

Mortgages And Treasuries On Large-Move Days

A future historian of our civilization might very well puzzle over why the simple act of lending someone money to buy a house could, when aggregated over millions of such purchases, lead to such chaos. A single army ant is not a problem, but a column of the little critters is, and maybe that is all you need to know.

The mortgage market is an important driver of the Treasury market in many ways; this was true even before the federal government turned itself into a machine for bailout out imprudent lenders and imprudent borrowers at the expense of the prudent. Then the game was buying Treasuries, which generally are non-callable, as protection against early prepayment of mortgages; this turned into a self-fulfilling prophecy as the Treasury purchases lowered interest rates and accelerated prepayments even more. The trick worked in reverse, too: As interest rates rose and prepayments slowed, mortgage lenders sold Treasuries. This forced interest rates higher and led to something called extension risk. Everyone got it coming and going in this market; and these were the good old days before foreclosures and defaults became the subject of cocktail party conversation.

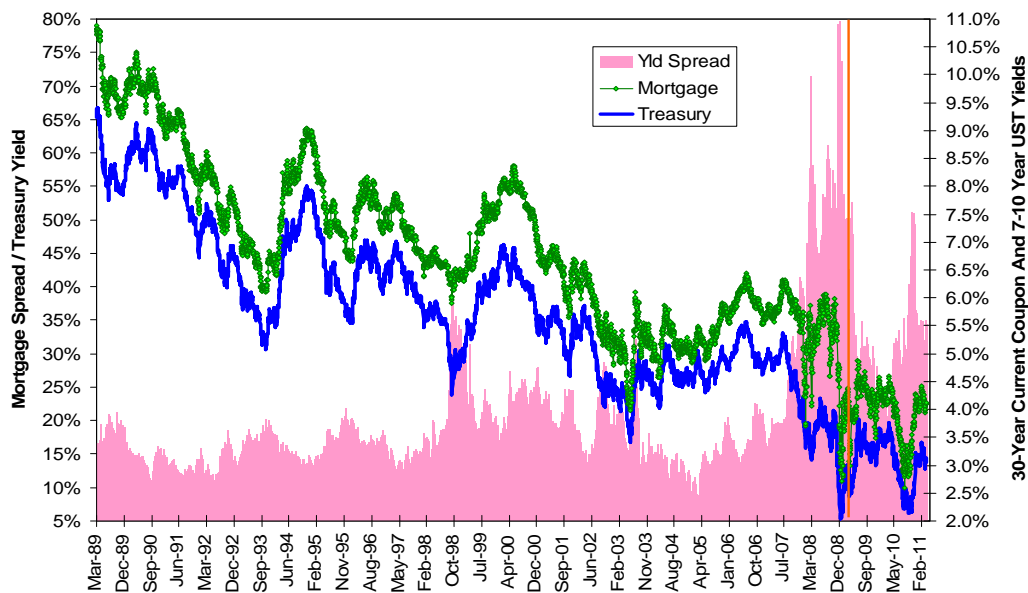
Mortgage-backed securities (MBS) trade as a spread to Treasury notes and bonds. If Treasury Inflation-Protected Securities' (TIPS) spreads widen and contract when the more liquid conventional Treasuries have a big move up or down (see "TIPS, Treasuries and Insurance," May 2008), does the same thing happen to MBS?

Spread History

Let's use the Fannie Mae 30-year current coupon mortgages and 7-10 year U.S. Treasuries as the bases for comparison. The two markets have moved together erratically over the past two decades even as the mortgage market itself moved away from this most plain-vanilla of mortgages to a wide variety of exotic mortgages. Yes, that worked well. As the ordinal level of interest rates has moved up and down over a wide range during this period, we should normalize the spread between mortgages and Treasuries to the Treasury yield.

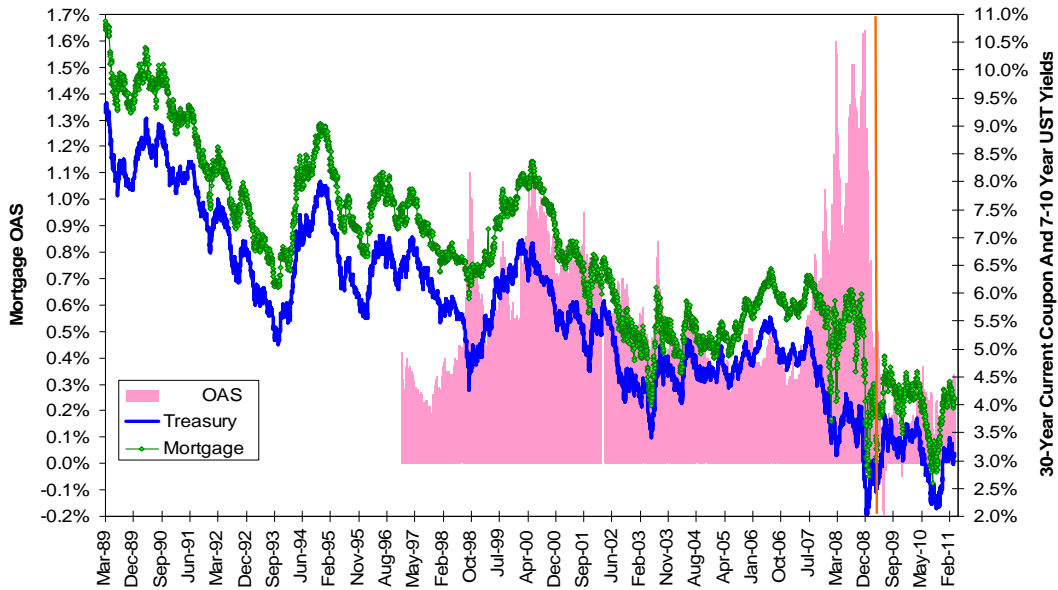
The history of these rates and the normalized yield spread has seen two spikes; the first, associated with the Long Term Capital Management debacle of 1998 looked like a major disruption at the time, but it pales in comparison to the 2007-2009 Himalayan spike in the chart. It took nothing short of a \$1.25 trillion purchase of mortgages by the Federal Reserve beginning in March 2009, marked with an orange vertical line, to knock mortgages back down to levels still high by historic standards.

Normalized Yield Spreads Still At High End Of Pre-Crisis Levels



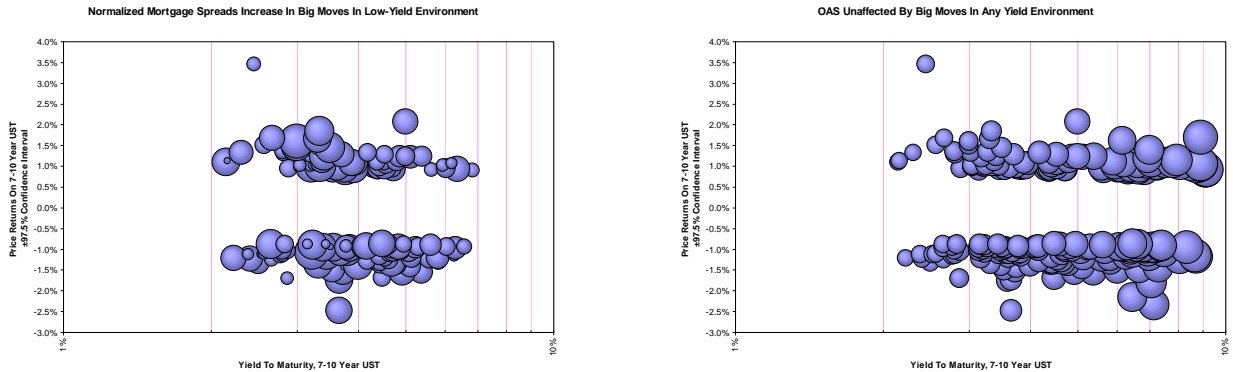
If change the normalized yield spread to the option-adjusted spread between mortgages and Treasuries, a measure that attempts to account for prepayment risk in mortgages, we see an even more exaggerated rise and fall in mortgage OAS during the 2007-2009 financial crisis. The Federal Reserve did manage to demonstrate if you throw \$1.25 trillion at a wide spread, you can narrow it. Godzilla would understand.

Mortgage OAS Rising From Low Levels

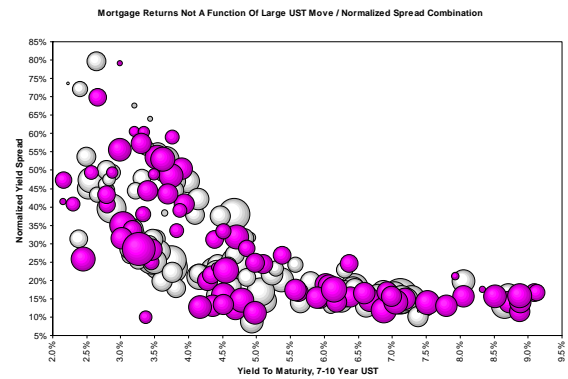
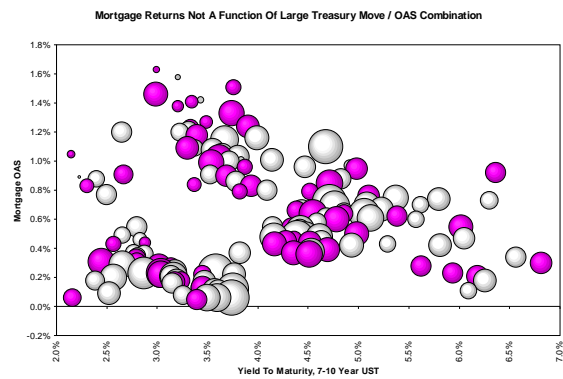


Is There An Insurance Trade?

Now let's look at what happens to the mortgage spreads on days when returns on the 7-10 year U.S. Treasuries exceed a $\pm 97.5\%$ confidence interval. If we map changes in both OAS and normalized yield spreads, with the magnitude of the change represented by the diameter of the bubbles in the charts below, as a function of the Treasury price returns and underlying yields, we see OAS levels largely are unaffected by one-day changes in the Treasury market, but normalized yield spreads expand at lower yield levels. It seems as if the OAS market simply does not have time to react to one-day wonders in the Treasury market, but as these changes are part of the normalized yield spread and as the value of a basis point change in yield expands at lower levels, the normalized yield spread can and indeed must react instantaneously.



If we shift the comparison to price returns on the mortgage index as a function of the spread levels and the Treasury yield level, a much more random pattern emerges; here negative price returns are depicted in white bubbles. Regardless of the spread used is OAS or the normalized yield spreads, the distribution of positive and negative price returns on the mortgage index is not clustered.



Different From TIPS

We should not be surprised the insurance trade seen for TIPS is missing in mortgages. TIPS and conventional Treasuries have the same issuer, Uncle Sam, and both a unsecured obligations of the federal government. Whether they actually have the same credit risk is an open-ended question: TIPS' payout depends on the government's calculation of what the All-Urban Consumer Price index, not seasonally adjusted is, and the return to investors is affected by the tax rate of the accrual of principal. In both cases, the issuer gets to affect the payout after the bond has been issued. No one could sell corporate bonds with such an obvious conflict of interest; even the ratings agencies might demur. In any event, the trade between TIPS and Treasuries becomes an either-or decision for nearly the same obligation where the major distinguishing factor is liquidity. Fleeing into conventional Treasuries is far easier than fleeing into TIPS.

Mortgages are different from Treasuries in all other aspects. Not only are these secured obligations based on illiquid underlying markets and reflective of a pool of related but still different credit risks, the issues are subject to a host of embedded options and, as we found out the hard way, default risks. An investor is not faced with an either-or decision between fleeing into Treasuries or fleeing into MBS; no one in their right mind would choose to take the cash raised during a stock market meltdown and park it in MBS with the intention of selling those securities once the coast was clear.

Thus we have a time-dependent relationship. MBS and Treasuries affect each other in major ways over timeframes longer than a few days, but they do not affect one another in any significant or predictable way during those large-scale, short-term big moves in Treasuries.