



*Investing in Real Estate:
REIT's and Your Home*

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We have seen a long boom period for real estate in the United States and in many other countries. This bull market included both commercial real estate and residential real estate, but appears to have come to an end. Investors seem to be starting to grasp that real estate prices can move down as well as up. From an investment standpoint, it is of interest to take a step back and consider what we can rationally say about real estate as an asset class. One very important question is determining the relative returns that investors make on their homes vs. what could be achieved by investing in REIT's or other asset classes.

A recent study by Fidelity (link later in this paper) warns that people need to be careful about being too heavily invested in their homes:

...home equity in the form of land, bedrooms or other improvements beyond those a family needs is less an investment choice than a matter of lifestyle, and it carries a substantial long-term cost. Instead of "buying bigger" and thinking of that as an "investment", anyone interested in assembling a portfolio that has a chance of producing lifelong income, will want to diversify — strongly — beyond their home to include a well-balanced portfolio of stocks.

I think that there is an even simpler question. If you want to invest in real estate, how do you want to do it?

The two most accessible real estate choices for individual investors are (1) purchasing their homes or (2) buying shares in Real Estate Investment Trusts (REIT's). Burton Malkiel describes REIT's as "packages of actively managed commercial real estate" (*A Random Walk Down Wall St.*, pp. 354)—about as succinct a definition as you might want. You can buy ETF's or index funds that hold shares in REIT's. VGSIX, a Vanguard REIT index fund, tracks an index of REIT's compiled by Morgan Stanley. Two of the better-known REIT ETF's are the iShares Cohen and Steers Reality Majors Index (ICF) and the Dow Jones Wilshire REIT Index (RWR).

Investors will want to have substantial exposure to real estate because this asset class has low correlation to broad stock indices. Over the past five years, ICF, RWR, and VGSIX

have exhibited a correlation in return of only about 40% to the S&P500 (IVV and SPY, for example) and to international indices such as EAFE (tracked by EFA). Low correlation between assets in your portfolio leads to higher total portfolio return for a given level of risk:

<http://www.quanttext.com/Correlation.pdf>

REIT Performance

The long-run future rate of return from REIT's is considered to be somewhat uncertain (even relative to other major asset classes), not least because REIT data only goes back to the early 1970's. In the last five to ten years, REIT's have done very well and have dramatically out-paced domestic equities and even developed-market foreign equity indices:

Ticker	Annualized Return (5 years through Mar 07)
ICF	23.0%
RWR	21.5%
VGSIX	20.9%

Trailing five-year average annual returns for three REIT index funds

Nobody rationally suggests that these rates of returns are sustainable in the long-term. It is more reasonable to look for future annual rates of return in the range of 10% for these REIT indices. REIT's are not a low volatility asset class. Estimates of the risk levels associated with REIT's range from about the same levels as the S&P500 to somewhat higher. Over the past five years, the REIT index funds above have exhibited volatility that is about 28% higher than we have seen for the S&P500.

It is important to understand that REIT's are, in general, funded by substantial debt. Simon Property Group (SPG) is a large REIT (market capitalization of about \$25B) that is one of the largest holdings in ICF, RWR, and VGSIX. SPG is running a debt-to-equity ratio of 3.9 as of the most recent quarter. Other major holdings in these REIT index funds are Equity Residential (EQR) and Vornado Realty Trust (VNO) which have debt-

to-equity ratios of 1.4 and 1.6, respectively. The leverage that these firms employ increases both return and risk.

Residential Real Estate

Many investors have become enamored of their residential real estate, but the long-term rate of return on residential real estate in the United States is not as high as many people think. A very reliable source of information on house prices is the ***Case-Schiller Home Price Index***. Dr. Robert Schiller of Yale and colleagues developed this index as a way to track regional and national returns from owning residential real estate:

http://www2.standardandpoors.com/spf/pdf/index/SP_CS_Home_Price_Indices_Factsheet.pdf

There are a couple of innovations in the Case-Schiller index that are important. First, the Case-Schiller index excludes new construction. Second, the Case-Schiller index excludes or assigns a low weight to houses in the data sample when the changes in sale price for a house over time are dramatically out of line with the surrounding area. Third, data are only included when there are two data point for sales price. Simple averages of sale prices in a region will tend to show higher returns from real estate (which are not in fact present) if new construction tends to be larger or simply more expensive than older construction—and this is an important trend. The average square footage of homes in the U.S. has increased dramatically over the past forty years. The same issue arises for remodeling or additions. If you just look at average sales price, you will get an apparent rate of return that is too high because it does not reflect all the money that people in my neighborhood have put into improvements. The Case-Schiller index will correct out a lot of this ‘false return’ effect.

Over the ten year period from April 1996-March 2006, we have had a true real estate boom period in the United States, the annualized rate of return on housing calculated from the Case-Schiller data was almost 11.5% (see linked article above). This is far

above the long-run rate of return for residential real estate in the United States. If we simply look at the same Case-Schiller index data and go back to the start of 1987 (when the index was first compiled), the annualized rate of return from then until Jan 2007 is about 6.5% per year. In the five years through January 2007, the Case-Schiller index shows that the average rate of return on residential real estate was 11.6%.

A recent study by Fidelity cites data that shows that the average annual rate of return from residential real estate is 5.9% per year since 1963 (see pp. 4-5):

http://www.fidelityresearchinstitute.com/pdf/wp5_equity_final.pdf

Purchasers of residential real estate typically employ leverage by financing a large portion of their purchase---and this provides a major boost to the available rate of return. As with any investment, leverage can cut both ways, increasing the potential for loss.

If the real estate market is somewhat rational, there should be some broad consistency between the risk and return available from REIT's and from residential real estate—and this can provide some useful insight.

Risk and Return of Residential Real Estate vs. REIT's

Investors need to consider the risk/return characteristics of the investments available to them. If I am considering the relative value of buying a more expensive house, putting more cash into my mortgage, or putting that money into a REIT fund such as ICF or RWR, how can I compare these two opportunities?

The risk and return characteristics of housing vs. REIT's have been examined in a number of ways, and this paper from the *Journal of Real Estate Portfolio Management* by Jack Goodman (2003) provides a good overview:

http://business.fullerton.edu/finance/jrepm/pdf/vol09n02/01.93_106.pdf

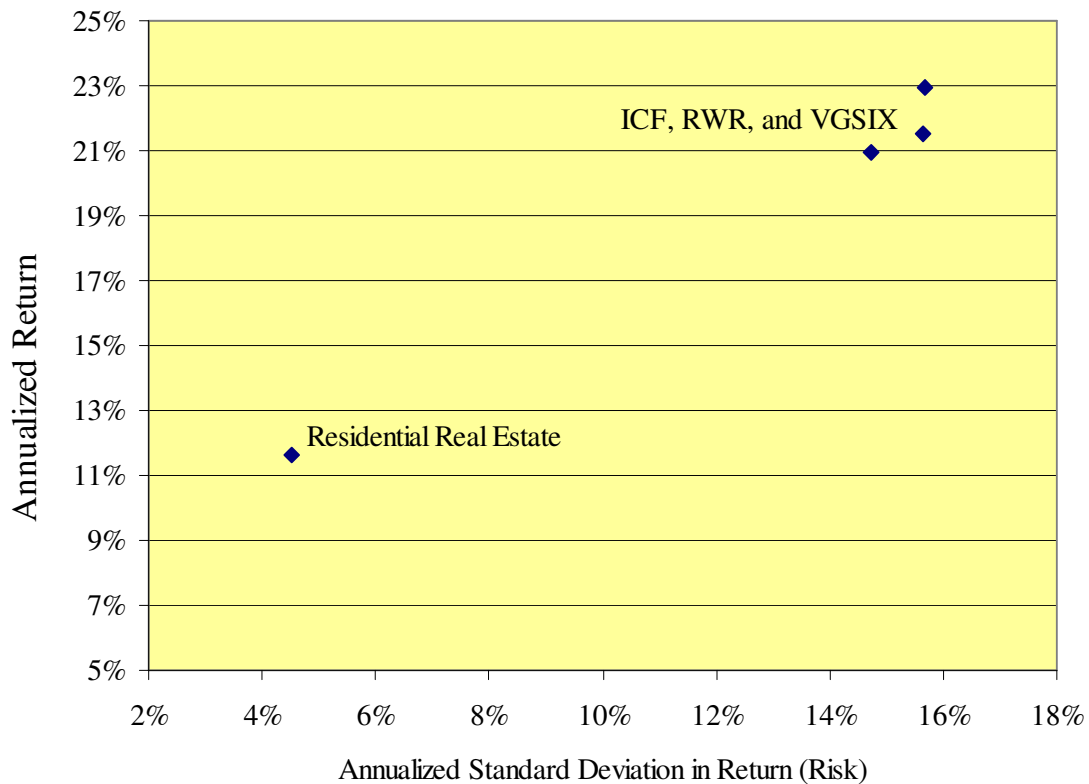
Goodman cites research that suggests that the total rate of return on your home is reasonably approximated from price appreciation:

A common approach to estimating the investment properties of owner-occupied housing has been to ignore the hard-to-measure dividend or pseudo-Net Operating Income and to take the change in house price as the entire return.

To perform this kind of analysis, we need data for the returns available from residential real estate—and this is where the Case-Schiller data comes in handy. The data is easy to get, but there is one correction that you have to make. The Case-Schiller methodology uses a running three-month average of prices so that the January 2007 price index actually includes sale prices from January 2007, December 2006, and November 2006:

http://www2.standardandpoors.com/spf/pdf/index/SP_Case_Schiller_Home_Price_Indices_Methodology_Web.pdf

This process creates a smoother data series but also acts to suppress the volatility of the monthly returns, which in turn suppresses the annualized volatility. This means that the volatility data shown for residential real estate in the fact sheet on the Case-Schiller Index is too low. How much too low? When we applied the same kind of three-month averaging to a REIT index fund, we got a 47% reduction in estimated annualized volatility---so we need to adjust the volatility calculated directly from the Case-Schiller data upwards by this amount. Residential real estate has exhibited low volatility in the Case-Schiller Index but not as low as raw data would suggest. The tendency of housing index volatility to underestimate actual volatility of house prices by about 50% has also been noted in the appendix of Goodman's paper.

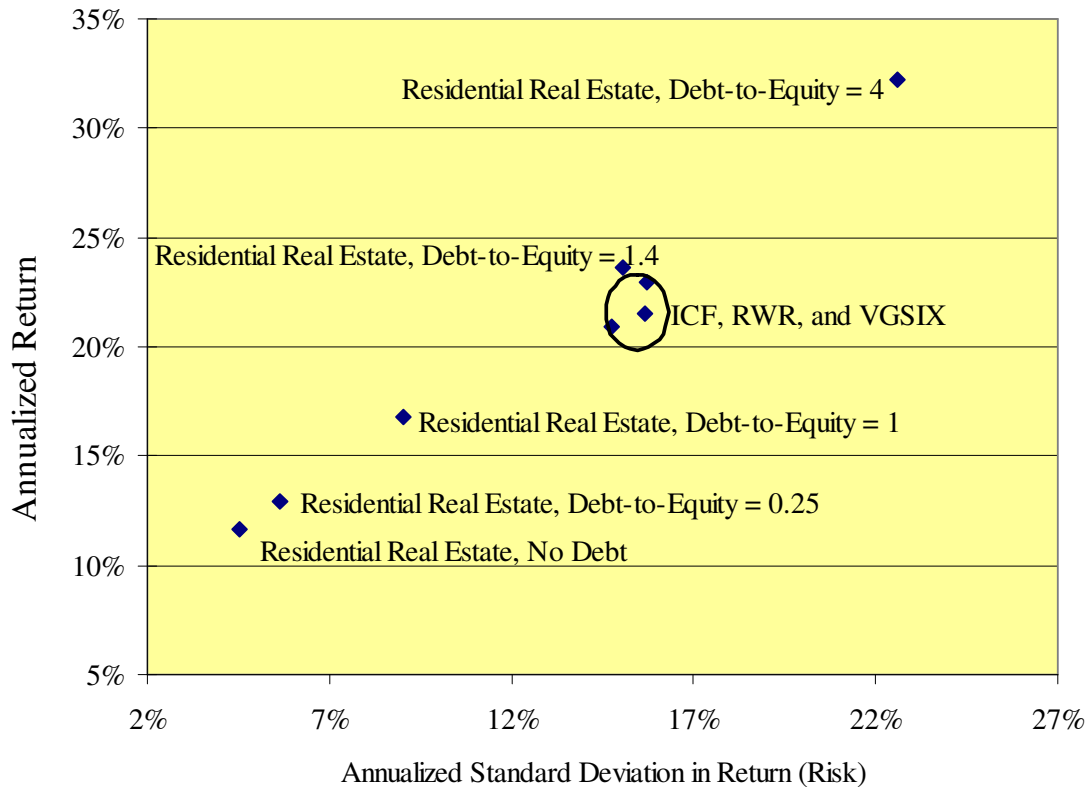


Five year performance of U.S. residential real estate vs. REIT funds

In the chart above, the dot labeled ***Residential Real Estate*** is derived from the Case-Schiller index data, with the volatility correction. As noted earlier, residential real estate purchases with no leverage is an asset with much lower risk and return than REIT's.

Next, we need to calculate the rates of return and the volatility that a home owner can achieve when he/she finances part of the purchase price. Imagine that you wanted to buy a \$500K house and you put \$100K down. Your debt-to-equity ratio would be 4 because you are borrowing \$400K and have \$100K in equity in the house. Please note that I am using the term ***debt-to-equity*** in an ad hoc way, rather than in a strict accounting sense. Used in this way, putting 20% down on a house means a debt-to-equity ratio of 4, and putting 50% down on a house means a debt-to-equity ratio of 1. If you can finance the debt for 6.5%, we can calculate the effective rate of return and effective risk using the adjusted Case-Schiller data. The idea here is that we achieve leverage by borrowing

money and then paying interest on the debt and getting the returns achieved by an increase in the value of the house. It is straightforward to approximate the annualized return and risk for varying levels of debt.



Impacts of leverage on risk and return in real estate (trailing five years through March 2007)

Accounting for leverage allows us to see a continuum of risk and return from residential real estate all the way up to the levels seen from REIT funds, and beyond. In fact, over the past five to ten years, millions of Americans have achieved enormous real returns on their investments in residential property. As the chart above suggests, these high rates of return come with an attendant risk, however.

These results should be taken as indicative rather than as ‘hard numbers.’ We have made a number of approximations and have not dealt at all with the differences in tax

treatment that an individual faces in home ownership vs. the tax consequences of being a shareholder in REIT's. The principal point of this analysis is to note that residential real estate, including leverage effects, can deliver risk and return properties that are similar to the risk / return properties of REIT's. This makes sense. There is no reason that residential real estate should be a 'special' asset class that generates higher return relative to risk than other asset classes—and certainly not than other real estate asset classes.

It is very important for investors to realize that the risk-return line that is defined by residential real estate and from REIT's over the past five years (shown in the chart above) shows a much higher level of return per unit of risk than we have seen over any extended periods of time for real estate or for any other asset classes. Any time that an asset class generates average returns that are substantially higher than the standard deviation in annual return, you can bet that the market is out of balance and will ultimately be due for a correction:

<http://www.quantext.com/BeatTheMarket.pdf>

Unless capital markets have simply departed from any measure of rationality, this line will shift downwards. Quantext Portfolio Planner projects a long-term average return for these REIT's in the 10-11% range, which in turn implies substantially lower returns for residential real estate.

Summary

The high returns that Americans have been making on their homes over the past five to ten years are a combination of a bull market in real estate and leverage. Over the long term, we can expect returns from real estate to be considerably lower than we have experienced in the last five to ten years. Even if you are devotee of real estate, investing in REIT's will often make more sense than buying a more expensive home. Even with the expectation of lower returns, REIT's and residential real estate have low correlation to other asset classes—and this is of inherent value. This does not mean that people should simply buy into the housing market.

The Fidelity study cited earlier examines the attractiveness of thinking of your home as an investment vehicle for funding retirement:

http://www.fidelityresearchinstitute.com/pdf/wp5_equity_final.pdf

The real point here is that your home is an investment only if you are willing to tap the equity (i.e. sell or borrow against your home). This issue is especially important for older people who have paid down most, or all, of the debt on their homes. They are far down on the risk/return balance because they have paid down their debt and thus are at low leverage—and can therefore expect only modest rates of return. This is, on one hand, good because their potential for loss is diminished. On the other hand, there is opportunity cost to these people in that the equity in their homes could generate income. If you are at this point in your life, you can start to think about ways to exploit this untapped equity. The Fidelity study has a long section (pp.16-28) on the avenues available, such as reverse mortgages and selling your home to access the capital and the renting a smaller home.

If your plan is to take out a reverse mortgage or Home Equity Line of Credit (HELOC) in order to tap your accumulated equity in your home, this is not without cost. There are substantial transaction costs. These transaction costs allow you to live in your home while taking out equity incrementally.

My summary on this issue, given the types of results shown here and in light of the tax benefits of home ownership is the following:

- 1) Buying and owning your home generally makes sense
- 2) Buying substantially more house than you need is, in general, less than ideal as an investment—this is a consumption decision
- 3) Buying more house rather than fully taking advantage of tax-deferred retirement accounts is likely to be an expensive choice in the long-term
- 4) It may make more sense to invest in REIT's than to accelerate the pay-off on your mortgage if you want to invest in real estate

- 5) Investing in real estate via REIT's is likely to generate higher returns over the long-haul than buying a more expensive home
- 6) Real estate is not a 'special' asset class—it abides by the long-term balance in risk and return that capital markets provide
- 7) The historical rate of return on residential real estate is substantially less than has been achieved by stocks over long historical periods

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<http://www.quantext.com/gpage3.html>