Liquidity Premium in the Eye of the beholder: An Analysis of the Clientele Effect in the Corporate Bond Market
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Discussion

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Summary

- Investigate two theoretical predictions of Amihud-Mendelsohn (1986) Liquidity-Clientele theory in corporate bond market:
  - liquidity premium effect: the (liquidity component) of spreads should be increasing in bid-ask spreads.
  - liquidity clientele effect: spreads normalized by bid-ask spreads should be decreasing in bid-ask spreads.
- Use data on insurance companies dollar holdings and trades in individual (IG and HY) corporate bonds.
- Consider 5 different illiquidity measures (**$\mathbf{ILQ_i}$**) for individual corporate bonds: Amihud, Roll, roundtrip t-costs, imputed roundtrip cost, an average of these.
- For each insurance company, measure its preference for illiquidity (**ILP**) every quarter as the value weighted average of the **$\mathbf{ILQ_i}$** (e.g., Amihud) of its bond portfolio.
- For each bond, measure its illiquidity clientele (**ILC**) every quarter as the value weighted average of the **ILP**s of the insurance companies holding the bond.

Results

- Find that ILP is positively correlated with insurer characteristics that proxy for investor horizon and "illiquidity-bearing capacity" (such as: average holding period, turnover, total assets, age, reinsurance ratio)
- Double sort bonds (independently) into 25 (5×5) quintiles based on ILQ and ILC. Find that:
  - Spreads are increasing in the level of illiquidity ILQ for every level of ILC
    $\rightarrow$ liquidity premium effect.
  - The spread between high and low ILQ buckets (illiquidity premium) is decreasing in the level of ILC
    $\rightarrow$ liquidity clientele effect.
- These results are confirmed in a panel regression with many additional controls for credit risk and other bond risk-characteristics.

Amihud-Mendelsohn model (1986)

- Why do investors hold different portfolios?
- Suppose:
  - Investor A is risk-neutral and has random trading horizon τ with intensity λ_A.
  - Security 1 pays continuous dividend δ and is traded at a cost $C_1\delta$.
  - Exogenous risk-free rate r.
  - No short-sales.
- Equilibrium price is $P_1 = \mathrm{E}[\int_0^\tau e^{-rt}\delta dt + e^{-r\tau}(P_1 - C_1\delta)]$
- Solution $P_1 = \frac{\delta}{r}(1 - \lambda_A C_1) =: \overline{P}_1^A$

$\Rightarrow$ If A is marginal holder of security 1 then it trades at a discount $D_1^A = \lambda_A C_1$ to the friction-less value, that accounts for the NPV of expected future transaction costs.

- Note:
  - $D_1^A = \lambda_A C_1$ increasing in C_1 $\rightarrow$ liquidity premium effect.
  - $\frac{D_1^A}{C_1} = \lambda_A$ is decreasing in $\mathrm{E}[\tau_A] = \frac{1}{\lambda_A}$ $\rightarrow$ liquidity clientele effect.

Amihud-Mendelsohn model with two clienteles and two bonds

- Consider now what happens if there are two clienteles $\lambda_A < \lambda_B$ and two types of bonds $C_1 < C_2$.

Q? What is the clientele effect?

- If A has unlimited capital he will hold both assets (since $\overline{P}_i^A > \overline{P}_i^B$ because A has a longer horizon)

⇒ There should be no liquidity clientele effect (only a liquidity premium).

→ Clientele effects should be more prevalent when funding is restricted (crisis?).

- If A has limited capital and cannot buy all the bonds, then B will be marginal in bond 1 (B's comparative advantage). So $P_1 = \overline{P}_1^B$.
- Further, since A must choose not to buy security 1 at this price, A must earn more than the risk-free rate on security 2 in equilibrium. So $P_2 < \overline{P}_2^A$.
- Indeed, in equilibrium A is indifferent between security 1 and 2:

$$\mathrm{E}[\frac{dP_2 + \delta dt}{P_2} - C_2 \delta \lambda_A dt] = \mathrm{E}[\frac{dP_1 + \delta dt}{P_1} - C_1 \delta \lambda_A dt] > rdt$$

- This implies $P_2 = \frac{\delta}{r}(1 - D_2)$ where $D_2 = 1 - \frac{1 - C_1 \lambda_B}{1 - C_1 \lambda_A}(1 - C_2 \lambda_A) > C_2 \lambda_A \equiv \overline{D_2^A}$

Amihud-Mendelsohn model with two clienteles and two bonds

- In equilibrium $P_2 = \frac{\delta}{r}(1 - D_2) < \overline{P_2^A}$ since $D_2 = 1 - \frac{1-C_1\lambda_B}{1-C_1\lambda_A}(1 - C_2\lambda_A) > \overline{D_2^A}$.
- It is easy to show that:
  - $D_2 > D_1$ (liquidity premium effect).
  - $\frac{D_2}{C_2} < \frac{D_1}{C_1}$ (liquidity clientele effect).
  - $\frac{D_2}{\lambda_A C_2} > \frac{D_1}{\lambda_B C_1}$ (*clientele equilibrium rents effect*).
- Thus the theory suggests:
  - Credit (Funding) Market conditions should affect the empirical results: clientele effects should be stronger when funding market conditions are tight.
  - In equilibrium long-horizon investors are indifferent between high and low liquidity assets (so might expect their portfolios to be less informative than those of short-horizon investors).
  - There should be a third effect: long-horizon investors should extract rents in equilibrium. So one should see higher average returns net of trading costs for them. This could potentially be tested by normalizing spreads by the expected transaction costs (turnover $\times$ bid-ask spread) of the marginal investor.

What is the economic mechanism?

- The paper convincingly shows that clienteles are correlated with spreads in a systematic way.
- However, it is not entirely clear that it provides unambiguous support for Amihud-Mendelsohn's (1986) theory.
- Note that the AM theory relies on strong assumptions (risk-neutrality, no short-sales, no CDS, limited funding resources, exogenous T-costs and exogenous trading horizon...)
- What is the alternative null hypothesis?
- Suppose that investors are benchmarked to (or simply choose) bond portfolios with different risks:
  - Higher risk bonds have higher bid-ask spreads.
  - Optimal trading with t-costs leads to lower turnover.
  - Optimal risk-management leads to higher level of assets.

  → It appears that 'long horizon investors' have stronger balance sheets and flock to more illiquid assets.

⇒ This story also delivers "clientele"-like results, but relies on a different mechanism.

What is the economic mechanism?

- The AM theory is entirely about exogenous trading costs and exogenous horizon. But what determines bond illiquidity?
- Consider two otherwise identical bonds.
  - Bond 1 is held by a large well-funded insurance company, and
  - Bond 2 is held by an insurance company with little "illiquidity-bearing capacity".

⇒ Would not the price of bond 2 reflect the greater "deleveraging risk" and be less 'liquid'?

⇒ This would generate higher compensation for illiquidity risk among bonds held by insurance companies with little risk/illiquidity-bearing capacity that would be unrelated to standard security specific risk controls.

⇒ Deleveraging risk thus also delivers a clientele like result, but relies on yet another mechanism.

Minor Comments

- When reporting the distribution of the insurance specific illiquidity preferences (ILP) for the various illiquidity measures (ILQ), it might be interesting to compare the distributions statistically to that of the ILQ in population.

→ If insurance companies are indeed long-horizon on average then one would expect the ILP distribution to be statistically significantly different than that of a representative bond portfolio (e.g., the Barclays index).

- To analyze the estimated ILP, the paper considers two types of insurer characteristics:
  - Portfolio related characteristics (turnover, horizon etc...)
  - Balance sheet characteristics (total asset, life vs. casualty, liabilities)

→ The first set seems mechanically related to ILP (a high ILP investor tends to hold high bid-ask spread and low turnover bonds, so will tend to have longer average holding period etc...).

Conclusion

- Very nice empirical paper.
- Great data work and interesting empirical results that show that liquidity clienteles are correlated with credit spreads in a way that seems to support the liquidity clientele theory of Amihud-Mendelsohn (1986).
- It would be interesting to spell out the alternative (null) hypothesis a bit more explicitly.
- It would also be interesting to test a few of the more specific implications of the theory.