

Volatility And Swap Spreads

For those of you who wish to become masters of counterintelligence, here is a surefire method of interrogation to separate financial professionals from pretenders: Start talking about swap spreads, the shape of the yield curve and the term structure of fixed-income volatility. The pros will remain interested while the poseurs will run out of the room screaming for mercy. A swap spread is nothing more than the difference between the fixed-leg of a swap, which in turn is the present value of the yield curve, and the Treasury rate.

This is a shame, for the intersection of the market indicators provides valuable insights into the direction of corporate bonds and, by extension, stocks. Here is a chain of causation commonly seen in the many financial crises of the past fifteen years:

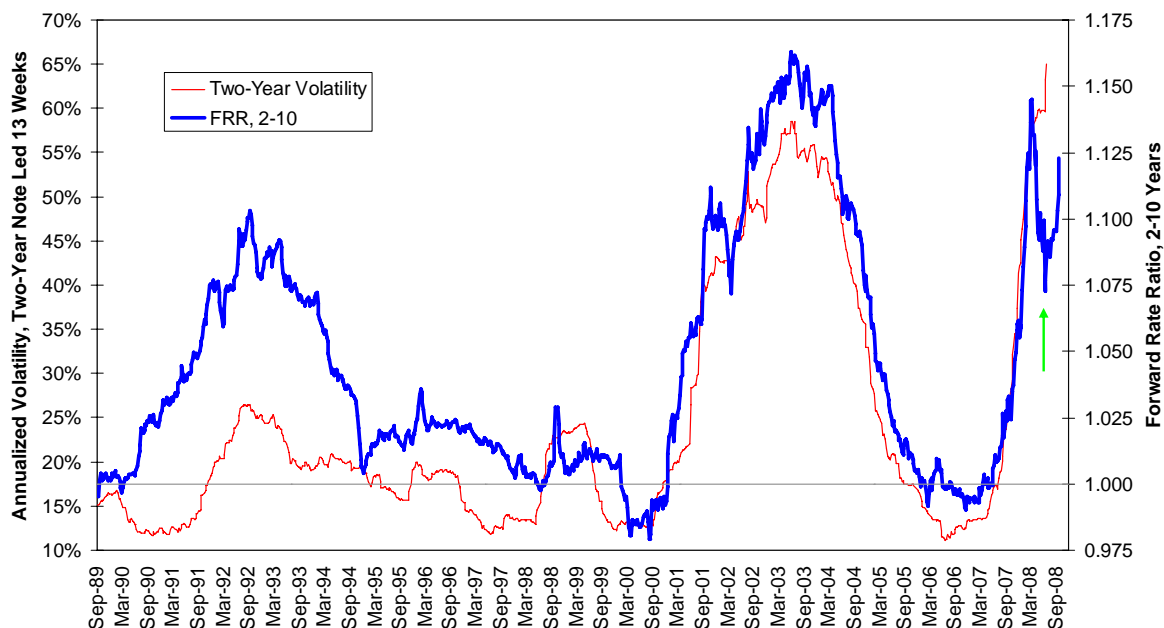
1. To the extent increased credit stress induces a monetary response from the Federal Reserve, both a flight-to-quality leading to both a steeper yield curve and to higher short-term interest rate volatility will ensue;
2. Higher short-term volatility expands swap spreads, the difference between Treasuries and LIBOR-based interest rate swaps;
3. As money flees to the safety of the short-end of the yield curve, swap spreads expand faster there than at the long-end of the yield curve; thus
4. Leading to an inversion of swap spreads, which lead in turn to
5. Wider credit spreads for corporate bonds and their underperformance relative to Treasuries; and finally
6. To pressure on stocks

As they say at quitting time, that's enough damage for one day. As these relationships go a long way toward narrating the demolition derby that was financial markets between January and September 2008, let's take a look at how they link together.

The Yield Curve

The steeper yield curve as measured by the forward rate ratio between two and ten years ($FRR_{2,10}$), the rate at which we can lock in borrowing for eight years starting two years from now, divided by the ten-year rate itself, leads the implied volatility on zero-coupon two-year Treasuries by thirteen weeks on average. A $FRR_{2,10}$ greater than 1.00 indicates a positively sloped yield curve; a $FRR_{2,10}$ less than 1.00 indicates an inverted yield curve. The relationship broke in June 2008, marked with a green arrow, when Benjamin Bernanke indicated he was inclined toward raising short-term interest rates, but then it resumed in force.

The Yield Curve Leads Volatility



This relationship should not be surprising at all; bond traders get nervous when yields plunge to what they consider to be unsustainably low levels. A steeper yield curve produced by Federal Reserve stimulus is viewed, correctly, as a temporary situation, and bond traders start to buy insurance against its unwinding. This is why volatility rises in such a cycle.

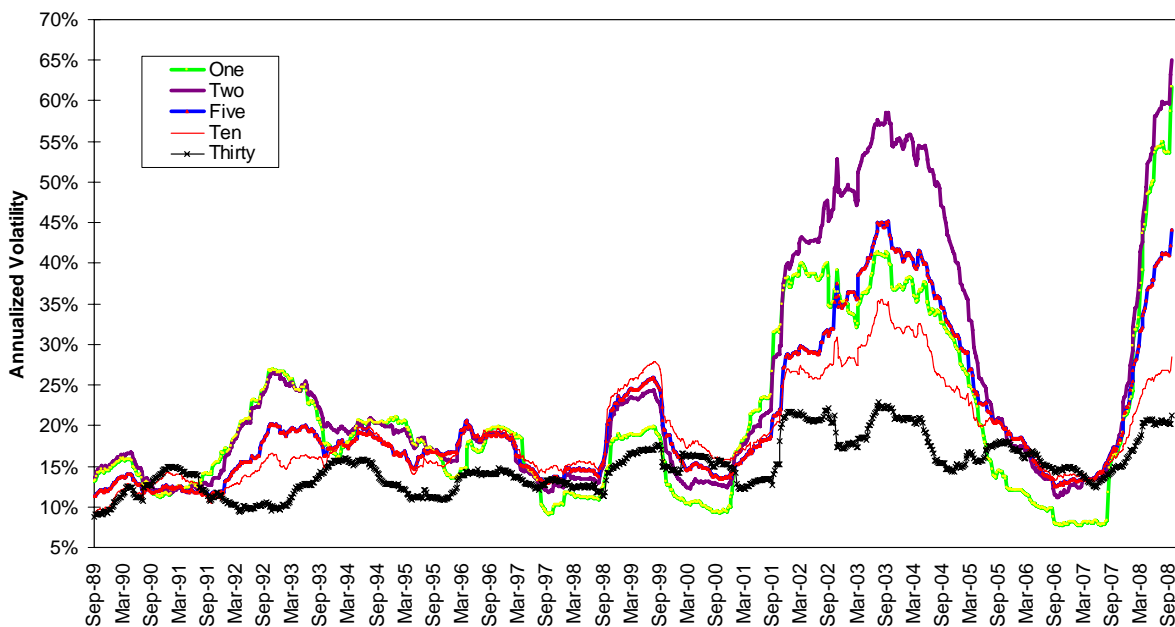
Term Structure Of Volatility

Thanks to the successive efforts of Alan Greenspan and Benjamin Bernanke in providing us with two grand social experiments in rapid and violent steepenings and flattenings of the yield curve, we can map how the term structure of volatility changes during these events.

Most bond traders regard the long end of the yield curve, ten- and thirty-year bonds, as being more volatile because their tick movements and dollars per trade move more. It takes a little bit of training to remind ourselves the opposite is true; the shorter the maturity of an interest rate instrument, the more volatile the change in its yield even though the dollar impact of that volatility will be less.

During the 2002-2002 and 2007-2008 steepenings of the yield curve, the implied volatility term structure distorted in response to this verity. The one- and especially the two-year note's implied volatility shot higher, and by September reached levels seen for Third World countries during currency crises, not to cast aspersions on our beloved Federal Reserve. The volatility of the longer-dated bonds, the ten- and thirty-year issues, rose in both instances, but nowhere near as much.

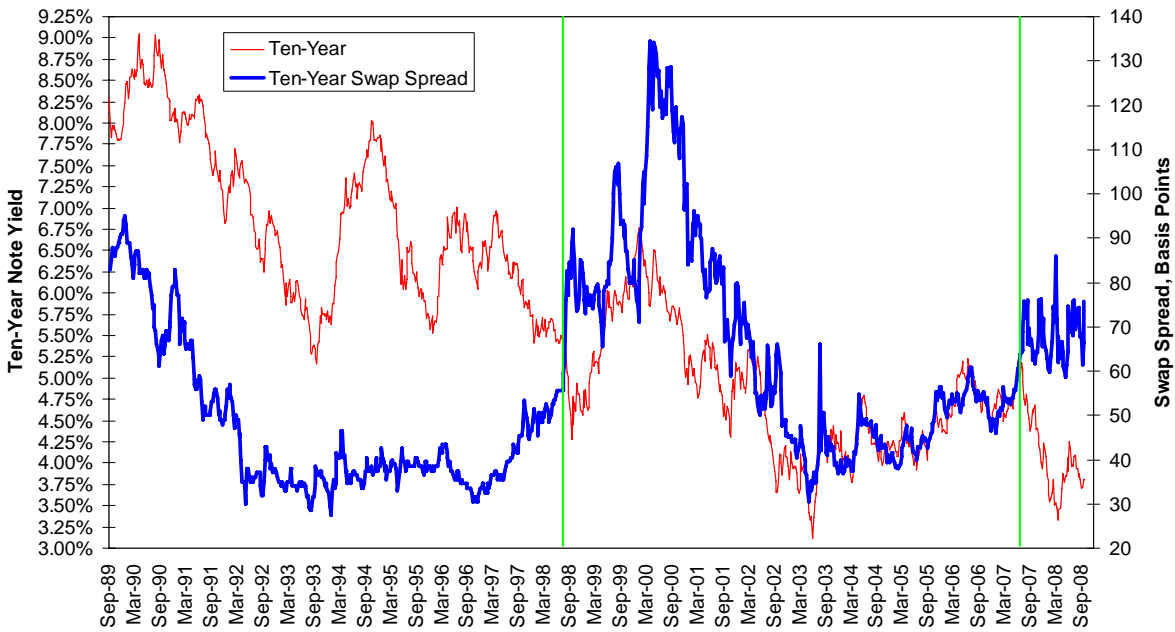
The Term Structure Of Interest Rate Volatility



Impact On Swap Spreads

Swap spreads tend to rise in times of financial stress as investors move from the counterparty credit risk of the LIBOR world to the “safety” of Treasuries; safety being a relative term when the after-tax constant-dollar yield on Treasuries spent much of early 2008 in negative territory. We can map the paths of ten-year Treasuries and swap spreads over time; the 1998 Long Term Capital Management crisis and the 2007 subprime crisis, both highlighted with a green vertical line, have a similar look. This relationship is likely to be distorted in coming years as the bond market grapples with the astounding levels of federal debt created during the various bailouts of 2008.

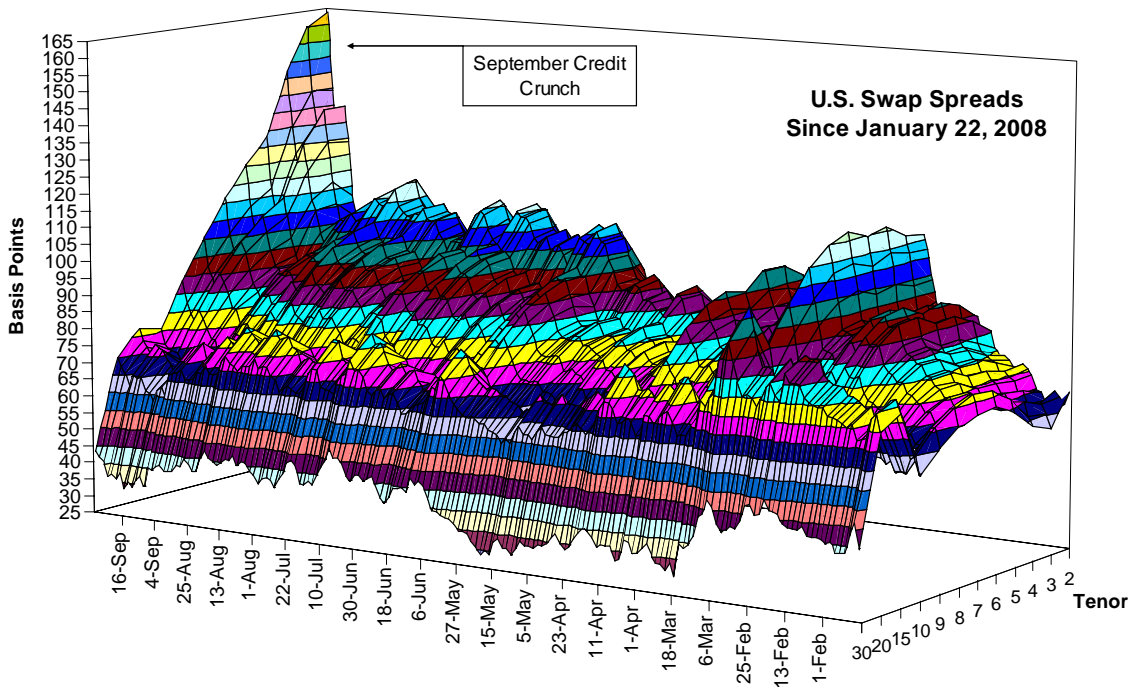
Ten-Year Note Yields And Swap Spreads



Term Structure of Swap Spreads

But just as the Treasury market has its term structure, the yield curve, and volatility has its term structure, so do swap spreads. The lesson here is quite parallel to that seen for the volatility market, which makes sense given their similar impetuses from risk and sustainability considerations: The more stressed the markets become, the more inverted the term of swap spreads.

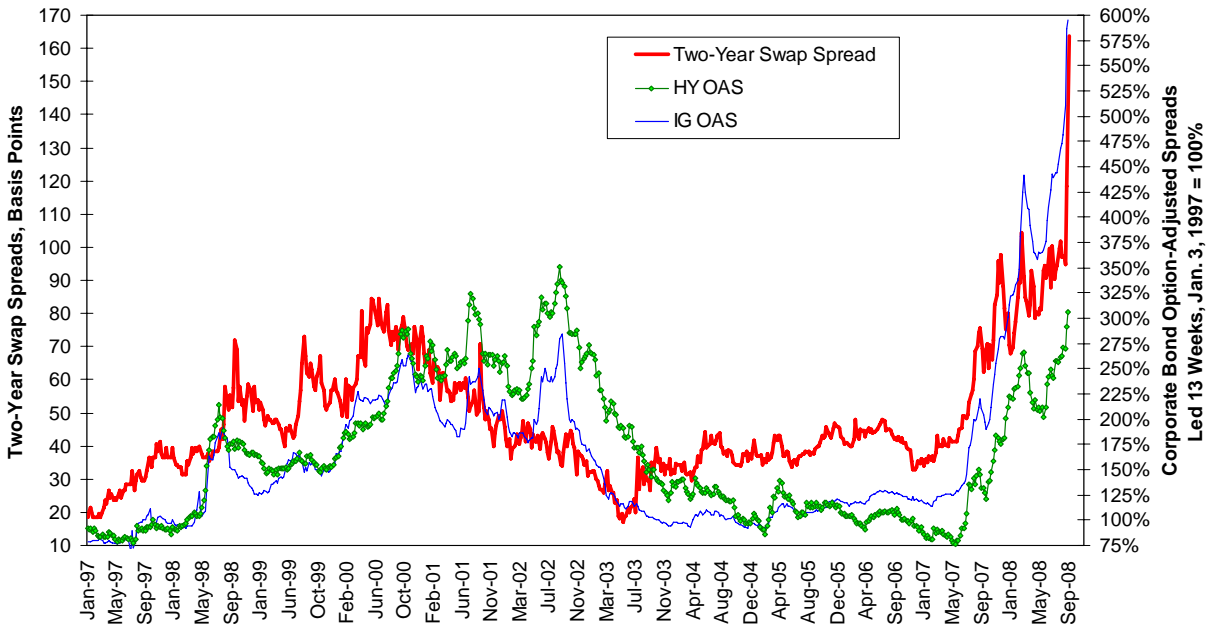
If we map swap spreads across a range of tenors, or maturities, from the January 22, 2008 panic low, we see how the shorter-dated swap spreads moved to levels well over their longer-dated counterparts; this trend exploded higher during the September 2008 financial crisis. These inversions are hardly a sign of market health; they indicate banks are less willing to trade with each other than with the Treasury and demand a higher spread in recompense.



Impact On Corporate Bonds

Finally, let's see what swap spreads affect corporate bonds, both investment-grade and high-yield. If rising swap spreads reflect increased stress in the financial system, then we should expect the credit spreads to rise after swap spreads do. If we map the option-adjusted spreads for both investment-grade and high-yield corporate bonds led by the same 13 weeks we used before in discussing the relationship between volatility and the yield curve, we should see a tight relationship and we do.

Rising Swap Spreads Raise Corporate Credit Spreads



There you have it: Enough to bore the KGB into submission, but enough to know when to buy or avoid corporate bonds and by extension stocks. No capital market exists in a vacuum, and each one provides clues to where the others are going.