Assessing Real Estate Values to Avoid Bubble Investing

A Look at the Financial Analysis Behind Bubble Testing

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When I was a child one of my favorite cartoons was the Roadrunner. Roadrunner spent his days running very fast with Wylie Coyote in pursuit. The setting of the cartoon resembled the Grand Canyon – lots of steep cliffs and deep crevices. Invariably Wylie would find himself running in midair during the chase. This was OK - until he looked down and realized there was nothing there to support him. At that moment he would come crashing down. I bring this up because it is amazingly similar to how financial markets sometimes behave. The market runs up as investors chase after fast returns. Then one day they look down and realize that cash flows cannot support the investment values they have bid up. The realization itself brings the market crashing down. In retrospect we call these events market bubbles. This brings me to the question to be answered by this article: how can you tell if you are Wylie Coyote (before you run off the cliff).

The Shortcut Test

At my October presentation in Tokyo, I provided a "back of the napkin" quick test for whether a particular real estate investment showed signs of a "bubble" valuation. My quick test is a check of whether a real estate investment can cover loan payments in its first year assuming you borrow 70% of the purchase price. While this test is simple, it proxies for a more thorough analysis of a property's valuation and likely returns. As with any simplification, there is a downside: this test may reject good investments under certain circumstances.[1] In the remainder of this article we will explore

[1] A situation in which we can confidently predict future rent increases significantly higher than inflation would look like a bubble using this test even though valuations may be justified by the future rent increases.

some of the analysis behind the shortcut so as to better understand how to judge investment valuations. Knowing when to stop chasing an investment that has run up too far too fast, will keep you from becoming the Wylie Coyote of investing.

The Importance of Fundamental Value

The value of any investment be it real estate, bond, or stock, is determined by the discounted value of the investment's expected future cash flows. By discounted I mean that there is some required return built into the price today so that the investor can buy future dollars at a discount today. Thus there are two components determining value: expected cash flows and the required rate of return (the discount). If we know these two things, we can calculate the *fundamental*[2] value of the investment today. If investors realize that the price of an investment exceeds its fundamental value, they will sell it (if they own it) or avoid buying it (if they don't). When enough investors catch on, the market price drops to the fundamental value (or below). This reassessment process is what has taken the stock market down for the last 3 years. I.e. the market looked down and found no ground beneath it; so it fell like Wylie Coyote.

Required Returns

How can we look to see "where the ground is" with real estate? First we determine required returns[3]. Our starting point is the 10-year Treasury bond yield – currently 4%. This is a benchmark rate of riskless return that anyone can achieve over a 10-year holding period without giving up liquidity. Compared to the Treasury bond, Real Estate is much less liquid and its returns are risky. Investors demand additional returns to compensate for the risk and the lack of liquidity. Although we cannot perfectly estimate or forecast these compensating returns for the market, we can know our own requirements and we can come up with reasonable numbers against which to measure the returns implied by market prices.

The risk premium component of required return depends on the risk that the actual cash flows for a particular property will be less than expected and the magnitude of any possible shortfall. For example, we might require a 4% return premium for apartments whose cash flows are tied closely to the economy, but only a 2% return premium for a high quality commercial property leased long term to a tenant with great credit. The high transaction

[2] Warren Buffet and some others refer to this as intrinsic value.
[3] In order to reduce complexity, I ignore tax effects for this article: all returns are pre-tax returns.

costs of real estate imply that a substantial liquidity premium should be earned as compensation. This is probably on the order of 2%. Adding it all up, we have a required return on apartments of (4+4+2 =) 10%.

Measuring Returns

Now lets look at expected cash flows as measured by both operating free cash flow and equity in the property (available by selling or refinancing) at the end of a particular holding period. For our purposes we will use a 5 year period because a well-performing property will generally be refinanced at the end of 5 years to pull out money for reinvestment elsewhere.

Explanation of Terminology

Operating free cash flow is the net operating income (NOI) of the property less mortgage payments. In thinking about value and returns, it is useful to measure cash flows as a percentage of property price. For example, one commonly used valuation measure for real estate is the Capitalization rate or Cap rate for short. This is equal to the NOI of the property divided by its price: Cap = NOI/Price. Thus the Cap rate represents the income on a property as a percentage of price. Cap rates on apartments in California generally range between 1% and 8%. Likewise we can measure annual mortgage payments as a percentage of price. To do this we multiply the loan to value ratio (LTV) - the percentage of the purchase price borrowed, times the annual mortgage payments as a percentage of the original loan amount. For a 6.5% fully amortizing 30-year loan, the annual payments total 7.6% of the original loan amount. Assuming 70% LTV, we calculate free cash flow as a percentage of price by subtracting (70% * 7.6% =) 5.3% from the Cap rate. Thus a property with a Cap rate of 5.3% would have breakeven cash flow and just meet the back of the napkin test discussed earlier when mortgage rates are at 6.5%.

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Calculating Free Cash Flow

Note that the bank will not actually lend you so much money that debt service absorbs the full NOI. Instead the bank will lower the loan amount so that NOI = 120% of loan payments. For the 5.3% Cap rate cut-off point identified by the back of the napkin test, the maximum LTV will be 58%. Free cash flow will be (5.3% - 58% * 7.6% =) **.9%** of purchase price.

Calculating Loan Repayments

Free cash flow is only one element of return. The increase in equity in the property usually accounts for a far larger portion of a property's return. Equity increases come from two sources: principal repayments on the loan and appreciation of the property. For the loan described above, 1.1% is repaid in year one. As a percent of purchase price this is **.7%.**

Growth is the Key Assumption

If we assume that the Cap rate remains constant then the property's value will increase at the same rate as NOI. This growth rate also drives our forecasts for future free cash flow and is the key variable that determines expected cash flows on the property.

Over the long run we should expect rents and NOI to grow roughly in line with inflation. Growth would be a bit larger if population grows in an area with a fixed housing supply (like Manhattan) or if people use real increases in income to bid up rents. These factors are partially offset by the natural reduction in a property's earning power that comes with aging. Given that inflation over the last 12 months was 2.2%, any forecast above 3% would need some definitive justification.

Calculating Total Returns

Let's assume NOI growth and appreciation of **3%** per year. Combining this with principal repayments implies that equity increases by **3.7%** of the original purchase price in the first year. Combining this with free cash flow gives a total return on purchase price of **4.6**%. We calculate our first year return on equity by dividing the total return as a percent of price, by the equity percentage, 42% to get **11%**.

While this first year return meets the required 10% return we estimated earlier, the returns on equity over a 5-year period will not meet this goal. As equity in the property builds up, returns on equity decline. Over 5 years, we can calculate an expected return on equity of 9.7%. In addition, we have not taken into account any transaction costs in any of our calculations. The original purchase would incur costs of roughly 2% of purchase price. At the end of 5 years, refinancing would cost another 2%; a sale would cost 6%. Actual returns would thus fall short of our goal by at least 1% per year.

Market Implications

In such a market, the shortfall may not be recognized for some time. Investors may incorrectly believe that faster NOI growth will bail them out. Once it becomes clear that this will not happen, buyers will reduce their offers and prices will fall until required returns can be achieved. This reduces even further the returns for those who recently bought at the inflated prices. Smart investors can avoid this by using realistic forecasts for income growth and buying only when the purchase price is such that required returns can be achieved.

Conclusion

This article has provided a glimpse of the financial underpinnings of the real estate market. I've shown how a simple rule of thumb test proxies for an analysis of long run returns in comparison to required returns to insure that investors are not caught investing in bubbles instead of cash flows. While such shortcuts are useful for screening out obviously bad investments, investors should do more thorough analysis of those properties that pass the test. Berkeley Investment Advisors can take the pain out of the number crunching and help you make the right decisions in real time.

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