

Notes on the High-Yield Option-Adjusted Spread Forecast

April 2017

Kara Naccarelli

Moody's Analytics introduced a new forecast for the high-yield bonds option-adjusted spread (FIRHYBOASQ). The equation has been adjusted to be more consistent with Moody's Analytics a priori macroeconomic principles. The Baa spread is clearly a driver of the high-yield OAS. However, it is insufficient as the sole explanatory variable. This is because the high-yield OAS should gap out during risk-off periods and financial crises. Corporate profits were used to play this role, but the new specification makes use of the CBOE VIX index, which was recently added to the U.S. macro model. This variable has a positive coefficient, which pushes up the high-yield OAS during times of economic stress.

The specification also includes an AR(1) term. This term is included to address serial correlation in the error terms. When there is serial correlation, the Gauss-Markov theorem does not apply, and the standard errors of the least squares coefficient estimates are underreported. Moody's Analytics tested its specification with and without an AR(1) term. The p-values of the explanatory variables dropped when an AR(1) term was included, but all remained statistically significant. Moody's Analytics extensively tested the new specification to ensure that correcting for serial correlation did not lead to overfitting and did not damage the equation's shock properties. Only with the confidence that these two conditions were satisfied were we comfortable using an AR(1) term in our specification.

Equation specification

Dependent Variable: FIRHYBOASQ_US

Method: ARMA Generalized Least Squares (Gauss-Newton)

Date: 03/29/17 Time: 09:57

Sample: 1994Q1 2016Q4

Included observations: 92

Convergence achieved after 6 iterations

Coefficient covariance computed using outer product of gradients

d.f. adjustment for standard errors & covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.786093	0.326350	-5.472941	0.0000
FRBAAC_US-FRGT10Y_US	2.076789	0.146228	14.20238	0.0000
FCBOEVIXQ_US	0.093594	0.010421	8.981201	0.0000
AR(1)	0.817625	0.061607	13.27173	0.0000
R-squared	0.977709	Mean dependent var		5.204451
Adjusted R-squared	0.976949	S.D. dependent var		2.424549
S.E. of regression	0.368110	Akaike info criterion		0.893636
Sum squared resid	11.92443	Schwarz criterion		1.003279
Log likelihood	-37.10725	Hannan-Quinn criter.		0.937889
F-statistic	1286.579	Durbin-Watson stat		2.132618
Prob(F-statistic)	0.000000			
Inverted AR Roots	.82			

*Mnemonics referenced in the above equation, e.g. FET, can be defined using the Mnemonic 411 feature on DataBuffet. Please contact Help@economy.com for assistance.