Discussion of

"Corporate Bond Liquidity Before and After the Onset of the Subprime Crisis"

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Goal of the paper

- Impact of illiquidity on corporate bond spreads:

$$\text{spread}_{it} = \alpha + \gamma\, \text{illiquidity}_{it} + \theta\, \text{credit-risk}_{it} + \ldots + \epsilon_{it}$$

- Economically highly relevant issue
- Challenging task:
  - illiquidity and credit risk not observed (need proxies)
  - illiquidity difficult to quantify (many dimensions)
  - illiquidity small fraction of spreads
    (e.g. 3% for AAA bonds, pre-subprime)
- Inference method: pooled linear regression
- Methodology: PCA on eight, different, liquidity measures $\Rightarrow$
  New liquidity measure
  $= 1\text{st PC} \approx \text{Amihud} + \text{URC} + \text{std(Amihud)} + \text{std(URC)}$

Main empirical findings

- During subprime crisis:
  - Bid-ask spreads $\uparrow$ strongly
  - Market depth $\downarrow$
  - Liquidity risk $\uparrow$
  - Number of trades $\uparrow$, trade size $\downarrow$ (to reduce price impact)
- Impact of illiquidity on AAA bond spreads small (flight-to-quality)
- Liquidity slowly returns in second quarter of 2009
- Fraction of bond spreads due to illiquidity is generally small
  E.g. pre-subprime: 3% AAA, 8% BBB;
  during subprime: 7% AAA, 29% BBB
- $\downarrow$ Liquidity of bonds underwritten by Bear Stearns and Lehman Brothers during their financial distress / default (liquidity spiral)
- Not use DATASTREAM, but TRACE for zero trading days, etc.

Yield spread

- On last day t in the quarter and for every bond:

$$\text{spread}_{it} = \text{daily-average yield}_{it} - \text{swap rate}_t$$

- daily-average yield_{it} =
  average yield for all trades on last day t
- In total $>$ 8 million trades from 10/2004 to 6/2009
  - Is a substantial amount of data discarded?
  - Analysis at higher frequency? (some analysis monthly)
- Reason: quarter end yield spreads allow for lagged in time liquidity measure $\Rightarrow$ avoid endogeneity

Regression methodology

- For each rating, before and during subprime, pooled linear regression:

$$\text{spread}_{it} = \alpha + \gamma\,\text{illiquidity}_{it} + \theta\,\text{credit-risk}_{it} + \ldots + \epsilon_{it}$$

- Regression for each liquidity measure:
  R^2? Residual diagnostics?
- Use all liquidity measures (horse race)? Multicollinearity?
- Another viewpoint: Partitioned regression
  - Regress spread_{it} on credit-risk_{it}: residuals spread^*_{it}
  - Regress illiquidity_{it} on credit-risk_{it}: residuals $\text{illiquidity}^*_{it}$
  - Then, partial correlations between spread^*_{it} and $\text{illiquidity}^*_{it}$, etc.
- Crucial issue: controlling for credit risk

Controlling for credit risk

- Credit risk controls (directly available from Bloomberg, etc.):
  - (operating income)/sales
  - (long-term debt)/assets
  - leverage
  - equity volatility
  - pretax interest coverage dummies
  - level and slope of swap curve
  - dispersion in earnings forecasts ($\approx$ firm's true credit quality)
- Distance-to-default
  ($\approx$ asset volatility-adjusted measure of leverage)
  not included
- Robustness check: rating-wise "paired" regressions
  (reduced sample)

Cross sectional analysis

- Analysis focuses relatively more on *time series patterns* of liquidity, etc.
  - Example: Liquidity of bonds issued by financial and industrial firms
  - Finding: **average** liquidities similar
    (except in worst months during crisis)
- *Cross sectional differences*? Dispersion, higher order moments of liquidities, etc.
- Same remark for time series average number of trades and average size, etc.

Liquidity risk premium

- Usual approach:
  1) commonality in liquidity;
  2) pricing of systematic liquidity
- *total liquidity risk* =
  systematic liquidity risk + idiosyncratic liquidity risk
- Only systematic liquidity risk is important for pricing
- For equities (e.g. Korajczyk, Sadka, 2008)
  and FX rates (M., Ranaldo, Wrampelmeyer, 2010):
  especially shocks to systematic liquidity carry large risk premium
- In the current paper, most analysis based on *total liquidity risk*
- Motivation: difficult to measure systemic liquidity risk on a quarterly base. More details?

Liquidity spirals

- Brunnermeier and Pedersen (2009):
  link trader's funding liquidity and asset's market liquidity
- Model predictions: market liquidity
  - can suddenly dry up (✓)
  - has commonality (?)
  - is related to volatility (?)
  - is subject to flight-to-quality (✓)
  - co-moves with the market (✓)
- Empirical findings in the current paper ✓

Very illiquid bonds discarded

- *"Since we are interested in yield spread effects of* **illiquidity**, *we must confine ourselves to the* **more liquid** *segment of the corporate bond market for which we can actually observe some trading and therefore some prices and price changes."*
  [bold added]
- Illiquidity effects even more severe on less liquid segment?
- Special tools required for analysis of very illiquid bonds?

In short

This paper

- deals with a highly relevant topic
- provides very interesting empirical findings
- is nicely executed, easy to read