

In recent weeks, there has been a tremendous amount of press about the burgeoning disaster in sub-prime mortgages, high foreclosure rates, and other bad news for real estate. The Associated Press just reported that we are experiencing the steepest drop in home prices since Standard and Poor's has been compiling its housing index in 1987:

http://biz.yahoo.com/ap/070828/home_price_index.html?.v=10

The news media's response to the price declines does not really put this in a reasonable context. The standard rhetoric is that we are facing an unprecedented challenge in determining the extent of the sub-prime meltdown. People have taken on too much debt, and now they are defaulting in large numbers. As always when a market declines quickly, many observers will act as though the situation is driven by some 'perfect storm' that threatens to shake the foundations of the markets or at least of the asset class that is having troubles. Nothing could be further from the truth with regard to real estate. All of the drivers have been in place for a substantial real estate meltdown for some time and the declines that we have seen and will likely see are within bounds that could reasonably be anticipated.

To begin, let's revisit an article that I wrote back in April—not very long ago—about real estate:

“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 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 substantial 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. 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. “

<http://seekingalpha.com/article/32342-investing-in-real-estate-reits-and-your-home>

At that time, REIT's had been averaging more than 20% per year for five years. For the long-term average return to come down to 10%-11%, there need to be quite a few future years of returns considerably below 10%. Let's just assume that the real estate market will balance out on decadal time scales or so. With five years averaging 20% per year, it

will take another five years averaging 0% per year to get the average return down to 10% per year. That does not cover the really painful part, however. We could have quite a whipsaw market from year to year to get our average of 0%.

Quantext Portfolio Planner (QPP), which I used in that article in April, allows the user to run using data up to some historical date. From the end of April 2007 through the end of July 2007 (three months), the Cohen and Steers REIT index ETF (ICF) has dropped by 18.7%. The Vanguard REIT index fund (VGSIX) and the Dow Jones Wilshire REIT ETF dropped by 16.5% over this same three month period. When I ran QPP using five years of data through March of 2007 (and any QPP users can do this, too), QPP generated the probability of specific levels of returns from these ETF's over the next three-month period, as it would have appeared back at the end of March. I have used a model portfolio that is equally-weighted between ICF, RWR, and VGSIX. (Note: I have used VGSIX rather than VNQ, the ETF version of VGSIX, because VNQ does not have enough data history).

Portfolio Stats	
Average Annual Return	Standard Deviation(Annual)
10.3%	19.2%
Historical Data	
Start: 4/1/2002	End: 3/30/2007
Average Annual Return	Standard Deviation (Annual)
21.9%	15.3%

QPP projections and historical data for a portfolio equally-weighted between ICF, RWR, and VGSIX, from March 30, 2007.

The table marked ***Portfolio Stats*** (above) shows a projected average return for this portfolio of 10.3% per year, with a standard deviation of 19.2%. This is half the average

return of 21.9% that this portfolio had generated over the trailing five year period, with considerably more volatility (as measured by Standard Deviation in return). QPP also generates forward-looking probabilities for returns over a user-specific time period. The results for a 90-day horizon are shown below.

Percentile	Return
1%	-18.7%
5%	-13.5%
10%	-10.1%
15%	-7.6%
20%	-5.5%
25%	-4.1%
30%	-2.5%
35%	-1%
40%	0%

Probability of 90-day return in VGSIX, RWR, and ICF using data through March 2007 (generated by QPP)

QPP calculated that a portfolio equally allocated among these REIT ETF's had a five percent chance of losing 13.5% or more over 90 days from the end of March (see the 5th percentile in the table above). As it has happened, the REIT ETF's generated losses of -16.5% to -18.7% over the 90-day period from April 30-July 31. This is between the 5th percentile and 1st percentile estimated by QPP. The point is that this was a very bad period, but it was not outside of the realm of possibility---not the perfect storm. Investors need to manage their portfolios so that things in the low percentiles are not disasters. A risk anticipated is half avoided---and statistical models anticipated this level of risk.

So, that was then. What about going forward? I have run QPP using five years of data through August 28, 2007 (I am writing this during trading on August 29th). How do the REIT's look going forward? I have generated an outlook for a portfolio equally weighted between ICF, RWR, and VGSIX. The results are shown in the table below. The table marked ***Portfolio Stats*** shows QPP's projections for this portfolio going forward (below).

Since the substantial decline between from the end of March through the end of July, the projected return for the REIT's is higher---now it is projected to be 11.8% per year (vs. 10.3% per year, prior to the big three-month decline). That said, the projected volatility (measured by standard deviation in return) is also higher, driven in part by the unraveling of the sub-prime situation.

Portfolio Stats	
Average Annual Return	Standard Deviation(Annual)
11.8%	22.2%
Historical Data	
Start: 8/29/2002	End: 8/28/2007
Average Annual Return	Standard Deviation (Annual)
18.2%	16.3%

QPP projections and historical data for a portfolio equally-weighted between ICF, RWR, and VGSIX, from August 29th forward

QPP uses these projections to calculate the percentiles of return for a user-specified period. When we look at the projected one-year horizon (below), we see that QPP is projecting a 5th percentile of a return of -25.5% or worse. QPP projects that these REIT funds have a 30% chance of generating a return at or below 0% over the next year (see table below).

Percentile	Return
1%	-37.8%
5%	-25.5%
10%	-17.5%
15%	-11.8%
20%	-7.0%
25%	-3.8%
30%	0.0%
35%	4%
40%	6%

***Probability of 365-day return in VGSIX, ICF, and RWR from Aug 29, 2007 forward
(generated by QPP)***

So what does all of this analysis mean for those who invest in REIT's and REIT funds? First, it is important for investors to understand that, as unpleasant as these recent months have been, this is part of the normal market dynamics that occur in all asset classes---albeit in the tails. The big decline in REIT's and REIT funds in recent months are not outside of the range that could reasonably be projected prior to the decline. The 5th percentile statistics for something to occur are not that rare---1-in-20 in any period. Further, it is crucial to understand that the 5th percentile projected return means that there is a 5% chance that returns will be at this level or lower. **Bottom line: QPP projects a 5% chance that our REIT ETF's will decline by 25.5% or more over the next year.**

Going forward, there is good news and bad news. The good news is that the projected returns on the three REIT index funds (ICF, RWR, and VGSIX) are higher than they were several months ago. The bad news is that these higher projected future returns are largely due to the big declines and higher volatility driven by the mortgage mess—which also translates to a higher projected future volatility than we saw back in April.

I am not being glib about the real estate decline---it has cost a lot of people a lot of money. The point that I am trying to make here is that investors and advisors need to manage the risks of relatively improbable events. This is not possible if the likelihood of the improbable events cannot be anticipated. In the case of real estate, statistical models

like QPP did anticipate the potential for the levels of declines that we have seen in recent months, and these results enabled their users to calculate the costs of a severe decline--- thereby providing the tools to manage these risks. Going forward, volatility appears even higher than we have seen in recent months. This does not mean that the bottom is going to fall out of the market—but the potential for a continuing substantial decline is there.

Finally, I would like to put this discussion of REIT's into context. REIT's have a place in a sensible asset allocation plan. Our portfolio of three REIT ETF's has exhibited only a 40% correlation to IVV, the iShares S&P500 ETF, over the past five years, as well as a 40% correlation to the EAFE index ETF (EFA). This low correlation means that REIT's have considerable diversification power in an equity portfolio (For reference, IVV and EFA have exhibited a correlation of 84% over this same period). For the long-term investors, this is the context in which to think about the value of REIT's.

Quantext Portfolio Planner is a portfolio management tool. Extensive case studies, as well as access to a free extended trial, are available at <http://www.quantext.com>

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