The Yield Curve And Inflation Expectations

"For every complex problem, there is a solution that is simple, neat, and wrong." -- H.L. Mencken

The Sage of Baltimore was on to something, as he usually was, but there is no evidence whatsoever he had theories of the yield curve in mind with this utterance. Suffice to say scores of PhD theses have been written on what drives the shape of the yield curve, the pattern of interest rates across maturities, and while some of them have gone off into dazzling complexity and therefore into zero good for humanity, most gravitate toward Mencken's description.

One of the most common explanations for the liquidity premium, or gap between ten-year Treasury rates and three-month LIBOR, is expected inflation. This is in keeping with Fisher's Law, which states nominal interest rates are the sum of real interest rates and expected inflation. This is the same Irving Fisher of Yale, one of the great economists of the 1920s, whose unfortunate remark on October 17, 1929 that "stocks have reached what looks like a permanently high plateau" would have done daytime business television proud had the medium existed. He must have been a terrific professor and a likeable sort, too, otherwise why would Yale alumni have chipped in to get him a place to live after he got clobbered in the subsequent crash and Great Depression?

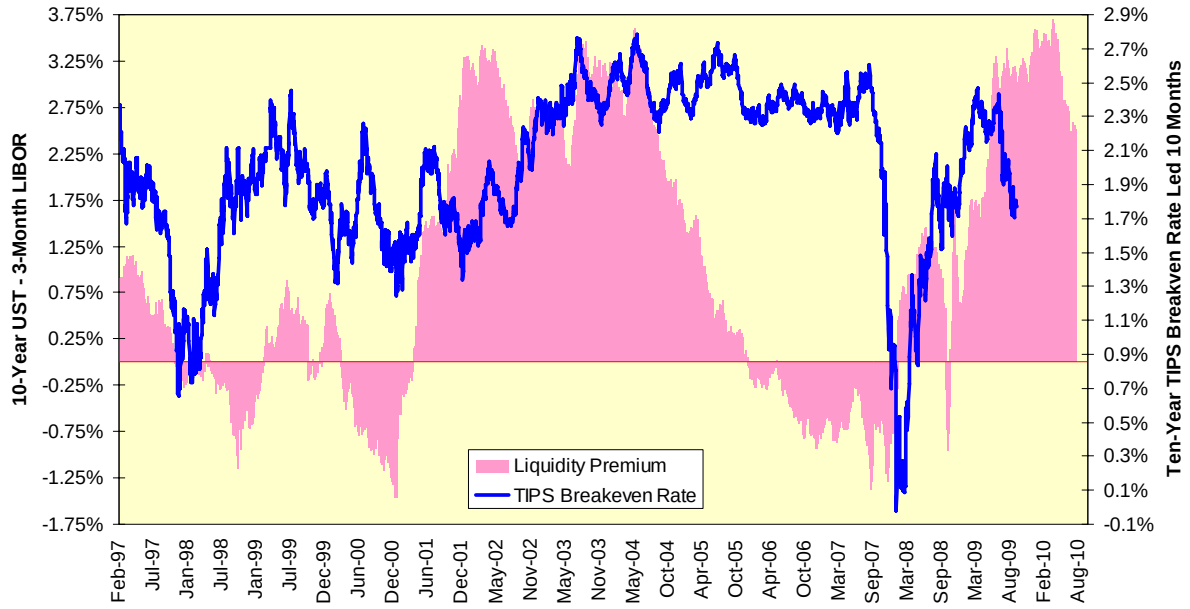
Expected Inflation

The development of Treasury Inflation-Protected Securities (TIPS) and other inflation-linked bonds may have been the worst thing ever to happen to academic economists focused on inflation. Whereas expected inflation had been an abstraction, here was an instrument with an actual payoff linked to the All-Urban CPI, Not Seasonally Adjusted. Never mind that TIPS have several options embedded in them, including the government's inherent conflict of interest in the accurate reporting of inflation, the tax rate of the accrual of the TIPS principal and the put option on deflation should it occur over the life of the bond. In addition, the role Treasury securities play as insurance during our too-frequent financial crises forces nominal Treasury yields lower and makes the resulting breakeven rate of inflation, the difference between nominal yields and TIPS yields, look lower than it is.

Still, with all of these imperfections TIPS are the only game in town when it comes to measuring inflation without acquiring the credit risk of a corporate or municipal inflation-linked issuer. The results would have been highly unsatisfying to Fisher as it is impossible to add TIPS yields and reported inflation and reconstruct the nominal Treasury yield. As an aside, the author has compared the implicit CPI forecasts from the TIPS market with the CPI forecasts of prominent economists as collected by *The Wall Street Journal* and has found the TIPS market to be a better forecaster.

We can, at best, state the liquidity premium leads ten-year TIPS breakevens by ten weeks on average as seen in Chart 1. Restated, a steeper yield curve leads higher inflation expectations after a long lag, not the simultaneous additive function posited by Fisher. This failure helps explain why TIPS breakevens have not moved significantly higher in a steep yield curve environment.

Chart 1: Are Expected Inflation And The Yield Curve Related?



Volatility's Role

The entire notion behind the importance of expected inflation in contributing to the liquidity premium is investors must be compensated for the risks posed thereby. What other market variables might contribute to the risk of an investor receiving far less from a bond than was bargained for at purchase?

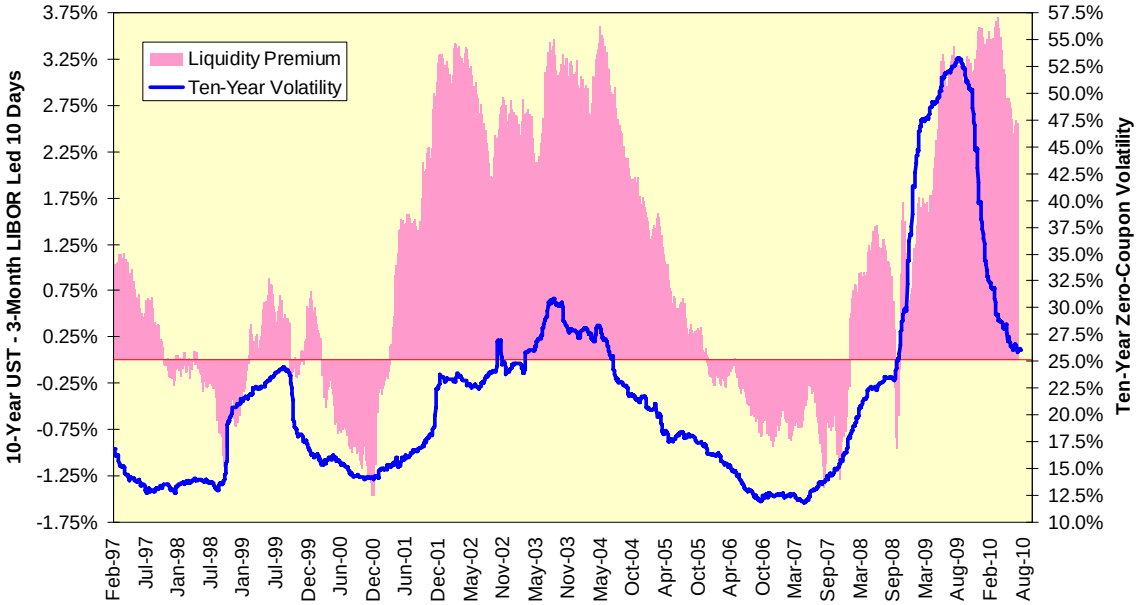
For a foreign investor, a major category in the U.S. Treasury market as the American current account deficit must be financed by definition by capital inflows, currency volatility poses a significant risk. The higher the currency's volatility, the greater the impact of a negative outcome in real terms should the dollar's value plunge. Oddly enough, and in a point lost to many, a weak dollar makes U.S. Treasuries more attractive at purchase as the foreign investor gets to buy a greater quantity of these cheaper dollar assets. Once the securities are bought, however, the investor immediately starts cheering for the greenback to rally.

Prior to the housing market calamities of 2007-2009, mortgage-related volatility was a major contributor to the liquidity premium. As Treasury bonds are not callable, they were bought as prepayment protection by mortgagees. It is difficult to compare the Treasury market to the mortgage-backed securities market after the experience of recent years.

Another major source of risk for the bond investor is higher fixed-income volatility itself. If we compare the volatility on a ten-year zero-coupon Treasury security to the liquidity premium in Chart 2, we find volatility leads the premium by ten days on average. The effect was especially exaggerated during the steep yield curve markets of 2008-2009. Ten-year zero-coupon volatility poses threatens bonds' return because it raises both the cost of hedging and the dispersion of those returns.

Moreover, unlike the ten-month lagging relationship between the liquidity premium and TIPS breakevens, volatility leads the liquidity premium by ten days on average. Higher (lower) volatility quickly leads to a larger (smaller) liquidity premium.

Chart 2: Volatility And The Yield Curve

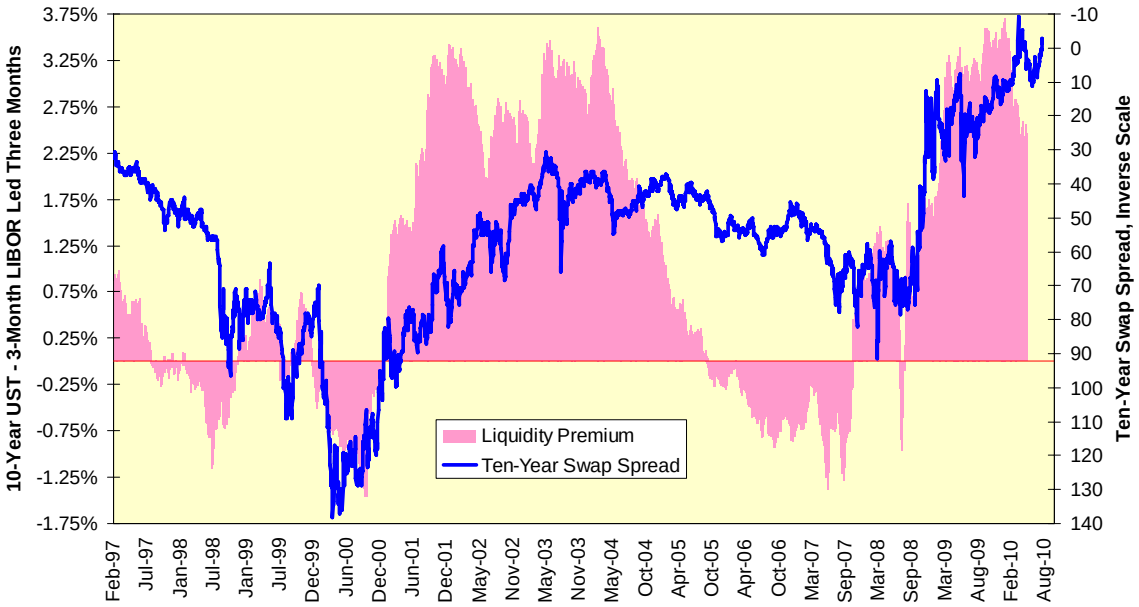


Swap Spreads

Another link to the liquidity premium comes from swap spreads. A swap spread is what someone paying a floating rate of interest will pay to fix the payment rate on the loan. All else held equal, the higher the swap spread, the greater the expectation rates will rise, and vice-versa. Swap spreads, like interest rates, have a term structure of their own; one of the more fascinating developments during the height (depth?) of the financial crisis in 2008 was long-dated swap spreads went negative, not only in the U.S. but in the Eurozone as well. This was equivalent to saying, "I am so confident of rates going lower you will have to pay me to fix them." That is about as in-your-face as anything in the bond market gets.

As we are comparing the spread from three-month LIBOR to ten-year Treasuries, we will use the ten-year swap spread in Chart 3. The swap spread leads the liquidity premium by three months on average, but on an inverse scale. This is a classic contrarian trade; the less worried investors are about ten-year rates rising, the more the liquidity premium is likely to expand.

Chart 3: Swap Spreads And The Yield Curve



Policy Lesson

What is the takeaway from these various factors influencing the liquidity premium? First, we need to remember the yield curve does not happen in a vacuum. The steeper the yield curve, the higher the liquidity premium, the more a long-term investor in plant and equipment must pay. Investment decisions are made at the long end, not the short end, of the yield curve.

Second, transparency matters. If officials confuse the markets with their intentions, they will raise both currency and interest rate volatility and therefore will drive up the federal government's borrowing costs. These can be very expensive words and gestures given the size of the federal deficit now and for years to come.

Third, and in a nod to Fisher, everything the government can do to assure the market its interests lie in price stability will flatten the yield curve and lower financing costs. This means no more wars on deflation when it does not exist and no more trying to solve every problem by throwing money on the floor. This is not a game; this is the life of a nation.