price.

We can draw several conclusions from these results:

- ▶ Original AVMs have become increasingly accurate each year relative to sale prices (trend in blue bar);
- ▶ Retrospective AVMs leverage updated data and models to become more accurate than the original AVMs (difference between orange bar and blue bar); and
- ▶ It is logical to expect that retrospective AVMs will be better once more time has elapsed. Over time, vendors acquire more data, updated property characteristics and seasoned indices. Testing reveals that retrospective AVM accuracy remains relatively constant once a certain number of months has passed, although changes are still evident two years after the retrospective date (trend in orange bar)².

ACCURACY OF ORIGINAL AVM AND RETRO AVM VS. SALE PRICE



We also compared the retro AVM to the original AVM. For each year, between 72% and 78% of all properties have a retro value that is within 10% of the original value. This tells us that roughly a quarter of the time, the new data or model results in a material change, but that the typical scenario is a modest difference between the retrospective value and the value the model originally returned on the retrospective date.

So why is all this important? Well, if retro AVMs are consistently accurate relative to historical sales prices, they offer an inexpensive way to initially test the quality of the original valuations, whether obtained through an appraisal or AVM. If the retrospective AVM reveals a significant price discrepancy, it might be time to dig deeper into the original valuation and/or loan file.

1 For example, a transaction dated 6/15/07 would have been processed using the current model (2010) applied against any transaction data on or before 6/14/07. These AVMs would have been produced without knowledge of the sale price in question.

2 We suspect that going too far back in time will degrade the performance of retrospective AVMs because the current modeling approach will not reflect the historical market. The testing we performed only went back two years, so further testing would be needed to determine how far back is too far back for retrospective AVMs to be useful.

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