

# RISKSPAN RE-CAP

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## Mean Reversion Approach to Projecting Future Home Prices

As real estate prices stabilize, analysts in the mortgage and housing industry ponder when sustained growth will resume and how growth rates will vary across regions. One macro-economic approach to these questions is to estimate a local region's appropriate house price level as a function of the region's supply and demand factors and compare that to current levels. In prior newsletters, we have explored simple versions of this approach, looking at housing price levels related to household income and concluding that many metro areas are still richly priced relative to historical norms.

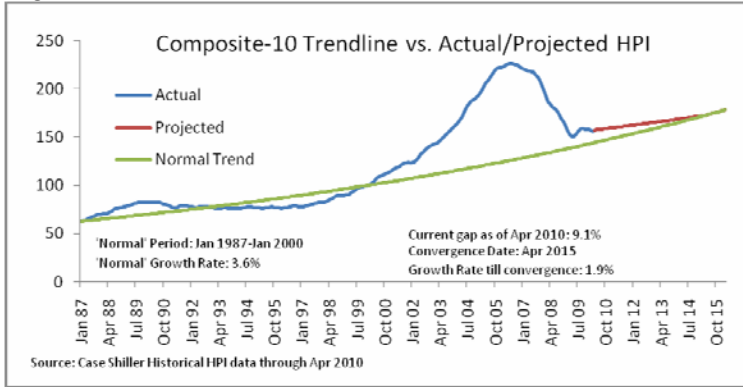
This issue of RiskSpan RE-CAP lays out a simple mean reversion framework for thinking about the direction of future house prices. This mean reversion approach assumes that house prices have deviated from their normal rate of change but will at some point in the future return to this "normal" rate of change. The key (and easily assailable) assumption here is that each region has seen a historical period of growth which represents its long-term future steady state growth rate. To apply this approach, the analyst first identifies the period he/she believes covers the normal house price trends, and from this, calculates the normal Home Price Index (HPI) trend growth rate. The level of home prices at the end of this period is the baseline for projecting future home prices. Next, the analyst chooses a target year at which he/she believes a region's prices will converge with the trend price levels. The rate at which house prices would have to change from current levels to reach the trend growth line is the convergence growth rate.

### Results of the Analysis

In this example, we use the S&P/Case-Shiller Home Price Indices for the 19 metropolitan regions with historical data going back to the late 1980's and early 1990's. We define the "normal" period as the start of the index data through January 2000, the "bubble" period as January 2000 through the most recent data (April 2010), and the "convergence" period as the next 5 years (April 2010-April 2015).

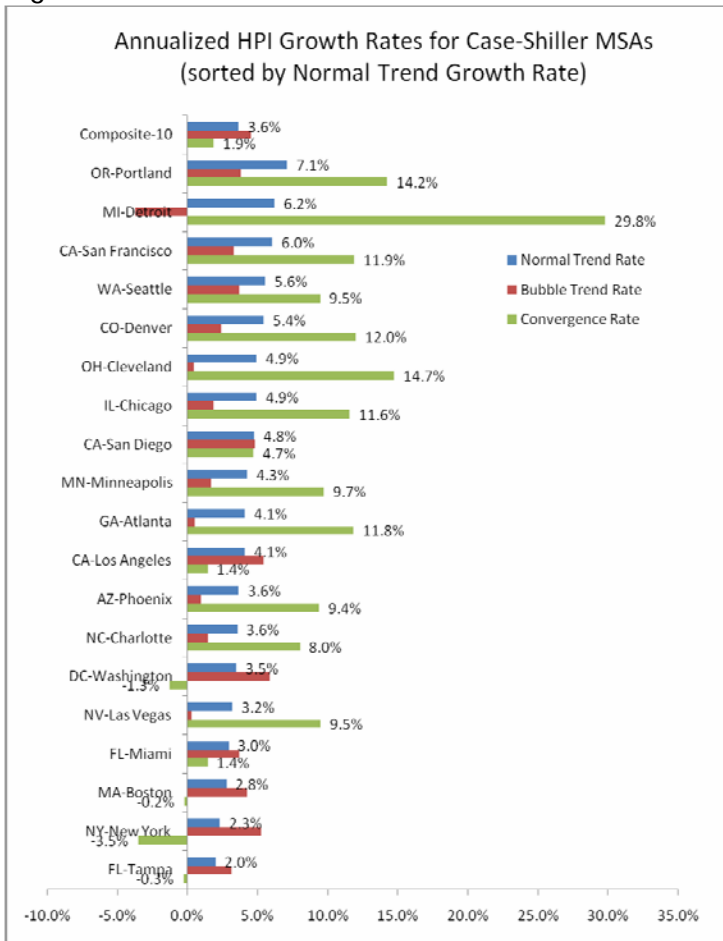
Of the 19 cities we reviewed, the normal trend growth rate ranged from 2% for Tampa, Florida to 7% for Portland, Oregon. The Composite-10 Index, representing the average of the top 10 cities, had a normal growth rate of 3.6% between 1987 and 2000. After peaking at price levels that were 80% overvalued in May 2006, current price levels for the Composite have fallen to a level that is only 9% overvalued relative to the trend rate levels. To converge with the normal trend rate, house prices would have to increase 1.9% annually for the next 5 years. (See Figure 1.)

Figure 1.



Prices in 12 of the 19 cities have actually fallen below trend levels and would need to increase at faster than trend rates to converge. And of the seven cities that are still overvalued, only four (Washington DC, New York City, Boston and Tampa) would need further house price declines to converge. (See Figure 2.)

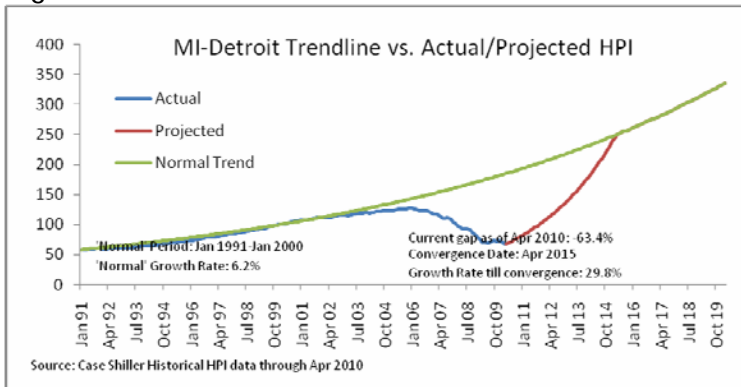
Figure 2.



### Limitations of the Approach

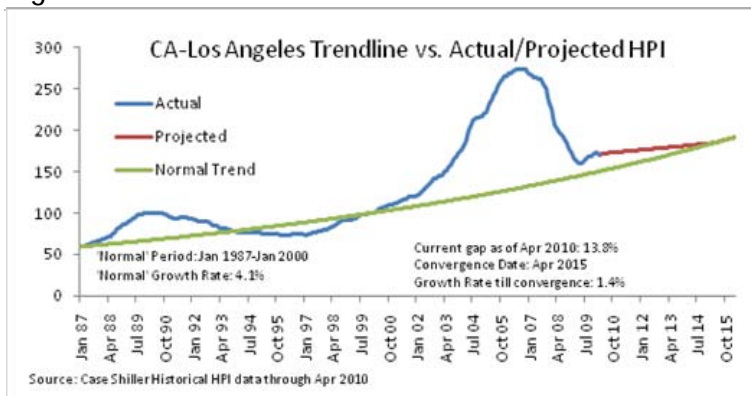
This means reversion framework is appealing for its simplicity and transparency, but in selecting parameters, analysts should consider cyclical and secular macroeconomic trends to avoid nonsensical results. For instance, Detroit, Michigan enjoyed robust housing price growth in the 90's, averaging 6.2% annual gains, but it missed the bubble experienced by the Sand states and then participated in the deflation of 2006-2009. This leaves current prices in Detroit at 32% below their 2000 level and 63% below the level had the normal growth rates of the 90's continued until 2010. To converge with the levels implied by the "normal," prices would need to increase at a 30% annual rate over the next five years. From a common sense perspective, double-digit growth rates in Detroit or even a return to the Composite normal rate of 3.6% appear highly improbable. The stagnation and decline in housing prices in Detroit, though obviously exacerbated by the cyclical shock of the recession, is more a function of the secular decline of the auto industry (following a brief SUV-fueled boom in the 90's) and of manufacturing in general. (See Figure 3.)

Figure 3.



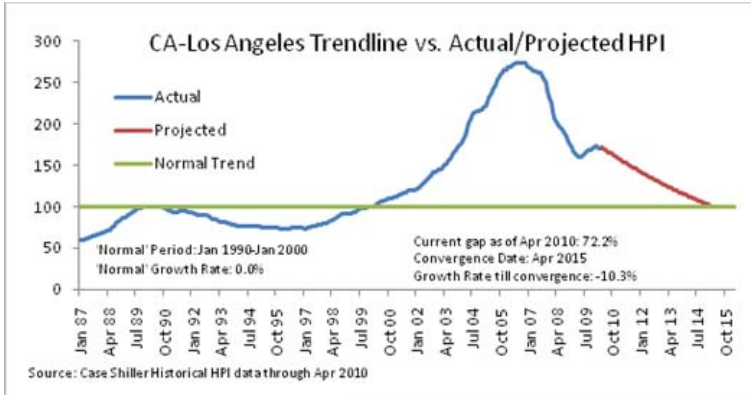
Moreover, our estimates of a region's normal HPI trend and resulting HPI trend projections can be highly sensitive to the normal time period selection. In the case of Los Angeles, California, the arbitrary selection of January 1987- January 2000 produces a normal growth rate of 4.1% and implies that housing prices have fallen most of the way from their peak valuations and are now only 14% overvalued. A 1.4% convergence rate over the next five years would return prices to their normal trend rate.

Figure 4.



If we moved the starting date of the normal period up three years to 1990, however, the story is much bleaker. The normal growth rate is flat, homes are still 72% overvalued and would have to fall at a 10% annual rate over the next five years to return to trend levels.

Figure 5.



Caveats aside, we believe this mean reversion approach provides a useful way to think about future house price trends while taking into account historical trends and the recent bubble. Our analysis suggests that most local bubbles have largely deflated, and in many cases prices have overshot on the way down. Most cities could see modest growth over the next several years before reverting to trend growth rates.

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