Discussion

Price Dispersion in OTC Markets: A New Measure of Liquidity

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Paper's Contribution

- Proposes a new measure of liquidity based on a theoretical search model
  - Relatively easy to calculate once the data is collected/organized
    - differences between transaction prices and average mid-quotes
  - Micro foundations
    - reflects both inventory risk (since trades are infrequent) and search costs (as pre-trade transparency is low)
- Combines dealer quotes (Markit) and transaction prices (TRACE)
  - Data from October 2004 – October 2006
  - Bonds chosen reflect about 8% of all corporate bonds, but about 25% of the total amount outstanding of all bonds, and 37% of total trading volumes.

Paper's Findings

- New measure is related to conventional liquidity proxies
  - Strongly correlated with the bond characteristics, trading activity, and spreads
    - age, rating, trading volume, bid-ask spreads
  - Finds strong link between new measure and Amihud (2002): average ratio of absolute returns relative to trading volume for a given period
    - inclusion with bid-ask spread, spread becomes insignificant
- Measure may be used to determine prices of securities at the end of the day when valuing their portfolios

Why is the paper relevant?

- Traditional measures of liquidity (spreads, trade volume, price impact) may not be relevant in OTC markets
  - Quotes can be stale and only indicative, and trading is infrequent
  - Mahanti et al. (JFE, 2008) use characteristics of bonds that are correlated to liquidity: amount outstanding, credit quality, maturity, age, industry
- Corporate bond market is large and important
  - Outstanding principal similar in size to U.S. treasury market
  - Source of funding for all companies
  - Holders of corporate securities need to mark-to-market securities

Policy Relevance

- Measuring market quality is of interest to policy makers
  - Transaction costs, liquidity, price discovery
  - Analysis may point to market failures, and a policy response
    - Biais and Green (2007) find institutional investors fare better than individual investors in OTC markets
    - TRACE introduced by NASD (now FINRA): all transactions in U.S. corporate bonds must be reported under rules set by SEC

Stylized Model

- Need to understand institutional arrangements
  - Theoretical search model to motivate liquidity measure in OTC markets
  - Market frictions: inventory risk (fixed costs, capital costs), search costs
- Key results
  - Larger investor search costs increase reservation prices
  - Dispersion increases in the search cost of investors, inventory costs of dealers, and the distribution of inventory across dealers
- Story may be incomplete. Assumptions of the model:
  - All dealers are identical from perspective of investor (chosen arbitrarily)
  - All dealers agree on fundamental value of asset
    - No strategic trading based on asymmetric information
  - Dealers are ultimate liquidity providers
  - Dealers do not optimize across overall portfolio inventory

New Liquidity Measure

- Root mean squared dispersion, calculated daily for each bond

$$d_{i,t} = \sqrt{\frac{1}{\sum_{k=1}^{K_{i,t}} \upsilon_{i,k,t}} \sum_{k=1}^{K_{i,t}} \left(p_{i,k,t} - m_{i,t}\right)^2 \bullet \upsilon_{i,k,t}}$$

- A complete liquidity measure must account for its many dimensions
  - Tightness, immediacy, depth, resiliency, transaction costs

What's Missing in the New Liquidity Measure

- What dimensions of "liquidity" does it characterize?
  - For example, how well does new measure capture resiliency?
    - compare liquidity measure involving large vs. small transactions
    - analyze behavior of measure subsequent to a transaction
- How is dispersion related to market power, investor types?
  - Evidence that dealers exercise substantial market power in OTC markets
    - affects small investors more than large informed investors
      Green, Hollifield, Schürhoff (2007)
    - control for the number of dealers specializing in each security, or across classes of bonds and/or trade sizes specific to investors class requirements
- How should you deal with securities that are not traded?
  - Most of the analysis examines the liquidity measure, conditional on a transaction actually taking place

Relative Performance of New Liquidity Measure

- Spreads or new liquidity measure? need a systematic methodology
  - Why is the new measure superior?
  - How does regression analysis illustrate this?
  - At what point is new measure superior to spreads, or Amihud (2002)?
  - What statistical approaches adequately deal with infrequent data?
- Need to perform a “horse race”
  - Apply proposed liquidity measures to high frequency Treasury/TAQ
    - calculate root mean squared error or correlation between the proposed liquidity measure and some liquidity benchmarks (effective spread, realized spread, or price impact coefficients)

"Bond Traders Lose 'One Night Stands' in Credit Crunch'" Bloomberg (Sep. 10, 2008)

- Trading in the corporate bond market has fallen by 33% over the average in the first 8 months of 2007
  - Biggest dealers are not committing as much capital
  - Dealers are not willing to hold any kind of inventory, and cannot be counted on to act as market makers
    - Demanding higher spreads
- Investors are unwilling to buy bonds given the level of illiquidity
  - Decreased liquidity and higher yields are providing opportunities for portfolio managers who can make long-term investments

Strategic Trading

- Institutional traders may be both liquidity takers and providers
  - Non-payoff relevant type information
  - Groups of investors specialize in certain securities
- Dealers may share in any undesired position
- Portfolio management considerations (Naik and Yadev, 2003)
- Little analysis of results in light of possible market power, portfolio management, adjustments in capital allocation considerations

→ What are the implications for the new liquidity measure?

Market or Idiosyncratic Liquidity

- Large cross-sectional variation across securities
- Common factors in liquidity?
  - Comparison to U.S. Treasury and Merrill Lynch U.S. Corporate Index
  - When there is a flight to quality, how does liquidity change?

Quoting Behavior – Markit Prices

- Markit Group collects quotes from dealers each day, and processes these prices
  - With credit/liquidity shocks, Markit prices may not be a reliable indicator of fundamentals
    - Markit indices are prone to distortion
      (Economist, March 6th 2008, re: credit derivatives index)
- Is the mean mid-quote equal to the fundamental prices?
  - Expect to see some asymmetries in mean if inventories are not uniform
  - If the market knows that there is some interest in buying/selling, quotes will be affected

Quoting Behavior – Markit Prices

- Need a complete understanding of quotes and quoting behavior on Markit
  - Number of reporting dealers, does it change often? matrix prices?
  - Is there gaming? Is quoting conditional on (expected) transactions?
  - What is the distribution of quotes, around a transaction or news ?
  - How much is usually transacted relative to quote amounts?
  - When are quotes stale? Are they correlated with Bloomberg quotes?

Minor Comments

- Single credit rating for each security (October 1, 2007)
  - Beyond end of sample, October 31, 2006
- TRACE: documented reduction in transactions costs
  - Has the market adjusted fully? Learning to quote/transact
    - Since July 1, 2005, dealers have been required to report trades within 15 minutes (rather than 30 minutes)