Discussion of Dick-Nelsen, Feldhütter and Lando's
Corporate bond liquidity before and after the onset of the subprime crisis

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Session Outline

- Results summary

- Discussion

- Applications

- Questions

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Proposed liquidity measure

- λ = Equally weighted sum of normalized
  - Amihud's price-impact measure (price impact of a trade per unit traded)
  - Imputed roundtrip-trading-cost measure
  - Variability of Amihud's measure
  - Variability of roundtrip-trading-cost measure

- Findings with respect to λ
  - Close approximation to first principal component extracted from other liquidity proxies
  - Dominates trading-frequency i.e., zero-trading days (Chen, Lesmond and Wei (2007))
  - Dominates Roll's bid-ask measure (Bao, Pan and Wang (2009))

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Disentangling spreads

- For each rating class, R, run pooled regression in each regime (before and after crisis)

$$spread_{it}^R = \alpha^R + \beta^R \lambda_{it} + credit\ risk\ controls_{it} + \varepsilon_{it}$$

- Liquidity score for a bond in a quarter is $\beta^R \lambda_{it}$

- Liquidity component of an average bond is defined as 50% quantile minus 5% quantile of the liquidity score distribution

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Paper Summary: Behavior of liquidity premia at the onset of financial crisis

- (Il)liquidity spread component of corporate bond spreads increased for all bonds *except AAA*
- Bond liquidity fell and…
- Bond spreads became increasingly sensitive to illiquidity
- For investment grade (ex-AAA) bonds, both absolute and relative illiquidity contribution to spreads increased
- For sub-investment grade bonds, illiquidity component of spreads stayed the same as a fraction of spreads
- Illiquidity premium is about twice as high for long-maturity vs. short-maturity

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Paper Summary: Time series behavior of illiquidity premia

- Investment grade bonds: Persistent increase during crisis, peaking around rapid stock market decline of Q1, 2009; Cov(Illiquidity premium, credit spread) is high

- Sub-investment grade bonds: Less persistent increase, peaking around the Lehman default in fall, 2008 returning to pre-crisis levels summer, 2009; Cov(Illiquidity premium, credit spread) is less evident

- Systematic liquidity risk (covariation with entire corporate bond market) significant contributor to spreads (ex-AAA) at time of crisis

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Systematic component

- Systematic component important for pricing
- Difficult to measure this component frequently
- Before crisis, systematic component has little effect on spreads
- After crisis, systematic component has positive effect for all bonds *except AAA*

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Quantity and Price Post Sub-prime

- Illiquidity in corporate bonds increased

- Illiquidity risk premium also increased

- Median roundtrip costs of 0.22% and less than 0.05% for the 5% most liquid

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Decomposition of Spreads
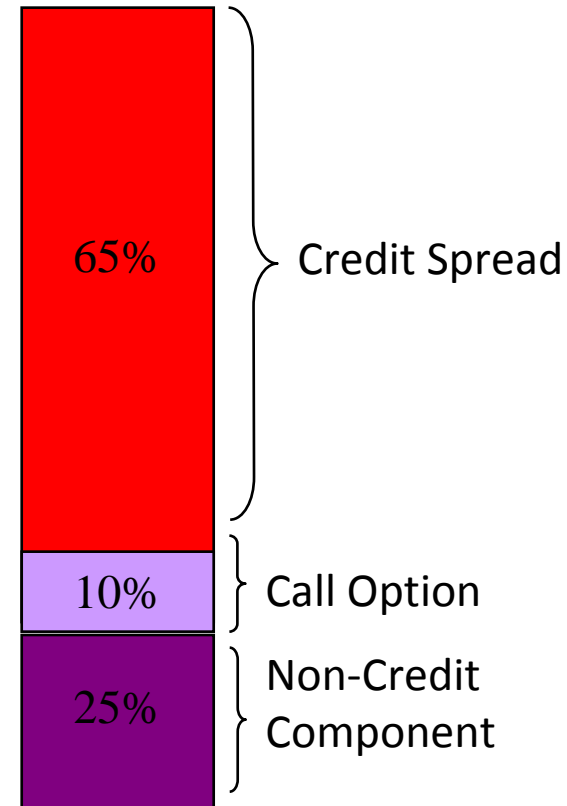
Corp. Bond Spread over Swaps

Liquidity Component	AAA	AA	A	BBB	Spec
Fraction Before Crisis	3%	4%	11%	8%	24%
Fraction After Crisis	7%	42%	26%	29%	23%

From Table 5 of DFL (2011)

High Yield Spread over UST

65% — Credit Spread

10% — Call Option

25% — Non-Credit Component

Investment Grade Spread over UST

10%

Credit Spread

Non-Credit Component

90%
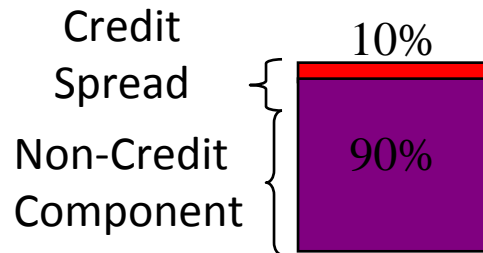
Corporate Bond Data from the 1990s

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Which spread?

- Swaps

- U.S. Treasuries

- Corporate-risk-free

- Illiquidity premia scattered everywhere!

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Underwriters, Holders and Obligors

- Distress of lead underwriter affects bond liquidity in secondary market
  - Bear Stearns when taken over
  - Lehman at time of bankruptcy
- What about the holders of bonds? Bond accessibility may also be a factor
- Obligor's credit risk
  - Use financial ratios (e.g., operating income/sales, leverage ratio, etc.)
  - Check similar bonds over time
  - Group vs. individual effects

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Financial vs. Industrial

- Longstaff, Mthal and Neis (2005) find financial-firm bonds are more illiquid
- Friewald, Jankowitsch and Subrahmanyam (2009) find no difference

- Dick-Nielsen, Feldhutter and Lando (2011) find that financial-firm bonds are more illiquid in times of *extreme stress*
- Future research should look at impact across different types of financial firms (e.g., global banks, too-big-to-fail, too-interconnected-to-fail, regional banks, investment banks, etc.)

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A word about data

- TRACE transactions data were used
  - More comprehensive and less contaminated by indicative pricing
  - For example, 0-trading day result goes away
- Data preparation techniques
  - Winsorized data at 0.5% level
  - Calculated quarter-end yield as average yield for all trades on last day in the quarter
  - Excluded bonds that did not trade in quarter's last month, less than one month to maturity or time to maturity of more than 30 years
  - Calculated yield spreads with respect to swap rates

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Latent liquidity measure

- Bond accessibility can be determined by the holder of the bonds

- Following Mahanti, Nashikkar, Subramanyam, Chacko and Mallik (2008), it may be interesting to test whether this measure changed after the onset of the financial crisis

- Authors comment they are focused just on the (relatively) more liquid segment of the market

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Applications

- Determining price of (il)liquidity in the corporate bond market
- Disentangling liquidity risk from credit risk is important not only in determining drivers of spreads, but also assessing profitability of capital structure and convertible bond arbitrage as well as optimal portfolio allocations
- Assessing liquidity risk in a portfolio has become more important as credit risk models have improved and credit markets have expanded
- Determining what kind of liquidity regime we are in can be useful to both practitioners and regulators– especially given the latter's increasing focus on liquidity risk
- Tracking illiquidity contagion
- Evaluating different debt securities found in corporate and financial institution capital structures (e.g., recent discussions of hybrids and contingent convertible bonds for banks)

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Suggestions

- Analyze swap or TED spread in addition to individual bond illiquidity premia
- Use other credit measures (e.g., equity-based PD) for pooling
- Use size of issuer as another characteristic for pooling
- Include latent liquidity measure reflecting holder of securities
- Analyze more events (QE2, Eurozone debt crisis, Japan earthquake, etc.)
- Include CDS (despite reduction in sample size) to determine relative liquidity components across bond and CDS markets
- Use Debt Service Coverage Ratio (DSCR) instead of Interest Rate Coverage (IRC) as IRC is easily confused with Imputed Roundtrip Costs (IRC)
- Benchmark against other countries such as Japan where quarterly turnover is even lower than the 4.5% seen in their data

More Questions

- What is the structural explanation for differences in liquidity?

- What is the interaction of size of issuer, size of issue, and liquidity?

- Is there a meaningful difference between event risk and liquidity risk?

- Can liquidity risk be hedged?

- Can (should) liquidity risk be provisioned for separately from market and credit risks?

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