Stock Market Liquidity and Bond Risk Premia
by
K. E. Bouwman, E. Sojli and W. W. Tham

Discussion by W. Lemke (ECB)

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The views in this presentation are those of the presenter and do not necessarily represent the views of the ECB or the Eurosystem
Scope of the paper

• Re-visit forecastability of excess returns on US government bonds

• Add measure of stock market illiquidity to established predictors (Cochrane-Piazzesi factor, Ludvigson-NG macro factors)

• Small - but statistically and economically significant - increase in forecasting quality: $R^2$ rises by 3-6 ppt across maturities

• Increase in stock market illiquidity by one standard deviation leads to increase in expected excess return of ca 45 bps

• Results withstand a host of robustness checks

• Tentative economic interpretation
Summary assessment

• Classic topic

• Clear exposition, transparent on techniques, good to read

• New - incremental - results to established literature

• **Two main points of my discussion:**
  
  – Can get clearer interpretation of results?
  
  – Forecasting “out of paper”: looking to Europe and into the crisis
Understanding the results

• **Flight to liquidity?**
  – Stock market liquidity drying up in month \( t \) …
  – … investors shifting to liquid government debt market,
  – … as bonds relatively more attractive, investors require less compensation to hold these assets.
  – So: illiquidity up \( \Rightarrow \) bond risk premium down?

• **Paper: No. The other way round.**

• **Other effects at work?**
Other effects at work?

• **Stock market illiquidity proxies broader market illiquidity**
  – … interacting with funding illiquidity (Brunnermeier and Pedersen, RFS, 2008)
  – … and funding liquidity predicting bond excess returns, e.g. one-stdev shock decreasing expected 1-year excess returns by 85 bps (Fontaine and Garcia, RFS, 2012)

• **Stock market illiquidity highly correlated with volatility**
  – … the latter proxying for risk aversion
  – … if risk aversion up, risk compensation on all assets up
  – … i.e. also bond risk premia rising
Correlation of stock market illiquidity and volatility

- **Strong correlation (0.74)** between volatility and illiquidity level (see chart)

- By the way: Found higher explanatory power of lagged y-on-y log change in illiquidity for volatility than in paper:
  - Sample 1986 - 2007: adj. $R^2 = 0.22$
  - Sample 1986 - April 2012 adj. $R^2 = 0.29$
Would need a model to understand effects

- Could follow Cochrane and Piazzesi (Bond risk premia, AER, 2005): write “a discrete-time affine term structure model that reproduces the pattern of bond return predictability we find in the data”
  - Specify general form of pricing kernel \( M = f(\cdot) \)
  - … pricing bonds i.e. \( P_t(n) = E_t[M_{t+1} P_{t+1}(n-1)] \)
  - … so that the model-implied projections of excess returns,
    \[
    E_t[r_{x_{t+12}}(n)] = E_t[p_{t+12}(n-1) - p_t(n)] + p_t(1)
    \]
  - … match those empirically found

Comovement of stock market illiquidity between EU and US

- **My simple proxies for illiquidity**: Amihud-type measure as in BST paper, but directly based on (Datastream) broad market indices.

- **Correlation** 1989-2002: 0.42; 2003-2012: 0.83
Similar results for EU?

- **Forecast bond excess returns** $r_{x(3)}$ on DE government bonds, regressed lagged by 12 months, sample Jan89 – Apr12

- **Specifications** (always with constant):
  1. Only 1y, 2y, 3y forwards: $\rightarrow$ adj $R^2 = 0.05$
  2. Only stock illiquidity: $\rightarrow$ adj $R^2 = 0.06$
  3. Combined: $\rightarrow$ adj $R^2 = 0.12$
  4. Adding US 3-y forward: $\rightarrow$ adj $R^2 = 0.54$

- Raising Illiq_EU by 1 std increases expected excess return $E[r_{x(3)}]$ by 31 (spec 4) to 65 (spec 3) bps: same ball-park as in BST (45 bps)

- Obvious caveats: different sample, only in-sample results
Prediction of 1-y excess return on 3-y DE bond
Outlook and possible next steps (next paper?)

- **Clarify economic interpretation** of results further, possibly using (stylized) small model

- **Do results carry over to other countries?**
  - See Kessler and Scherer, JBF, 2009, as well as Sekkel, JBF, 2011 (role of CP factor internationally, role of crisis)
  - Also: I found some evidence that Illiq_EU helps forecasting rx_US

- **Currently, other premia and driving forces maybe (more) prominent:**
  - Impact of Fed’s LSAPs on bond returns? Asymmetries due to ZLB?
  - Can updated model (residuals) shed light on special factors currently effecting US bond market?
  - Euro area: role of credit risk premia for excess returns