

# Tales from the housing trenches

DeForest McDuff

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## Preview

I spent the last few months conducting a real estate search for my family's upcoming move to San Diego, CA. The decision of whether to own or rent is a tough one. On one hand, prices have dropped considerably and mortgage rates are at decade lows. On the other hand, prices are likely to fall even further, especially if mortgage rates go up from here.

I have essentially completed an exhaustive search of the owners and renters market of a specific San Diego suburb, and I have learned a few interesting things along the way. The most important discovery (covered below) is how closely the San Diego home price index tracks home sales over time. Even if this analysis is not directly applicable to your hometown, I hope it gives you some insight into how to think about real estate markets more broadly.

This is what happens when you let an economist out into the real world (a rare occurrence, I know).

## S&P/Case-Shiller home price indices

My preferred home valuation methodology uses the S&P/Case-Shiller home prices indices. The indices are created using a "repeat-sales" technique that estimates market price appreciation using consecutive sales of the same homes. The strongest argument for this methodology is that the most important components of home value (e.g. location, style, floorplan) are difficult to quantify but are constant over time. The methodology also overcomes difficulties associated with new construction that affect simpler measures like median home price.

Here is how you use a Case-Shiller index to value your home. Let's say you bought a home for \$100k in 2007. To determine its current value, you simply multiply your purchase price by the percentage change in the index in the last two years. If the index fell by 10%, you assume that the market value of your home is roughly 10% less, or \$90k. The more recently you purchased your home, the more accurate the calculation.

I have spent considerable time thinking about these indices as part of my PhD thesis. I have constructed such indices myself directly from home transaction

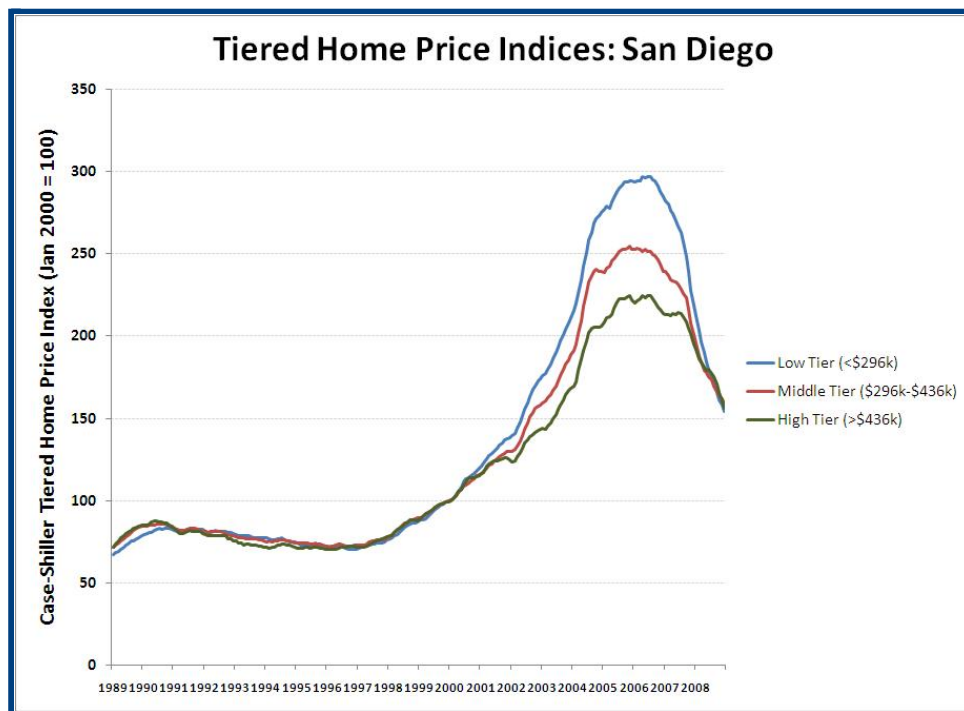
data, and I am familiar with many of the variance decomposition issues associated with home valuation (i.e. estimating the city vs local vs individual components of price appreciation). The punchline from my research is that the city component matters more than you might think. Anecdotal evidence below confirms this finding.

## Part 1: San Diego market analysis

I start with a broad analysis of the San Diego housing market. Standard and Poor's publishes three tiered Case-Shiller indices for San Diego with the following 2009 price cutoffs:

- (1) Low Tier: < \$296k
- (2) Middle Tier: \$296k - \$436k
- (3) High Tier: > \$436k

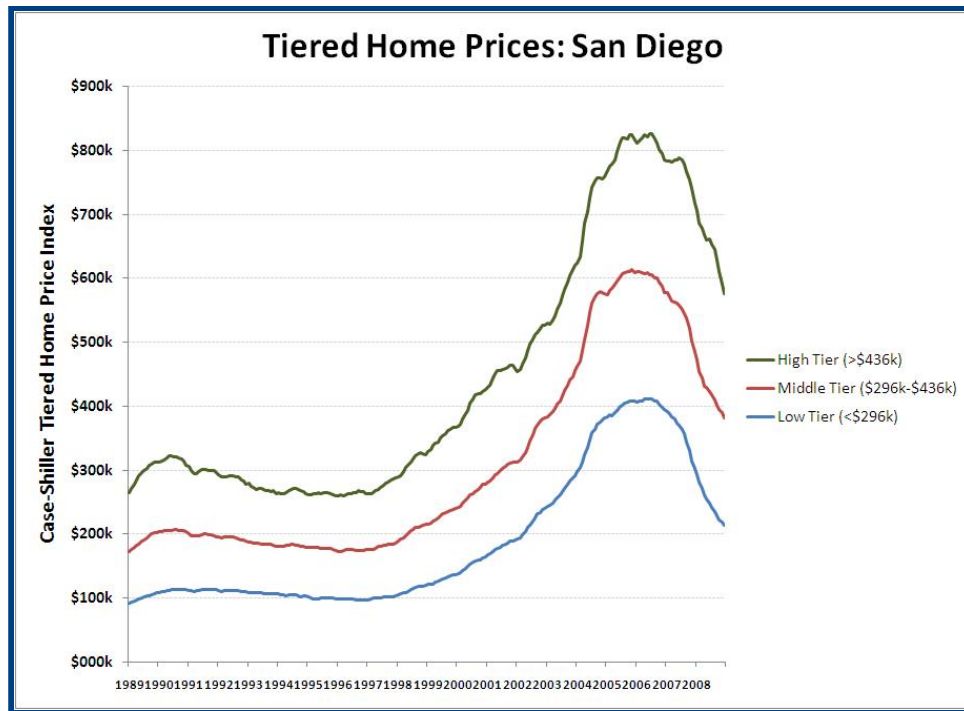
Every tier experienced substantial price appreciation between 1996-2005, but unusually easy credit conditions among poorer borrowers caused lower priced homes to increase the most in percentage terms. Those price increases are now being corrected:



**Data Source: Chicago Mercantile Exchange**

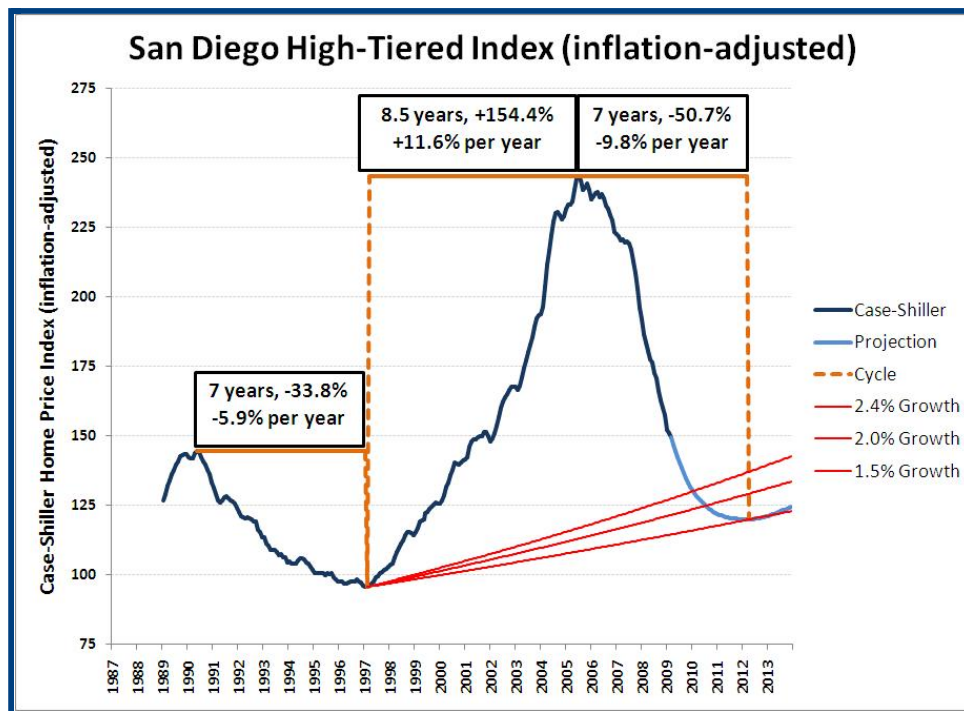
From 1996-2005, low tier, middle tier, and high tier homes increased by 324%, 255%, and 217%, respectively. But this price divergence was temporary. Prices have now fallen 51%, 40%, and 33%, putting the total gain since 1996 very near 110% for each tier. From the 1996-2009, that's an annual growth rate of 5.9% per year, which is still quite a bit higher than the 4.5% per year rental growth estimates from **Bureau of Labor Statistics (BLS)** inflation data.

Assuming low, medium, and high midpoints of \$200k, \$366k, and \$550k, here is a price chart of the median home value in each range:



Data Source: Chicago Mercantile Exchange

Below is my best projection of how the San Diego price index plays out over the next few years. I focus on the high-tiered index because prices were the least volatile and because I focus on homes in this range in sections to follow:



Data Source: Chicago Mercantile Exchange and the Bureau of Labor Statistics

I draw the trendlines above based on rental growth rates provided by the BLS. As I argued in [May 2008](#), rent growth should eventually put a floor on home prices

when yields are high enough for a solid investment return. From 1982-2007, San Diego rents grew at roughly 1.5% per year above inflation, including a whopping 2.4% from 1996-2007. According to BLS data, San Diego had the highest rental growth rate of any city in the country ([click here for rent growth rates for all available cities](#)).

That said, 2.4% per year above inflation seems like an optimistic long-run estimate for three reasons: (1) 1996-2007 range was a huge boom period for California and will unlikely be representative of a longer sample, (2) 2.4% rent growth is substantially higher than **every other city**, including other fast growing cities such as Los Angeles (1.8%), Miami (1.6%), San Francisco (1.3%), Boston (1.3%), and New York (1.2%), and (3) there is at least some evidence that **rents are now falling in Southern California**, which should balance out the high growth rates seen in the past decade.

Those hoping for prices to "overshoot" even more on the downside may be disappointed for two reasons: (1) the projection already starts from a price trough (where overshooting likely occurred in the past) and (2) mortgage rates are **still below the 7-9% range from that decade**. On the other hand, the strong economy of the late 1990s may make that price trough unrepresentative. All of these arguments have some merit, which is why I have drawn my projection based on a 1.5% long-run growth estimate.

The early 1990s price decline lasted seven years, whereas the current decline is only four years old. If anything, this down cycle will be longer given the magnitude of the previous up cycle and potentially rising mortgage rates.

In any case, I wouldn't put too much emphasis on the actual trend lines. A better strategy seems to be to wait for the slope of the price index to reach zero before stepping into the market. As of March 2009, the index is still falling at 18.6% per year and should take some time to flatten out even if the rate of the price decline moderates from here.

## **Part 2: How well do price indices track actual home sales?**

Regular readers of this newsletter may find the above market analysis repetitive. After all, I have performed similar exercises in **December 2006**, **February 2008**, **May 2008**, and **February 2009**. **But an important question remains thus far unanswered: to what extent does a home price index reflect actual home sales in a given market?** For this question, I use an anecdotal approach based on my real estate search over the past few months.

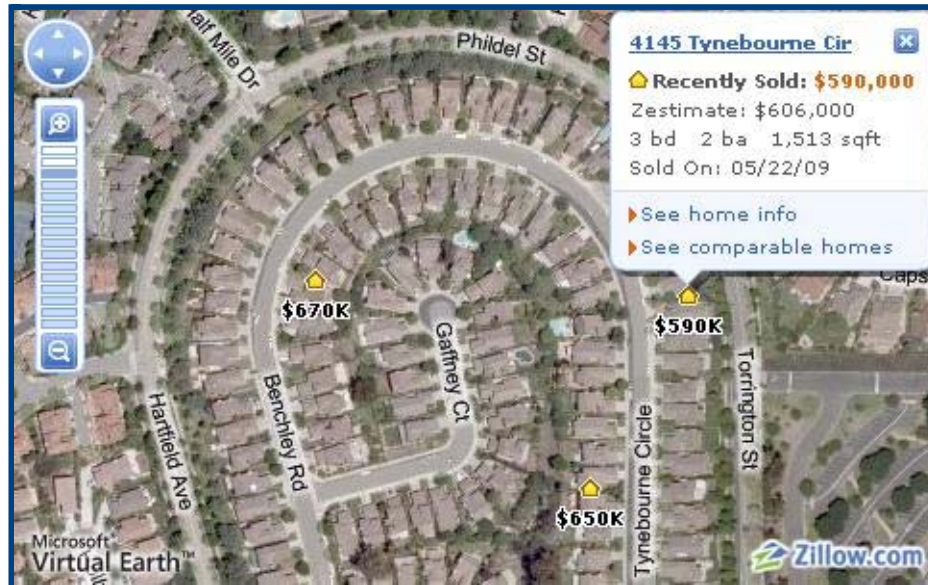
I feature three homes below, all in the Carmel Valley region of San Diego. **Carmel Valley is a distant San Diego suburb, located roughly 20 miles north of downtown**. Given its distance to the city center, it is not at all obvious that the San Diego index is reflective of home prices in this region. However, the empirical analysis below confirms the usefulness of an index approach.

### **Exhibit A: 4145 Tynebourne Circle**

From a valuation perspective, the great thing about California homes is their similarity within a neighborhood (think: cookie-cutter home construction). Yes,

some homes have upgraded kitchens, some homes have better yards than others, but for the most part, homes in a neighborhood are similarly designed.

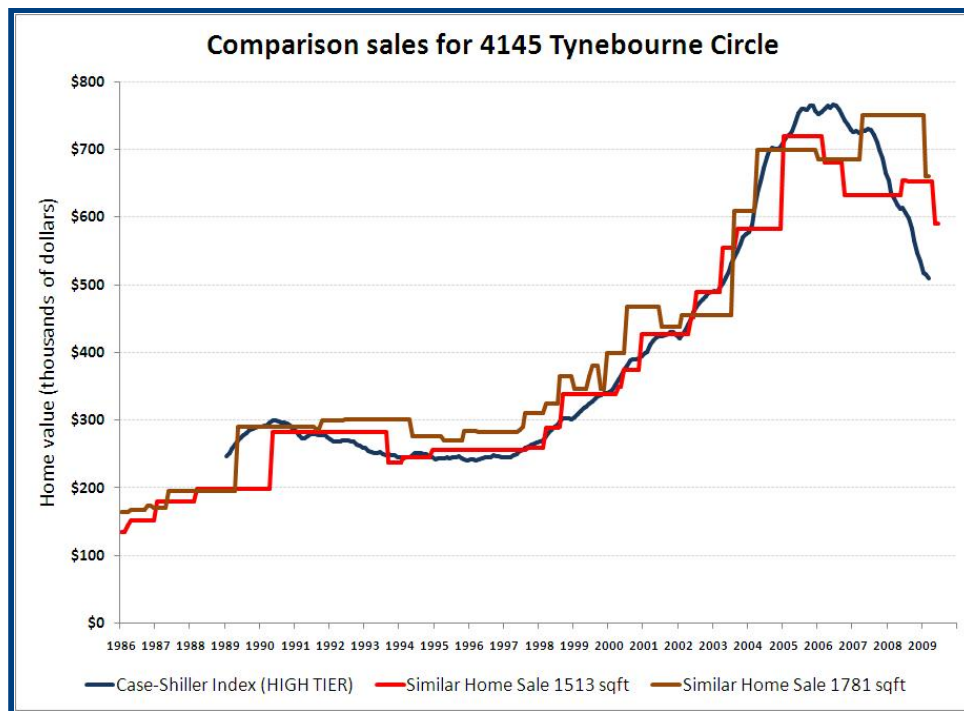
4145 Tynebourne Circle is a 3BR, 2BA detached home in a nice neighborhood near Torrey Pines High School. Of the 150 homes within just a 0.25 square mile neighborhood, roughly 30 have exactly the same 1513 square foot floorplan. There are three larger versions at 1785, 1972, and >2100 square feet. Below is a map of the area:



Source: [Zillow.com](http://Zillow.com)

The following valuation exercise is actually quite simple. First, I locate all previous homes sales for the 1513 and 1785 square foot homes in this neighborhood using [Zillow.com](http://Zillow.com). Then, I plot them over time next to the San Diego home price index on the chart below. Despite the variation across homes in condition and upgrade history (for which I have no data), the index tracks these historical sales remarkably well:





**Data Source: Zillow.com**

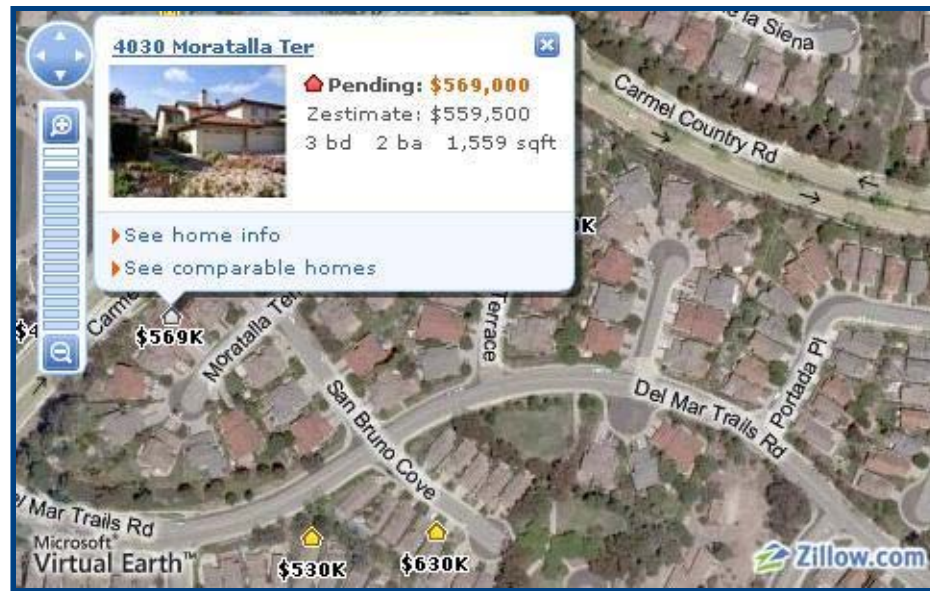
Each tick in red (1513 sq ft) or brown (1785 sq ft) above represents one of 68 home sales in this time period (the horizontal portions represent no relevant sale). The most recent sale of 4145 Tynebourne for \$590k can be seen at the upper right in red.

Home prices in this neighborhood roughly tripled from 1996-2005 and track the index surprisingly closely. But so far home sales remain slightly above the overall index. This is consistent with **other studies of high priced neighborhoods** conducted by **Doctor Housing Bubble**, a specialist in Southern California real estate. Incidentally, **DHB is not expecting a bottom in SoCal real estate until 2011**.

Given how closely these home sales tracked the index on the way up, it would be strange if they did not follow on the way down. Price discovery can be slower in high-priced neighborhoods if affluent homeowners are better able to avoid forced sales and foreclosures. In the end, it seems unlikely that these high priced homes will escape a price decline, even if the process lags the broader market. At the least, the chart above warrants extreme caution.

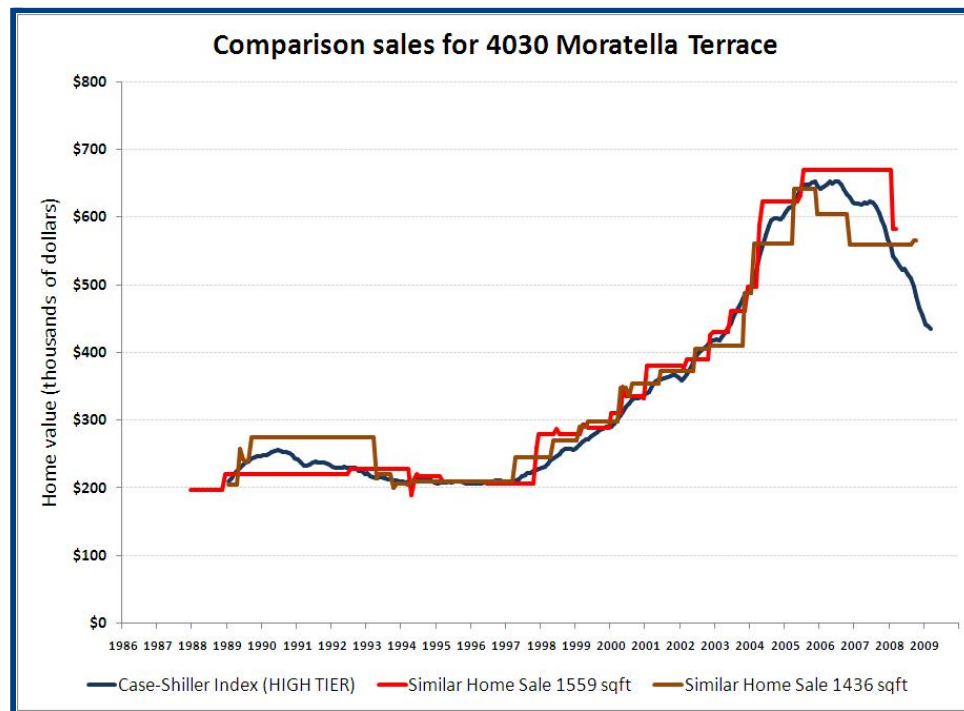
### **Exhibit B: 4030 Moratalla Terrace**

The second home is 4030 Moratalla Terrace, a well-maintained 3BR, 2BA duplex just 1.5 miles from the Tynebourne house:



Source: Zillow.com

Again, I track sales of duplexes in the surrounding neighborhood with similar floorplans. I identify two main types of units: (1) 1559 sq ft and (2) 1436 sq ft, and I plot them below along with the price index:

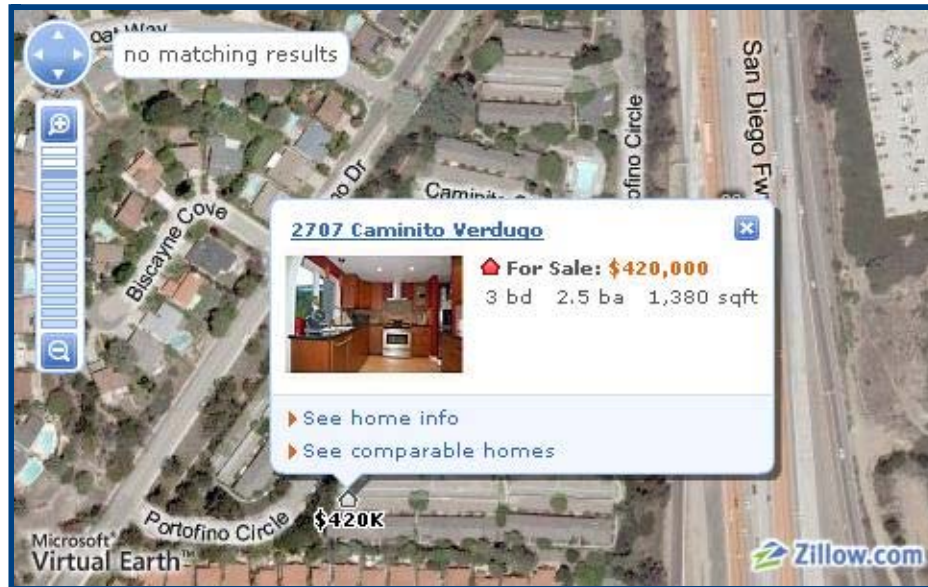


Data Source: Zillow.com

As with the Tynebourne neighborhood, the price index tracks home sales extremely well. In my view, the latest buyer is taking a substantial price risk if this sale goes through for \$569,000. If the home price index continues to be an accurate reflection of value (like it was over the last 20 years), this home may actually be worth over \$100,000 less.

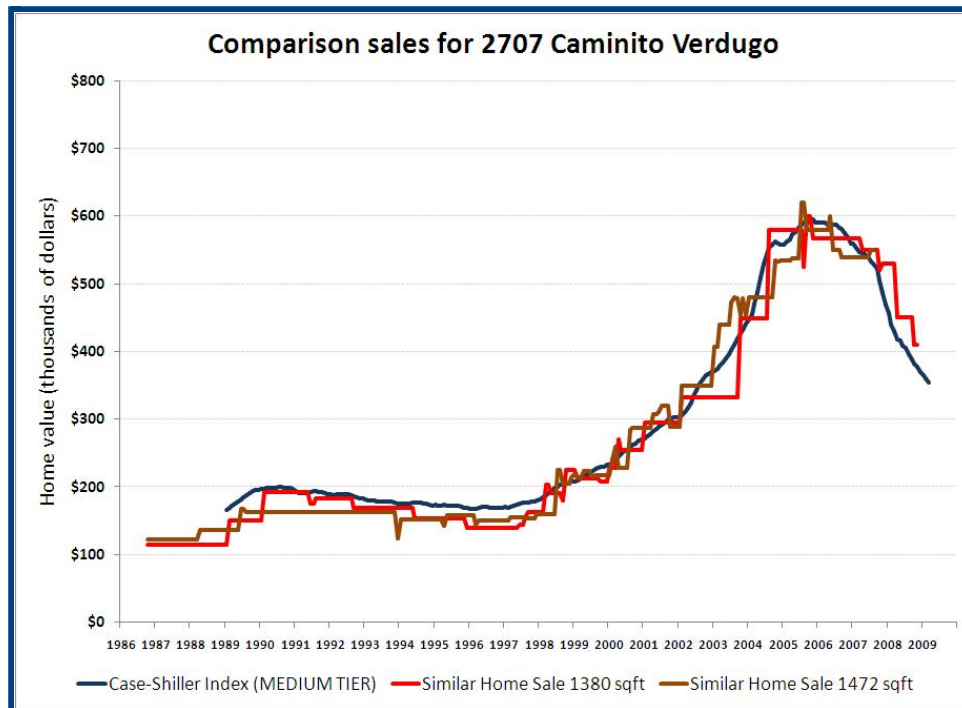
### **Exhibit C: 4027 Caminito Verdugo**

The final home is 4027 Caminito Verdugo, a 3BR, 2.5BA townhouse located just 1.5 miles from the beach in Del Mar. This affordable niche neighborhood is otherwise surrounded by detached homes worth close to a million dollars each:



Source: Zillow.com

Using the technique above, I identify 82 similar home sales over the past 20 years (1380 sq ft and 1472 sq ft) and plot them along with the index. Once again, these home sales track the index with remarkable precision:



Data Source: Zillow.com

I draw two broad conclusions from the charts above: (1) the Case-Shiller price indices are useful for home valuation, even in neighborhoods far from the city center and (2) substantial price risk still remains in some higher priced



neighborhoods. Perhaps these homes will retain value. The price lag will certainly prompt many real estate agents to make this argument. But I am skeptical. Given how closely home sales tracked the index on the way up, it seems more likely that they just have some catching up to do on the way down.

### **All real estate markets are local, aren't they?**

All things considered, the San Diego index seems useful for home valuation in all three neighborhoods above. The extent to which the index reflects actual home sales is quite amazing considering that these homes lie 20 miles outside of the city center. There is a common perception that all real estate markets are local, but empirical evidence suggests that the city component of home price appreciation is often substantial.

Why would this be the case? The answer lies in housing demand. Relative prices between two neighborhoods cannot change too drastically if consumers are willing to substitute between them. For example, rising home prices in neighborhood A will typically cause prices to rise in nearby neighborhood B if demand shifts towards B in response to the price differential. The result is that price correlation can be higher than you would expect from economic fundamentals alone.

There is a common perception that foreclosures will affect lower priced markets exclusively. After all, foreclosure rates in more expensive markets like Carmel Valley are probably less than half of the San Diego average. But foreclosures in cheaper markets indirectly impact prices in all markets by lowering the price of housing substitutes.

In summary, housing demand substitution within a city can keep prices quite correlated across markets. This improves the overall predictive power of a price index.

### **Own or rent?**

In the [August 2008 Newsletter](#), I examined the "own versus rent" decision in extreme detail. Contrary to conventional wisdom, I emphasized that owning is not always economically advantageous to renting. Rental rates needs to be compared to the costs of mortgage interest, property taxes, insurance, maintenance, and the opportunity cost of capital. The better economic decision is an empirical question and depends on the relative prices of each.

At some point before the ultimate price bottom, it will be economically advantageous to own instead of rent your primary residence. **At current prices and rents, my calculations suggest that owning or renting the homes above is roughly at a break-even point, provided that - and here is the key assumption - home prices stay at their current levels.** Remaining downward price pressure tips the scales slightly towards renting, at least in San Diego. Home price declines are showing signs of moderation, but no signs yet of bottoming.

### **Conclusion**

From an investment perspective, I see little value in the homes above as rental properties. Based on my home search, fair market rents for Tynebourne, Moratalla, and Caminito Verdugo would be \$2600/month, \$2400/month, and \$2100/month, respectively. At \$590k, \$569k, and \$420k, annual gross rent yields are 5-6%. Subtract 1.25% for property taxes, 0.75% for homeowners fees and insurance, 1.00% for expected maintenance costs, and net yields are only 2-3%. That's not a great investment return.

Rents will eventually place a floor below home prices, but net rent yields will probably be in the high single digits before that happens. Taking into account the tax benefits of homeownership, these homes are near break-even for owning and renting, provided that prices hold at current levels. The analysis above shows this to be unlikely.

Take one more look at any of the price charts above. I don't see how any reasonable person can conclude that we have hit the bottom. The slopes are just too negative to expect a turnaround anytime soon.

You can imagine performing this type of analysis for any housing market across the country. My guess is that you would find similar results in many higher priced neighborhoods. At least in Carmel Valley, not only does the price index have further to fall, but the homes themselves seem likely to fall faster to catch up with the index. As such, price risk is still high. Needless to say, my wife and I found a rental property for next year.

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