**High –Yield Spread Dislocation Model**

June 2011

We hypothesize the existence of a fair-value premium over anticipated loss given defaults at which the Barclays High-Yield Index should trade, and define *spread dislocation* as the difference between the option-adjusted spread of the High-Yield Index and the sum of [the fair-value premium + loss given default]. A positive spread dislocation greater than 25 basis points is a buy signal; a negative spread dislocation larger than -25 basis points, implying High-Yield is overbought, is a sell signal.

Anticipated loss given default is the product of an anticipated default rate and an anticipated loss severity.

* For the anticipated default rate, we use Moody’s *pessimistic* estimate for the US high-yield default rate, twelve months forward. For example, in our May update, the default rate assumption of 5.6%. This is Moody’s prediction for the rate at which U.S. high-yield credits will default in May 2012.
* To estimate loss severity, we first recast loss severity in terms of a recovery rate:

100 – anticipated recovery rate (1)

Using historical monthly series of observed default rates and observed recovery rates, we fit an exponential regression of the form:

recovery rate =  \*  default rate (2)

then use the regression to estimate the anticipated recovery rate when default rates are in the neighborhood of the default-rate assumption (as defined by Moody’s pessimistic model).

The fair-value risk premium is estimated by linear regression:

Risk premium = +  \* [outlook indicator] (3)

Here, we hypothesize that the high-yield risk premium (i.e., the compensation required by investors beyond loss given default) declines as investor outlook turns sanguine and prospects for growth improve, and rises as investor sentiment turns gray. Accordingly, we seek an “outlook” indicator for which declining values imply strengthening risk appetites, and rising values imply tighter risk tolerance. For our outlook indicator, we adopt the ratio of an exponentially-weighted past stock market level to the current stock market level, where the “stock market” is proxied by the S&P 500. More specifically, we define:

\* Lt as the level of the S&P 500 at the end of the current month

\* as the exponentially-weighted stock-market level at the end of the current month

Then

Outlook indicator = (4)

Each month, the “risk premium” component of the option-adjusted spread is determined by backing out the anticipated loss given default:

Risk premium = High-Yield OAS – anticipated loss given default (5)

where

anticipated loss given default = anticipated default rate \* (100 – anticipated recovery value) (6)

This gives us a monthly series of risk premia that form the monthly observation set for the dependent variable of the regression. The monthly observations for the independent variable (i.e., the outlook indicator) are readily calculated by recursion from month-end S&P levels [see equation (4), above]. After re-calibrating the coefficients, we estimate the current fair-value risk premium by substituting the current value of the outlook indicator in the regression model [equation (3), above].

The fair-value option-adjusted spread of the Barclays High-Yield Index is the sum of

* the fair-value premium derived from equation (3), and
* the anticipated loss given default derived from equation (6) using Moody’s 12-month forward pessimistic estimate for default rate, and a recovery rate that corresponds to the default rate [as derived from the exponential regression in equation (2)].

At April month-end, the model turned cautious on High-Yield, and claimed the month-end OAS of the Barclays High-Yield Index was 88 basis points rich to fair value. The model profited from its Underweight call in May. For June, the model takes a U-turn and becomes constructive on the sector: the underweight is lifted and an overweight is initiated. While the 30 basis point backup in spreads during May moderated the overbought condition, the primary instigator of the model’s shift in sentiment is the 120 basis point decline in Moody’s pessimistic 12-month forward default-rate estimate (from 6.8% to 5.6%). The 1.2% decline in the default-rate reverses last month’s similarly-sized increase which, at the time, felt quirky owing to a lack of corroborative data.

As noted, Moody’s pessimistic estimate for the US high-yield default rate, twelve months forward, is 5.6% (i.e., Moody’s predicts U.S. high-yield credits will default in May 2012 at a rate of 5.6%). From our regression studies, we find that recovery rates average 40.2% when default rates are at levels near 5.6%. Hence, loss given default is expected to be 335 basis points [i.e., 335 5.6% \* (1 – 40.2%)]. According to the model, High Yield credit should be trading with an average spread premium of 125 basis points (i.e., the compensation above the anticipated loss given default). In turn, the fair-value option-adjusted spread for the High-Yield index is 335 + 125 = 460 basis points, 32 basis points tighter than the index’s month-end OAS of 492 basis points[[1]](#footnote-1). Since 32 basis points is greater than the 25 basis-point threshold for an actionable signal, the model initiates an Overweight.

The two figures in the next attachment review the model’s performance since January 2002. The first chart overlays the model’s signals (both actionable and neutral) on the trajectory of High-Yield OAS, and highlights the current long signal as a green square. The second chart tracks the model’s monthly and cumulative P/L for the study period from January 2002 to May 2011 – the simulated portfolio assumes a long or short exposure of 0.5 dur$ in the Barclays High-Yield Index whenever an actionable signal has been generated. The cumulative profit over the simulated period is 14.9% (or, 148 basis points annualized).

1. Moody’s also issues a monthly *baseline* forecast for default rates: the baseline estimate for the US high-yield default rate, twelve months forward, is 1.8%, 0.1% lower than last month’s estimate. The version of the model using baseline forecasts remains constructive on High Yield in June 2011. We have found that the *pessimistic* model has better predictive power than the *baseline* model. [↑](#footnote-ref-1)