



SPECIAL COMMENTARY

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How Far Will Housing Prices Fall?

Mark Vitner, Senior Economist

mark.vitner@wachovia.com

704-383-5635

Adam G. York, Economic Analyst

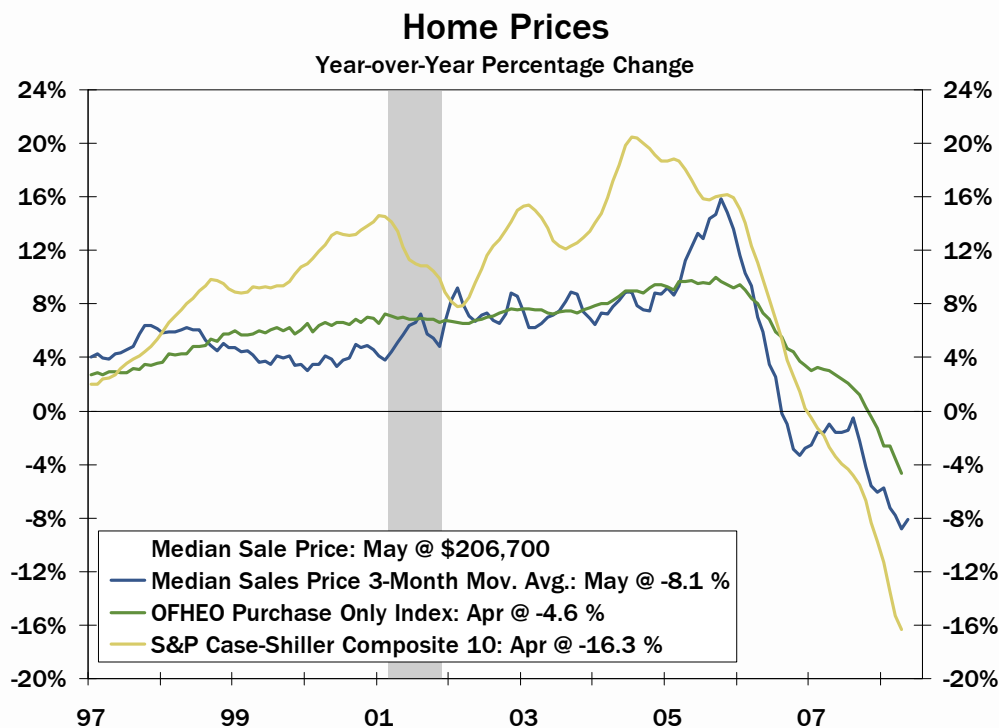
adam.york@wachovia.com

704-715-9660

We are repeatedly asked how far housing prices will fall and when home prices will bottom out. The answers to these questions are complicated. The current housing slump is without precedent, both in terms of breadth and magnitude. In addition, home prices are measured several different ways and the magnitude of price changes varies considerably.

Figure 1

The current housing slump is without precedent, both in terms of breadth and magnitude.



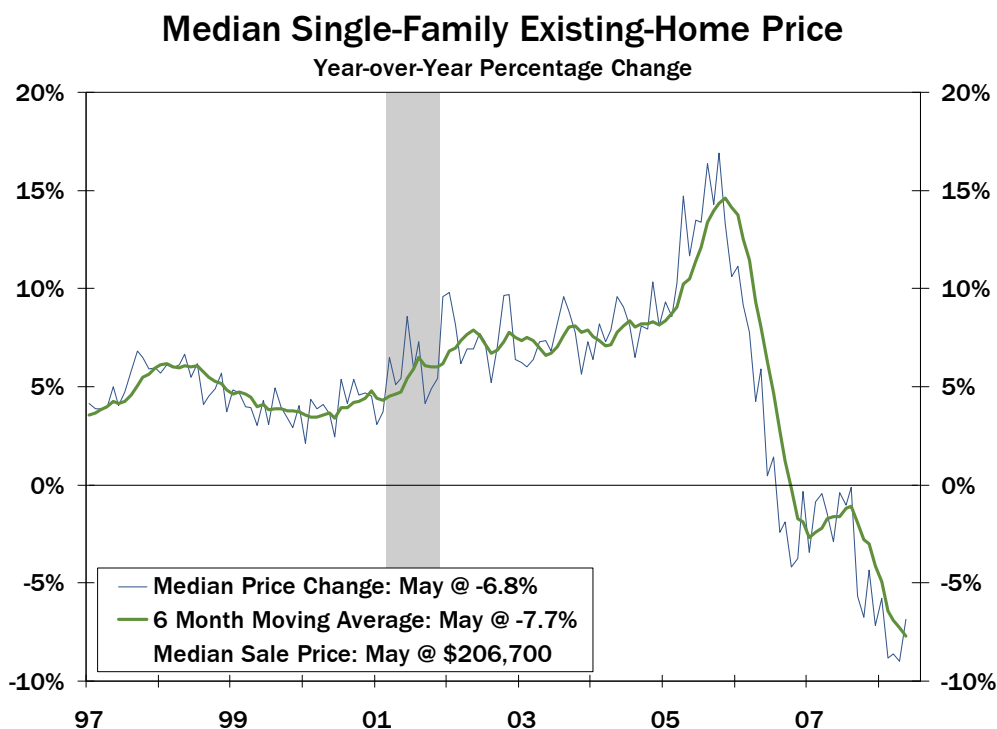
Source: National Association of Realtors, Office of Federal Housing Enterprise Oversight, S&P Corp. and Wachovia

The most popular home price measures are the Office of Federal Housing Enterprise Oversight's (OFHEO) House Price Index (HPI), the S&P/Case-Shiller National Home Price Index, and the Median Existing Home Price, published by the National Association of Realtors (NAR). All three are currently down on a year-to-year basis and the pace of decline in some series appears to be accelerating.

National Association of Realtors Median Price of an Existing Home

The median sales price of an existing home is a fairly simple concept. The NAR defines an existing home as one that has been previously owned and occupied. Sales prices are gathered from all the existing homes sold in a given month, then ranked from least expensive to most expensive. The median price is the price of the house that falls in the middle of this price spectrum. By definition, half the homes sold during that month were sold for prices below the median and half the homes sold during that month were sold above the median.

Figure 2



Source: National Association of Realtors and Wachovia

Prior to the recent string of declines, the median price of an existing home had never declined for more than two months in a row.

According to the NAR, the median price of an existing home has fallen 6.8 percent over the past year and has been down on a year-to-year basis for the past 22 months. Prior to the recent string of declines, the median price of an existing home had never declined for more than two months in a row, except once back in 1990. The cumulative decline in the median price is now 11 percent, falling from a peak of \$228,733 back in October 2005 to \$203,643 in May 2008.¹

¹ We seasonally adjusted the National Association of Realtors data so that a clear peak could be isolated and various months' data compared.

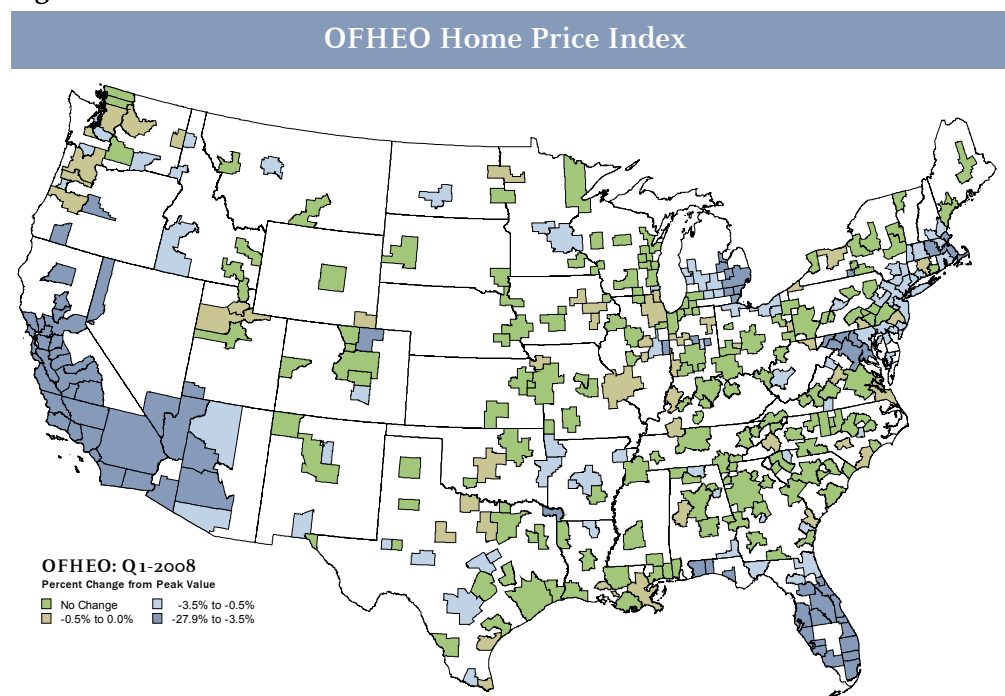
OFHEO Home Price Index

The OFHEO Home Price Index (HPI) is a weighted, repeat-sales index, which measures average price changes from repeat sales or refinancings of the same properties. The price data measure changes in prices of single-family properties whose mortgages have been purchased or securitized by Fannie Mae or Freddie Mac. The OFHEO HPI price data cover a wide geographic area, encompassing nine Census Bureau divisions, 50 states and the District of Columbia, and nearly every Metropolitan Statistical Area (MSA). OFHEO also produces a purchase-only home price index, which excludes refinancings.

Prices in the OFHEO purchase-only series peaked in April 2007 and are currently down a cumulative 4.6 percent. Most regions peaked within a few months of the national index, with the exception of the West South Central, where there is no apparent peak. Prices are clearly down the most along the Pacific Coast, where they have declined a cumulative 15.1 percent since peaking in March 2007. Prices are off 5.1 percent in the Mountain region and down 4.9 percent in the South Atlantic region. By contrast, prices in the East South Central region are off just 0.5 percent since prices peaked in June of last year and prices in the West South Central region, which includes Texas, are actually up 1.9 percent over the past year.

Prices in the OFHEO purchase-only series peaked in April 2007 and are currently down a cumulative 4.6 percent.

Figure 3



Source: Office of Federal Housing Enterprise Oversight and Wachovia

S&P/Case-Shiller National HPI Covers a Broader Mortgage Universe

Although both the OFHEO and S&P/Case-Shiller home price indices employ the same fundamental repeat-valuation approach, there are several key differences between the series. The S&P/Case-Shiller indices only use purchase prices in their index calculations, while the all-transactions OFHEO HPI includes appraisals from refinancings of existing mortgages. Another key difference between the price measures is that the S&P/Case-Shiller indices include properties financed with

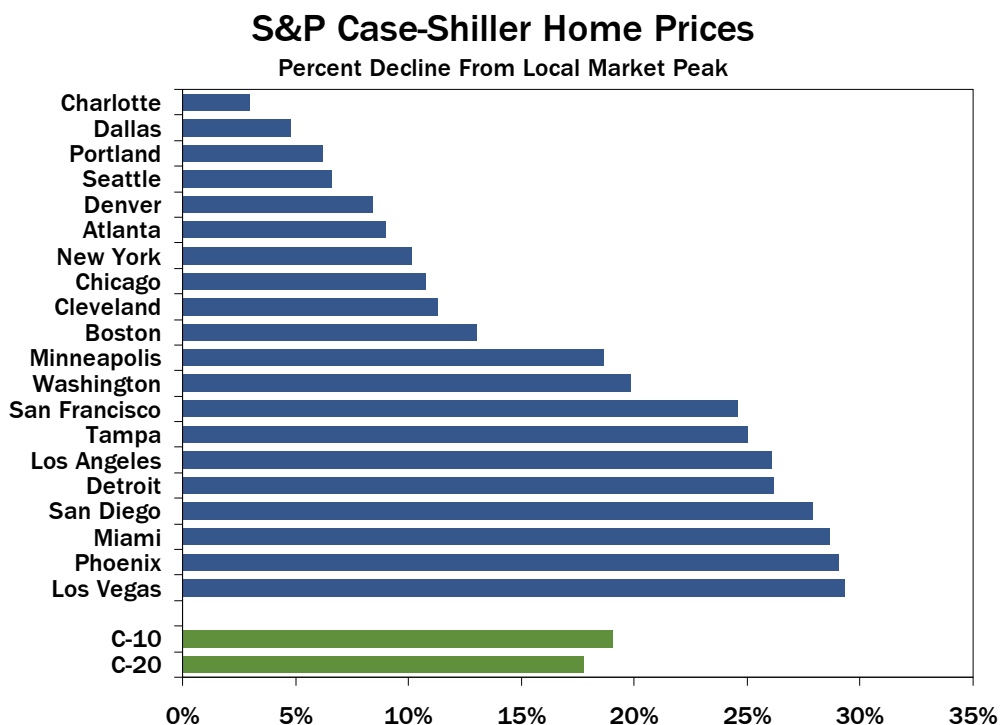
jumbo mortgages, FHA, VA, subprime, private sources and properties purchased for cash.

While the financing universe is broader, the S&P/Case-Shiller National HPI has a much more limited geographic coverage. The index does not include any data from 13 states. While S&P states that the index covers 71 percent of national home sales, coverage appears to be strongest in coastal areas, where home prices have been most volatile, and weakest in the interior of the country, where prices have been least volatile.

The OFHEO and S&P/Case-Shiller indices are also weighted differently. The S&P/Case-Shiller indices are value-weighted, meaning that price changes in parts of the country with higher prices have a greater influence on the national index. This has led to much more volatility in the S&P/Case-Shiller series, since price swings have been far more dramatic in high-prices areas of the country such as California, Florida and parts of the Northeast. By contrast OFHEO's home price indices assign equal weights to all properties.

There are three national indices produced by S&P, a 10-city composite, a 20-city composite and the U.S. National Home Price Index. The 10-city composite goes back to 1987, while the 20-city composite has data back to 2000. Both series peaked within a month of each other. The 10-city index peaked in June 2006 and is currently down a cumulative 19.0 percent. The 20-city index peaked one month later and is down a total of 17.5 percent. The S&P/Case-Shiller U.S. National Home Price Index is published quarterly and has a broader geographic coverage, with data on all nine U.S. Census divisions.

Figure 4



Source: S&P Corp. and Wachovia

Forecasting Price Movements Is Hazardous

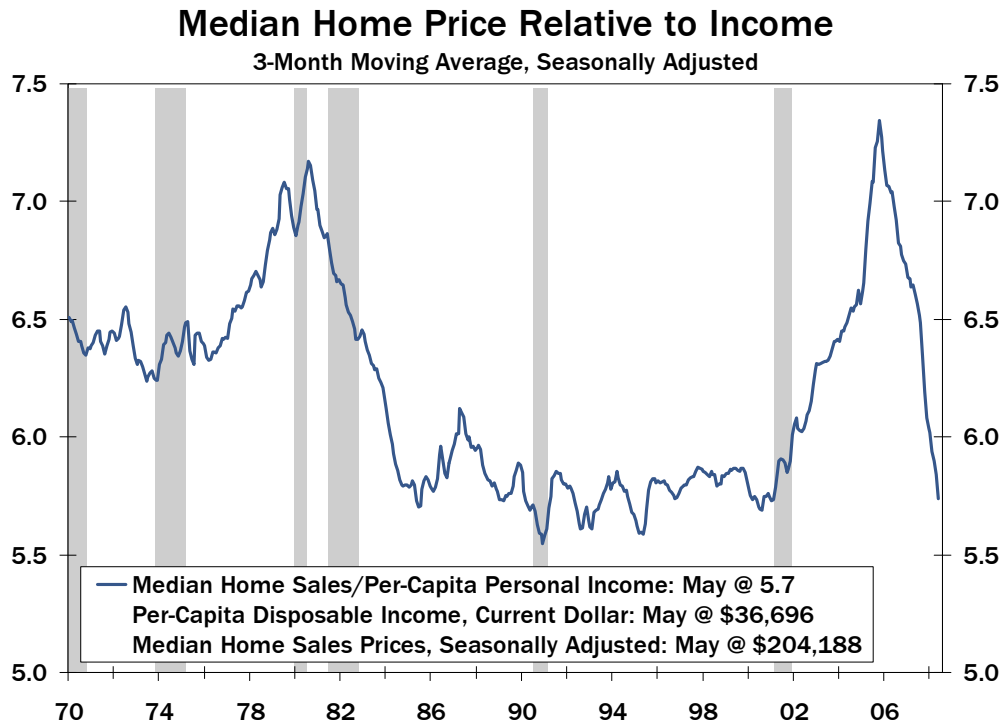
Estimating how far prices will decline is more art than science. The current housing boom is without precedent in the modern era. Two popular benchmarks that have worked well at identifying the extent at which housing has become overvalued in past regional housing busts are housing prices relative to per capita income and housing prices relative to the owners' equivalent rent component of the Consumer Price Index.

Housing Prices Are Moving Back In Line With Income

While we would prefer to compare household income to home prices, reliable figures for household income are only available on an annual basis and even then there are different methods to compute the numbers. Per capita disposable income is available on a monthly basis from the U.S. Department of Commerce. Figure 5 compares the Median Sales Price of an Existing Home with per capita disposable income back to 1970.

Two popular benchmarks that identify the extent housing has become overvalued in the past are housing prices relative to per capita income and housing prices relative to the owners' equivalent rent.

Figure 5



Source: National Association of Realtors, U.S. Department of Commerce and Wachovia

Over the entire period, the median sales price has been on average 6.19 times per capita income, on a three-month moving average basis. The ratio reached its peak of 7.34 in October 2005 and its low was hit at 5.55 in December 1990. The previous peak was 7.17 hit back in August 1980. The period between 1984 and 2001 saw relative stability in the median sales price to per capita income ratio, with average ratio of 5.80 and a peak of 6.12 and low of 5.55.

The most recent reading shows housing prices at 5.74 times higher than per capita income in May, or just 0.19 point above the all-time low. One caveat is that per capita income was boosted by the tax rebates in May, which reduced the ratio.

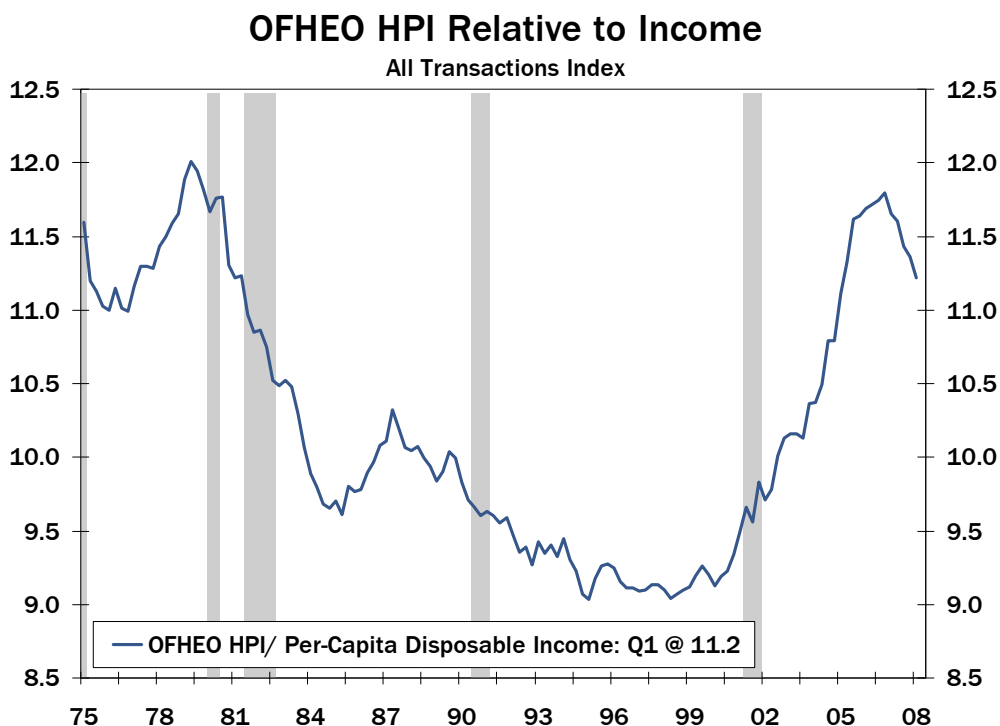
We estimate the trough in the median sales price of an existing home will be around \$189,000, which would produce a peak-to-trough decline of 17.2 percent

Based on a comparison between housing prices and per capita income, there has already been a substantial correction in home prices and this particular measure suggests prices are close to the bottom.

So where will the median sales price bottom out? Median prices to per capita disposable income exceeded its previous peak by about 2.4 percent. A reasonable first assumption is that a bigger boom will produce a bigger bust. If the bust is larger by about the same magnitude that the boom was bigger, this would produce a median sales price to per capita disposable income ratio of around 5.41. While the tax rebates will complicate this calculation in coming months, we estimate this measure would put the trough in the median sales price of an existing home at around \$189,000 late this year, which would produce a peak-to-trough decline of 17.2 percent sometime around the middle of next year. The decline to date already totals 11.2 percent, or about two-thirds of the anticipated drop.

The same procedure can be repeated for the OFHEO home price index and S&P/Case-Shiller home price index. Unfortunately, these two indices do not go back as far as the median sales price data. The OFHEO home price index goes back to 1975 on a quarterly basis, but those data include refinancings and differ slightly from the purchase-only series that we prefer. Recall that the purchase-only index is currently down 3.6 percent from its peak level, while the OFHEO all transactions home price index only recently slipped into negative territory and is currently down just 0.3 percent from its peak.

Figure 6



Source: Office of Federal Housing Enterprise Oversight, U.S. Department of Commerce and Wachovia

Since its inception, the OFHEO HPI relative to per capita disposable income has averaged 10.23 and has seen two notable peaks. The first peak occurred in the

second quarter of 1979 at 12.01. The most recent peak occurred in the fourth quarter of 2006 at 11.80. If the housing bust following the most recent boom plays out along similar lines to what was seen in the early 1980s, the OFHEO HPI relative to per capita disposable income can be expected to fall back to around 9.60, which was the low hit in the 1980 to 1987 period. The correction in home prices during the early 1980s took about five years to play out, which means rising incomes accounted for nearly two-thirds of the correction, in other words much of the correction occurred in real terms as opposed to outright price declines.

The current cycle will likely prove to be shorter, as lenders are more aggressively discounting foreclosed properties. For simplicity, we assume the ratio of home prices to per capita income declines at a linear trend and that per capita income grows at a 3.5 percent annual rate. This would put the peak-to-trough decline in the overall OFHEO HPI at an unbelievably modest 3.7 percent, which would not be reached until late 2011. This finding simply appears nonsensical and highlights some of the problems with the OFHEO all transactions index. This series currently shows only a 0.03 percent decline in home prices on a year-to-year basis.

A similar analysis using the OFHEO purchase-only index puts the peak-to-trough decline at around 12.7 percent, with the bottom being hit around July 2009. The OFHEO purchase-only index is currently down 4.6 percent, which would mean roughly 36 percent of the decline has already taken place.

We also looked back at comparisons between the S&P/Case-Shiller National Home Price Index and per capita disposable income. S&P/Case-Shiller has three 'national' indices – a 10-city composite, which goes back to 1987; a 20-city composite, which goes back to 2000; and the U.S. National Home Price Index, which goes back to 1987. If the S&P/Case-Shiller indices revert back to the normal level relative to income that prevailed in the mid to late 1990s, the 10-city composite index will post a peak-to-trough decline of 36.0 percent and the 20-city composite will see a peak-to-trough drop of 35.1 percent. Under the same rationale the peak-to-trough decline in the S&P/Case-Shiller National Home Price Index would be 28.3 percent.²

Home Price Relative to Owners' Equivalent Rent

All the preceding forecasts are based on the historic relationship between housing prices and per capita disposable income. Another relationship that has worked well at gauging the extent housing has become overvalued is a comparison of housing prices to housing rents. The rationale for comparing home prices versus rents is that there is a financial trade-off between owning and renting a home. Moreover, the implied rent in a home can also be interpreted as the income stream to a homeowner, as this is what they would be paying in rent if they were renting their home instead of buying it.

One of the easiest and most consistent methods of comparing home prices with implied rents is to compare various measures of home prices with the owners' equivalent rent (OER) series from the Consumer Price Index. Owners' equivalent rent is produced by the Bureau of Labor Statistics (BLS) as part of the computation of the monthly Consumer Price Index. According to the BLS, owners' equivalent rent measures the change in the implicit rent, which is the amount a homeowner would

The OFHEO HPI relative to per capita disposable income can be expected to fall back to around 9.60, which was the low hit in the 1980 to 1987 period.

If the S&P/Case-Shiller indices revert back to levels relative to income that prevailed in the mid to late 1990s, the 10-city composite will post a peak-to-trough decline of 36.0 percent and the 20-city composite will decline 35.1 percent.

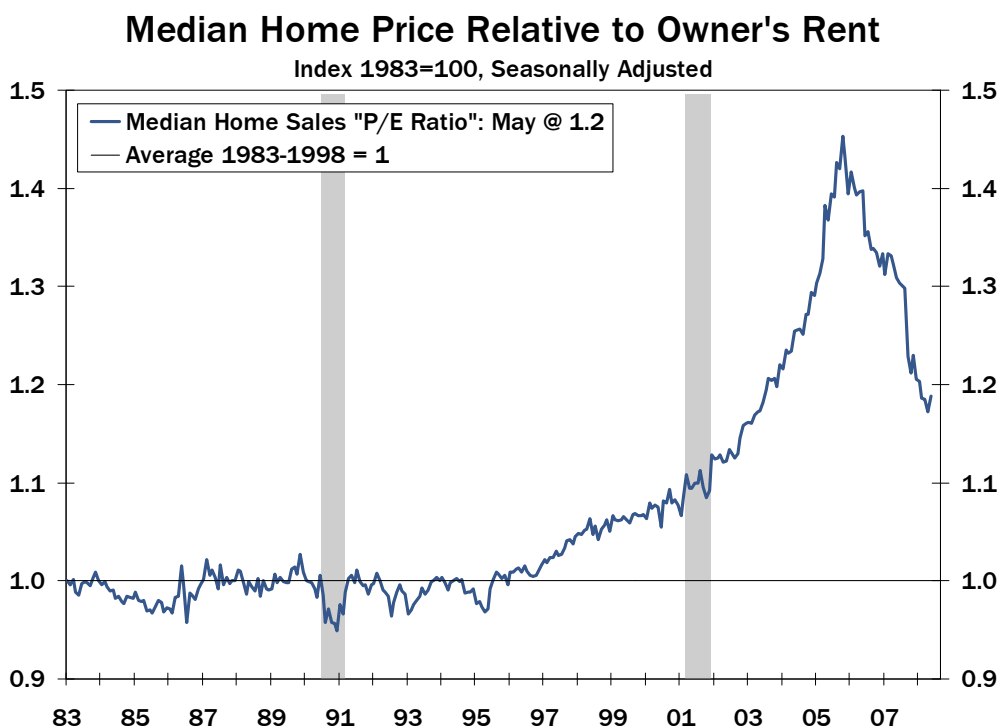
² See Figure 9, page 10.

pay to rent, or would earn from renting, their home in a competitive marketplace.³ The BLS calculates this series from an exhaustive survey of rental properties around the country. While there is considerable debate on the merits of using owners' equivalent rent in the computation of the CPI, the series works relatively well in computing a price-to-earnings ratio for housing.

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We compared the NAR Median Price of an Existing Home, the OFHEO purchase-only home price index, the S&P/Case-Shiller 10-city composite and the national home price index with the owners' equivalent rent series to develop four different P/E ratios. The ratio is calculated by indexing both owners' equivalent rent and the various home price indices to January 1983 and then dividing the median price of existing homes index by the owners' equivalent rent index. The P/E ratio using the NAR median sales price of an existing home peaked at 1.45 back in October 2005, up from its low of 0.95 hit in December 1990 and an average of 1.0 between 1983 and 1998, which generally predates the housing boom.

Figure 7



Source: National Association of Realtors, U.S. Department of Labor and Wachovia

Using the NAR data, the P/E ratio for housing is currently 1.188, which implies that considerable additional declines in home prices will be necessary to bring prices back in line with their historical norm. If the P/E ratio continues to correct at the same pace that it has since peaking back in October 2005, then the P/E ratio should drop back below 1.0 in the third quarter of 2009 and retest its all-time low sometime around the end of next year. Owners' equivalent rent is expected to rise at around a 2.25 percent pace over this period, which puts the peak to trough decline in the NAR

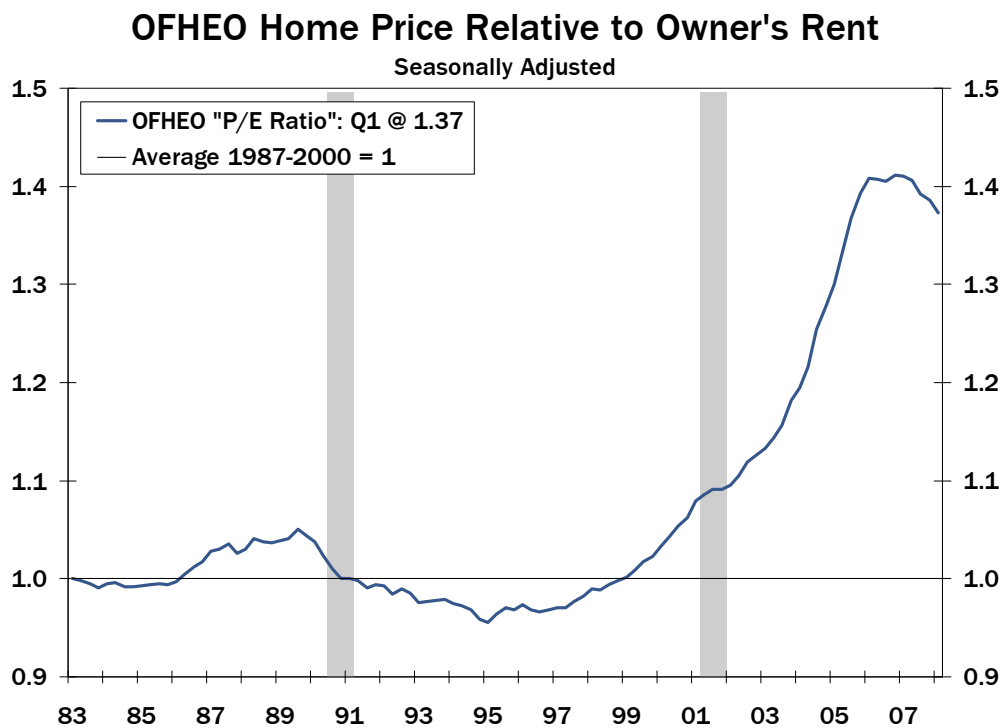
³ *Consumer Price Indexes for Rent and Rental Equivalence*. U.S. Department of Labor, Bureau of Labor Statistics. February 9, 2007.

median sales price series at around 20.3 percent. The cumulative decline so far has been around 11.2 percent, which implies the NAR median home price will decline an additional 9.1 percent.

Utilizing the P/E ratio produces a larger decline in the NAR median home price than the per capita income method does. The cumulative drop peak-to-trough decline is 2.8 percentage points greater, reaching its nadir in late 2009.

Computation of a P/E ratio using OFHEO and the S&P/Case-Shiller indices along the same lines as the NAR data yields fairly similar results, with a reversion to the mean P/E producing larger peak-to-trough price declines and the bottom for home prices coming later than with the per capita income method. Compared to owners' equivalent rent, the overall OFHEO HPI reached a peak in late 2006. As of the first quarter of this year, the P/E ratio had declined by 3.8 basis points and remains 37.4 basis points above the base level averaged between 1983 and 2000.

Figure 8



Source: Office of Federal Housing Enterprise Oversight, U.S. Department of Commerce and Wachovia

At the most recent pace of correction, which produced only a 0.03 percent decline in the OFHEO HPI over the past year, it would take a considerable period of time for the OFHEO index to return to a level consistent with its long-run norms relative to owners' equivalent rent. Our best estimate is that the OFHEO all-transactions HPI would need to decline an additional 20.1 percent. Moreover, the OFHEO all-transactions HPI would not bottom out until the fourth quarter of 2011. A similar analysis of the OFHEO purchase-only index puts the peak-to-trough decline at around 21.2 percent.

A similar analysis of the S&P/Case-Shiller National HPI shows that if home prices continue to decline at the same pace seen over the past year that the P/E ratio will

fall back under its historic norm of 1.0 in the first quarter of 2010, producing a peak-to-trough decline of 31.9 percent. Unlike the OFHEO data, a considerable part of this decline has already occurred, as the National HPI has already fallen 16.2 percent, or nearly half its estimated total correction. We did the same analysis for the S&P/Case-Shiller 10-city and 20-city composite indices. The 10-city composite shows a peak-to-trough decline of 42.2 percent, while the 20-city composite shows a peak-to-trough drop of 39.7 percent. Both indices bottom out in the first quarter of 2010.

Figure 9

	Home Price Decline Projections				
	Peak-to-Current Percent Change	Home Price to Per Capita Income		Home Price to Owners' Equivalent Rent	
		Projected		Projected	
		Decline	Trough	Decline	Trough
NAR Median Sale Price	-11.2%	-17.2%	Q2 - 2009	-20.3%	Q4 - 2009
OFHEO All-Transactions	-0.3%	-3.7%	Q4 - 2011	-20.1%	Q4 - 2011
OFHEO Purchase-Only	-3.6%	-12.7%	Q3 - 2009	-21.2%	Q3 - 2010
S&P/Case Shiller National HPI	-16.2%	-28.3%	Q3 - 2009	-31.9%	Q1 - 2010
S&P/Case Shiller 10-City Comp.	-19.0%	-36.0%	Q2 - 2009	-42.2%	Q1 - 2010
S&P/Case Shiller 20-City Comp.	-17.5%	-35.1%	Q2 - 2009	-39.7%	Q1 - 2010
All-in Average	-11.3%	-22.2%		-29.2%	

Source: National Association of Realtors, Office of Federal Housing Enterprise Oversight, S&P Corp. and Wachovia

Summary & Conclusions

Forecasting a bottom for housing prices is a difficult task. Many of the price measures used today were not available in the 1970s, which was the last time there was a housing cycle close to this magnitude. Two benchmarks that can be used to gauge the extent that home prices became overvalued and provide some indication of what a normal or equilibrium level would be are to compare home prices with per capita income and owners' equivalent rent. Even using these guideposts is limited, however. Owners' equivalent rent is only available back to 1983 and many of the popular home price measures began even later than that. For these price measures, the current housing cycle is without precedent.

Home prices will likely bottom out some time between the middle of 2009 and the middle of 2010.

For all the difficulties involved in projecting a bottom, some reasonable approximations can be developed from the benchmarks we have established. Our number one take away from is that home prices will likely bottom out some time between the middle of 2009 and the middle of 2010. A simple average of all the price measures puts the peak to trough decline in home prices at between 22.2 percent and 29.2 percent.

There is a wide range of possible outcomes based on various price measures and the per capita income and owners' equivalent rent benchmarks. The S&P/Case-Shiller indices show larger price declines than the OFHEO or NAR measures. One reason for this is that the S&P/Case-Shiller home price indices are more reflective of price changes along the coast, particularly in California, Arizona, Nevada, Florida, and parts of the Northeast, where price gains and subsequent drops were much larger. This also explains why the peak-to-trough price declines get larger as the S&P/Case-Shiller index becomes narrower, with the largest drop occurring in the 10-city composite.

The required price decline needed to bring prices back in line with owners' equivalent rent is also much larger than what is needed to bring prices back in line with per capita income. One possible explanation is that the home price data has been more skewed by the parts of the country where home prices soared, while the rent data is more reflective of the nation as a whole, where rents have been much more moderate. In addition, the housing boom itself tended to restrain rents, as renters become homebuyers. Unfortunately, the owners' equivalent rent data only go back to 1983, so we do not have another cycle to compare this data to.

So how far will housing prices fall? Our best estimate, based on the benchmarks outlined in this paper, lead us to believe the S&P/Case-Shiller 10-city composite index will fall 28.6 percent on a peak-to-trough basis. We estimate that the OFHEO purchase only index will decline around 22 percent. Our forecast for the NAR median price series would be for a peak-to-trough drop of around 17 percent. As far as timing goes, it looks to us that at least one-half of the peak-to-trough price decline has already occurred and that we should see an outright bottom either late next year or in the first part of 2010.

The required price decline needed to bring prices back in line with owners' equivalent rent is much larger than what is needed to bring prices back in line with per capita income.

Wachovia Economics Group

John E. Silvia, Ph.D.	Chief Economist	(704) 374-7034	john.silvia@wachovia.com
Mark Vitner	Senior Economist	(704) 383-5635	mark.vitner@wachovia.com
Jay Bryson, Ph.D.	Global Economist	(704) 383-3518	jay.bryson@wachovia.com
Sam Bullard	Economist	(704) 383-7372	sam.bullard@wachovia.com
Anika Khan	Economist	(704) 715-0575	anika.khan@wachovia.com
Azhar Iqbal	Econometrician	(704) 383-6805	azhar.iqbal@wachovia.com
Adam G. York	Economic Analyst	(704) 715-9660	adam.york@wachovia.com
Tim Quinlan	Economic Analyst	(704) 374-4407	tim.quinlan@wachovia.com

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