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Appreciating Home Appreciation

By Jack C. Harris

Tracking local housing market appreciation makes good sense for real estate professionals. Appreciation is a measure of an area's housing demand. It shows how well homes are performing as investments. And it can be a strong selling point.

Go Figure

Tracking sales prices gives an indication of value change. The percentage change in median market price can be calculated using Multiple Listing Service (MLS) data. However, median price per square foot is a better indicator. Larger homes sell for more than small homes, but they might not sell for more per square foot. The median price per square foot measure is not distorted as much by a change in the mix of home sizes sold. A price index is a superior base for estimating appreciation, compared with average or median prices.

The easiest way to figure appreciation is to collect a sample of home sales in the current period and compare the average or median sales price of that sample to a similar sample from the previous year. Average and median prices for home sales through local MLSs are available on the Real Estate Center's website (recenter.tamu.edu).

The problem with this method of figuring appreciation is that the sample of 2003 sales may not be comparable to the 2002 sample. This problem can be reduced by enlarging the sample. Instead of one month, the whole first quarter could be used.

The Texas total sample is the sum of all local markets that report data to the Real Estate Center. If a greater number of high-priced sales are reported this year compared with last year, calculating appreciation from average or median prices will overstate the change in value.

Table 1. Estimated Texas Housing Appreciation

Data source	Value		Appreciation (in percent)
	4th Quarter 2001	4th Quarter 2002	
Median price	$121,000	$125,260	3.52
OFHEO index	178.06	184.20	3.45

Sources: Real Estate Center at Texas A&M University and Office of Federal Housing Enterprise Oversight

Table 2. Estimated Housing Appreciation Bryan-College Station, Texas

Data source	Value		Appreciation (in percent)
	4th Quarter 2001	4th Quarter 2002	
Median price	$113,800	$122,370	7.53
OFHEO index	127.82	130.70	2.26

Sources: Real Estate Center at Texas A&M University and Office of Federal Housing Enterprise Oversight

To minimize this distortion, appreciation could be calculated for each individual market using samples from each of those markets. Because both this year's and last year's sample would then come from the same market, one major element of difference would be eliminated.

But local samples are much smaller, and that is a problem. While about 16,000 sales were reported statewide during March 2003, some metropolitan markets had as few as 100 sales. Small samples are more likely to be dominated by one type of property in any period and therefore may be less representative.

How do appraisers set values? They do not take a random sample of sales and use them to estimate the value of a specific property. Instead, they adjust each sales price to account for differences between the subject property and a comparable property. This is usually done with computerized statistical analysis that estimates the effect of each characteristic and adjusts the price to what it would have been if the comparable property was identical to the subject.

Price Index

When the objective is to estimate a representative market value instead of the market value of a specific property, a price index can be used as an indicator of the change in value. The price index represents a relative value and usually is pegged to a specific period.

For example, if the index is first estimated in January 1990, that value might be set arbitrarily at 100. If the results of the calculation in January 2000 are exactly twice what they were in 1990, the index has a value of 200. To calculate the rate of appreciation using this index, calculate the percentage change in the index. Appreciation was 100 percent over the ten-year period.

A widely available housing price index is compiled by the Office of Federal Housing Enterprise Oversight (OFHEO), a federal agency that monitors Freddie Mac and Fannie Mae. The agency has access to massive amounts of loan data from these organizations and uses those data to estimate the index.

Table 1 compares the appreciation rate indicated by the index for Texas homes to the percentage change in median home price over a one-year interval. In this case, the difference is minimal.

Table 2 shows the same comparison for Bryan-College Station, a much smaller market. In such a case, using unadjusted prices can provide a misleading impression of a market.

How OFHEO Index Is Compiled

While it is possible to find house price indexes compiled in some large cities, the OFHEO House Price Index (HPI) is the only one that covers jurisdictions across the United States with consistent methodology and data. The HPI uses data on house prices and characteristics collected by Fannie Mae and Freddie Mac. These two government-sponsored enterprises buy the majority of home mortgages originated in the country and have extensive files on the homes that secure those loans.

The HPI is a "repeat sale" index, meaning that only properties that have sold or been refinanced more than once within the time covered by the database are used to compute the index. This severely restricts the number of transactions that can be used. In the 28-year span covered by the data, however,

Table 3. Quarterly Index Values

MSA	Earliest Data Available
Abilene	4th Quarter 1987
Amarillo	1st Quarter 1983
Austin	1st Quarter 1980
Beaumont–Port Arthur	1st Quarter 1980
Brazoria	1st Quarter 1980
Bryan–College Station	1st Quarter 1985
Corpus Christi	2nd Quarter 1981
Dallas	1st Quarter 1980
El Paso	4th Quarter 1983
Fort Worth	1st Quarter 1980
Galveston	1st Quarter 1985
Houston	1st Quarter 1980
Killeen–Temple	2nd Quarter 1986
Laredo	3rd Quarter 1993
Longview	3rd Quarter 1983
Lubbock	2nd Quarter 1983
McAllen	2nd Quarter 1989
Odessa–Midland	1st Quarter 1981
San Angelo	4th Quarter 1986
San Antonio	1st Quarter 1980
Sherman–Denison	1st Quarter 1987
Texarkana	4th Quarter 1992
Tyler	3rd Quarter 1985
Victoria	4th Quarter 1992
Waco	3rd Quarter 1986
Wichita Falls	2nd Quarter 1989
Texas	1st Quarter 1975

Source: Office of Federal Housing Enterprise Oversight

the database has yielded almost 20 million repeat transactions that can be used for the HPI.

The good thing about the repeat-sale technique is that each price change observation is based on a house with the same characteristics (unless it has been modified between transactions) and location. For example, researchers might find that, on average, houses that sold this quarter in area X sold for 25 percent more than they did three years ago. Therefore, these sales might indicate that an index value of 100 three years ago should have a value of 125 today.

As more transactions are included, bringing in data on a variety of time spans, the index becomes more statistically creditable. OFHEO requires that an area have at least 1,000 transactions to be included and at least ten transactions for a quarterly value to be reported.

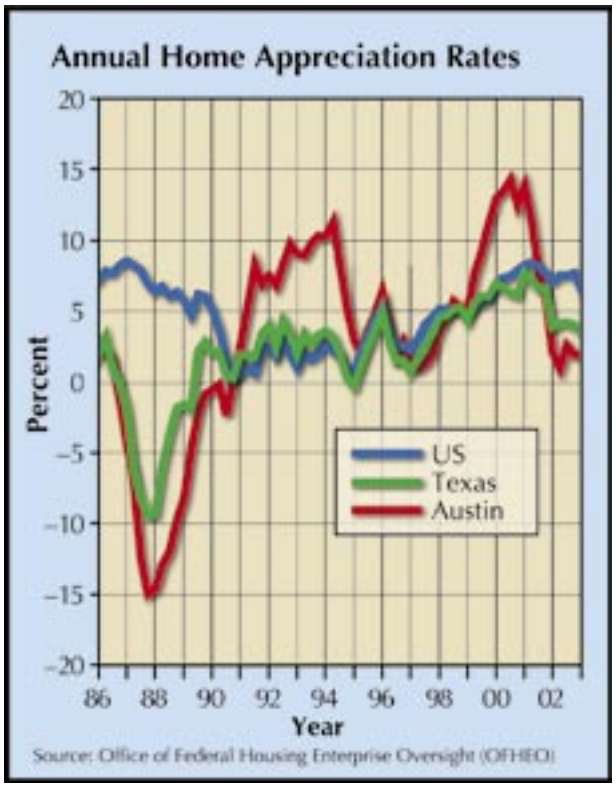
Despite these constraints, an HPI time series is available for Texas and for all 27 Metropolitan Statistical Areas (MSAs) in the state. The length of the series is not the same for all areas because of the requirement for at least ten transactions (see Table 3 for the earliest quarter available in each MSA). This means that reliable appreciation data can be accessed easily and cheaply for every metro area in Texas. Figures are not available for counties or individual cities.

OFHEO's methodology has some limitations. Mortgages in the database are conventional loans, meaning that FHA loans, VA loans and jumbo loans (those too large for Fannie Mae or Freddie Mac to purchase) are excluded. Consequently, the HPI does not reflect the experience of the lowest- and highest-priced homes in the market. It does, however, reflect the price range most homebuyers consider.

Use of the repeat-sale method introduces some bias because of the dominance of homes that turn over frequently. This bias is minimized to some extent because so many home mortgages have been refinanced in recent years.

Data and Market Trends

The index makes calculating appreciation rates easy. The percentage change in index values equals average appreciation in that market. To arrive at annual appreciation rates, calculate the percentage difference between the current quarter and the same quarter of the previous year.



Total appreciation over a longer period can be calculated. The graph shows appreciation rates for the entire country, the state and the Austin metro area from 1986 to third quarter 2002.

Some have touted the fact that houses have never gone down in value. The graph shows this is true when all U.S. markets are combined. However, it is not true for individual markets.

Texas was severely hit by the oil glut and savings-and-loan crises of the late 1980s. Since then, Texas markets as a whole have mimicked national averages, until the last few years. Recent U.S. averages have stayed relatively high because of strong appreciation in the Northeast and on the West Coast (the so-called "bubble" markets). Note how much more volatile prices are in the Austin market than in the state as a whole.

For examples of calculating appreciation rates using the OFHEO Price Index, see "Sample Calculations."

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Sample Calculations

OFHEO updates its House Price Index quarterly. Reports are accessible on the agency's house price index website (www.ofheo.gov/HPI.asp) and include appreciation rates for the last quarter, last year and last five years.

Annual appreciation rates are available for any one-year interval. For example, to find out how much houses in Austin–San Marcos gained in value during 2001, go to the OFHEO website and click on "Metropolitan Statistical Areas." Scroll down to select "Austin–San Marcos." Click "search." Annual appreciation rates for the entire index series, in this case beginning with third quarter 1978, will be displayed. Scroll down to fourth quarter 2001 to find that the index increased by 6.01 percent during that year.

To determine how much Austin–San Marcos homes appreciated from 1990 to 2000, go to www.ofheo.gov/HPI.asp and select "Downloadable HPI Data." From the next menu, select "Manipulatable data for the MSAs." Data is available as a TXT file or as an EXCEL file, which can be downloaded to a spreadsheet. This file is large because it includes every metro area in the country. Scroll down to the data for Austin–San Marcos for fourth quarter 2000 (144.03), then for fourth quarter 1990 (73.55). To calculate the percentage change between these two appreciation rates, subtract the 1990 figure from the 2000 figure:

144.03 – 73.55 = 70.48

Then divide the difference by the 1990 index value and express as a percent:

70.48 / 73.55 = 0.958 or 95.8 percent.

In other words, homes in the Austin–San Marcos area almost doubled in value during the decade.

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