Credit Spreads and Real Activity

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Discussion by

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Summary of the Paper

- Credit spreads predict real GDP growth in regressions that include inflation and Treasury yields.
- A "macro-finance" model of the term structure of Treasury yields and credit spreads is developed whose factors are realized inflation and real GDP growth and three latent credit, level, and slope factors.
- The model's estimated yields, spreads, and latent factors are analyzed to see which predict real GDP growth.

Credit Spreads Predict Real GDP Growth

- The paper shows that, relative to inflation (π_t) or Treasury yields (y_t^T), credit spreads (CS_t) are good predictors of future real GDP growth ($g_{t,k}$).

- Is the forecasting ability of credit spreads due to an "external finance premium"?

- Even without external finance frictions, credit spreads may embed expectations of future business losses which should be highly correlated with real GDP growth.

Data Construction and Sample Period

- Are y_t^T and CS_t constructed for a given day each quarter? Daily averages over a month? over a quarter?

- Using Lehman and Merrill Lynch CS_t, Table 9 reports that CS_t forecasts $g_{t,k}$ less well prior to the 1990s.

- For comparison, I regressed four-quarter ahead real GDP growth ($g_{t,4}$) on Moody's Baa credit spread for the middle month of the quarter (CS_t^{Baa}) and the quarterly SPF median forecast of real GDP growth ($E_t^{SPF}[g_{t,4}]$).

Sample Period 1992.Q2 – 2005.Q4

$$g_{t,4} = \underset{(0.0062)}{0.0456}^{***} - \underset{(0.2857)}{0.5617}^{**} \times CS_t^{Baa} + u_{t+k}$$

$$\bar{R}^2 = 0.068$$

$$g_{t,4} = \underset{(0.0079)}{0.0549}^{***} - \underset{(0.2776)}{0.8563}^{***} \times E_t^{SPF}\left[g_{t.4}\right] + u_{t+k}$$

$$\bar{R}^2 = 0.136$$

- The Baa credit spread is significant with the correct sign.
- The SPF forecast is significant but with the wrong sign!

Sample Period 1968.Q4 – 2006.Q4

$$g_{t,4} = \underset{(0.0056)}{0.0017} + \underset{(0.2706)}{1.3950}^{***} \times CS_t^{Baa} + u_{t+k}$$

$$\bar{R}^2 = 0.144$$

$$g_{t,4} = \underset{(0.0042)}{0.0085}^{**} + \underset{(0.1314)}{0.6963}^{***} \times E_t^{SPF}\left[g_{t.4}\right] + u_{t+k}$$

$$\bar{R}^2 = 0.151$$

- The SPF forecast is significant with the correct sign.
- The Baa credit spread is significant but with the wrong sign!

Bond Pricing Models with π_t and g_t Factors

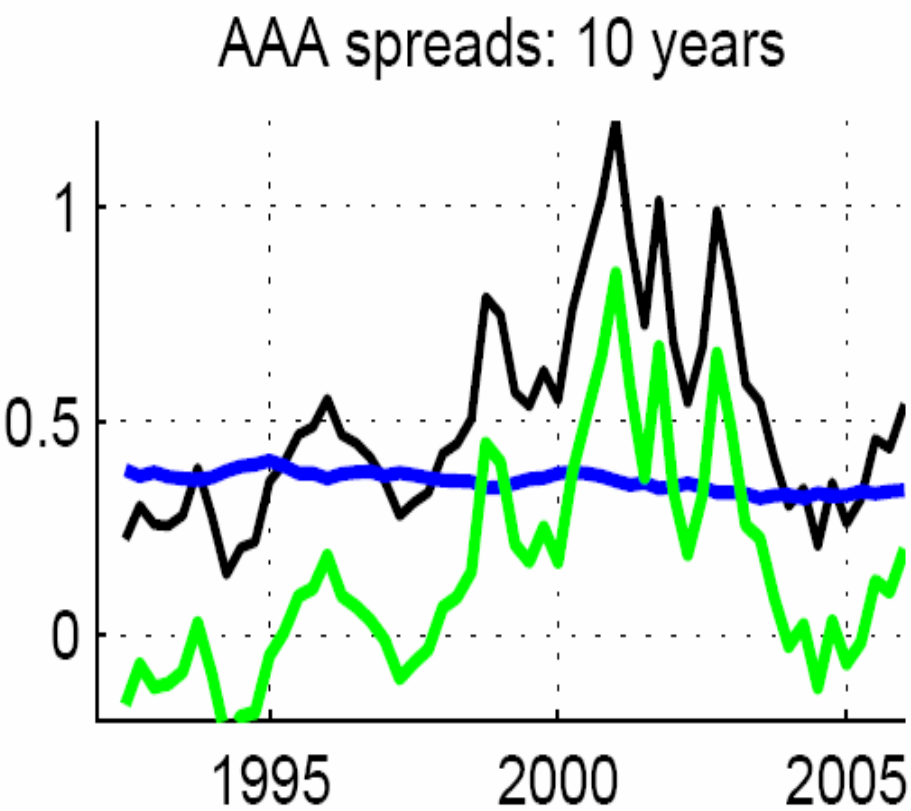
- Model factors should be consistent with theory.
- If realized inflation, π_t, and realized real output, g_t, are factors driving Treasury yields and credit spreads, this implies nominal bonds can hedge short-run inflation and real output risks (Kim "Challenges in Macro-Finance Modeling" FEDS 2008-06).
- But structural models (e.g., Pennacchi *RFS* 91) imply that nominal bond yields should be driven by **expected**, not realized, inflation and real output (consumption) growth.

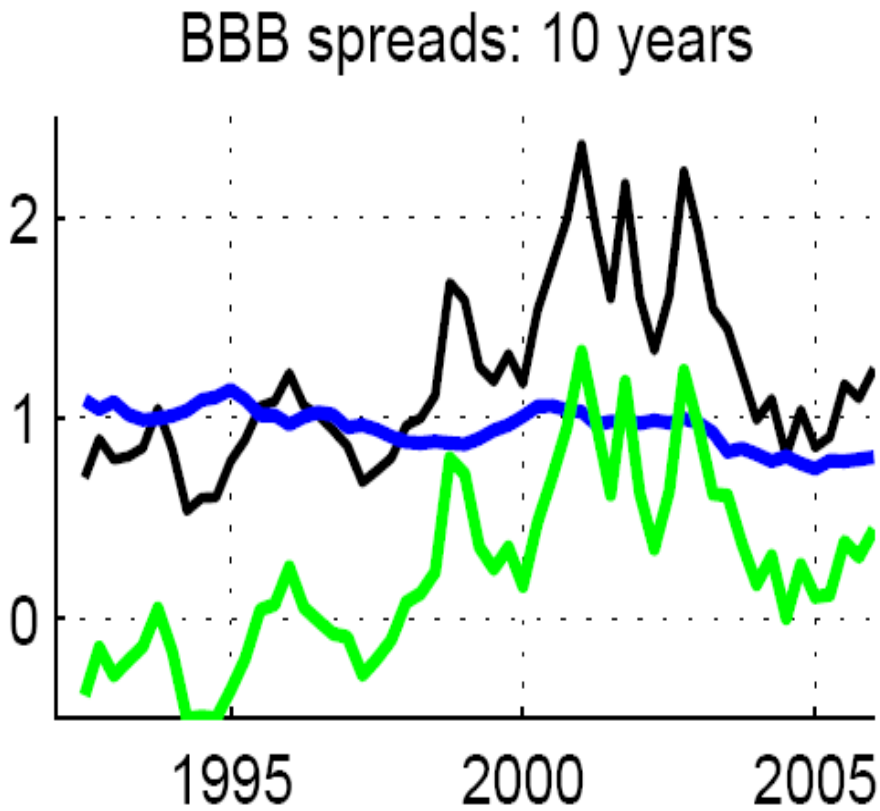
Estimation Results: Implied Spreads

- The model's Gaussian specification may produce negative credit spreads, though this did not occur in the sample.
- When estimating the model's parameters, the paper includes an added penalty in the likelihood function for variation in the factor risk premia.
- This is helpful, but what if the penalty is set too large?
- Might the model's estimated credit spreads have too small a premium for priced risks?

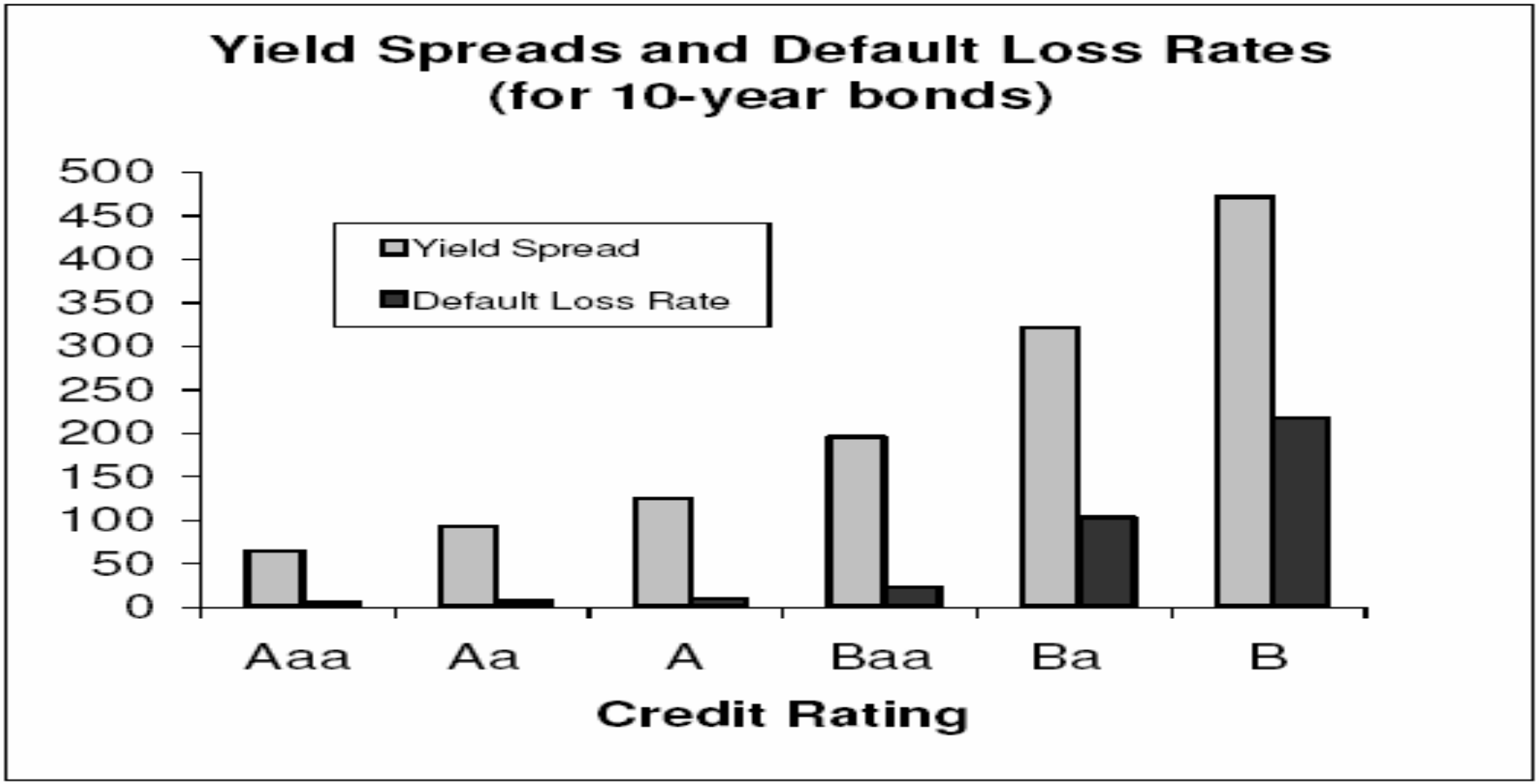
Model Implied Components of Credit Spread

Black: Credit Spread **Blue: Default Loss Rate** **Green: Risk Premia**





- For AAA and BBB bonds, the estimated model average default loss rate exceeds the average risk premia.



- But evidence in Huang and Huang (2003) suggest that historical default loss rates are less than risk premia for AAA (Aaa) and BBB (Baa) bonds.

Implied Spreads and Factors: In- versus Out-of-Sample Prediction

- The paper analyzes the ability of the model's estimated spreads and latent factors to predict real GDP growth, g_t.
- The model's parameters are estimated using data on $\boldsymbol{g_t}$ which is later being predicted from the model's estimated spreads and factors.
- In principle, a better test of predictability would use spreads and factors estimated from data prior to the date when $\boldsymbol{g_t}$ is forecasted.

Conclusions

- As a forward-looking measure of business conditions, credit spreads have much potential to predict real GDP.
- The paper does a masterful job of estimating a multi-factor model of credit spreads.
- The model's theoretical foundation could be fortified by substituting factors for realized inflation and GDP growth with expected inflation and GDP growth.
- Fortunately, quarterly SPF data on expected inflation and expected real GDP growth are available.