Discussion of "Anticipated and Repeated Shocks in Liquid Markets" by Dong Lou and Hongjun Yan and Jinfan Zhang

Pierre Collin-Dufresne
Columbia University, EPFL, SFI, & NBER

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- Summary
- Evidence on price pressure
- Trading strategy
- Implications
- Conclusion

Main Findings

- Find systematic price patterns around regularly scheduled Treasury auction dates from 1980 to 2008:
  - Prices of 2, 5 and 10 year Treasury notes drop a few days before regularly scheduled auction dates and recover a few days after.
  - The yield difference is around 2 to 4bps for on the run (slightly less for first off the run)
- A trading strategy going long the 2-year note and short the duration matched 0.5 and 10 year notes in the 10 days prior to each auction and reversing for the 10 days post-auction yields a Sharpe of 1.44 pre-tcosts and .9 post t-costs (for last 10 years, and sharpe of 1 full sample)
- Proposed Interpretation:
  - Limited risk-bearing capacity of intermediaries who require price-concession to take on underdiversification risk ($\sim$ Grossman-Miller (1987)).
  - Dealers short other notes (close substitutes) to hedge in anticipation of the auction.
  - Slow moving capital of end-investors who do not 'fill the gap.'
- Additional implictions:
  - Cross-maturity price impact effect larger on notes with closer maturity to that of issue.
  - Bigger effect for larger issues and in more volatile periods.
  - Cross-asset class effect: equity returns significantly larger in 10 days following auction than 10 days preceding auction.
  - Large issuance costs for the FED (estimate $700million in 2007 alone).

Similar evidence on price pressure around Corporate Bond issuance

- 'New-Issuance' Risk (Newman Rierson (2004)):
  - Focus on Telecom Bond issuances in the European bond market from 1999-2001
  - Find large impact of bond issuance on other bonds prices
  - Impact occurs in 15 days window and peak at issuance date (and not announcement date!).
  - Propose a (search-theoretical) model of risk-averse intermediaries who take time to find end buyers that explains phenomena
- Newman-Rierson have slightly different methodology:
  - Construct an aggregate issuance measure that accounts for size and risk/duration of the issue.

$$\Delta s_{f,n,t} = \gamma_0 + \gamma_1 \Delta DIST_{f,t} + \gamma_2 R^E_{f,t} + \gamma_3 \Delta S^{C(n)}_t + \gamma_4 \Delta r^{C(n)}_t + \phi(L) \log\left(\bar{I}_t\right) + \varepsilon_{f,n,t}, \qquad (12)$$

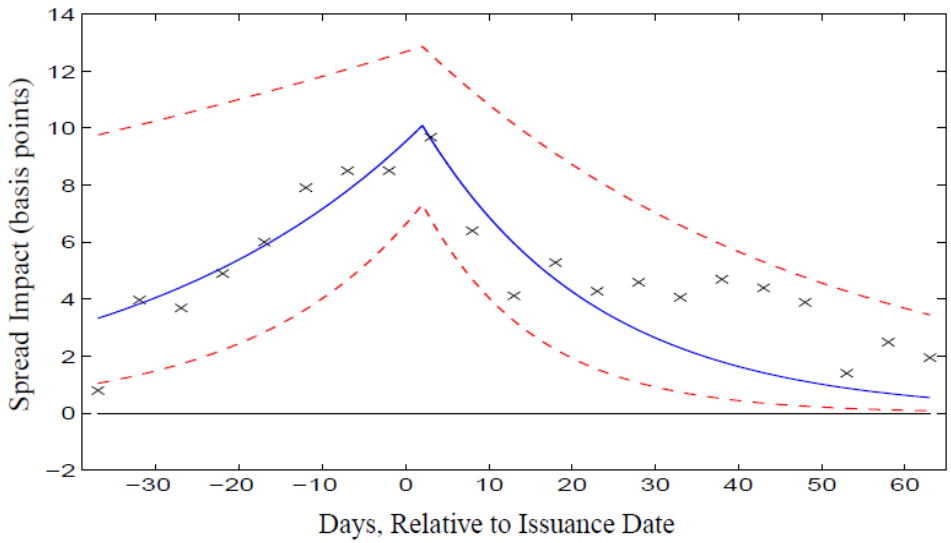
where the distance to default, $DIST_{f,t}$, is the difference between the firm's assets and liabilities, divided by asset volatility (See Appendix E); $R^E_{f,t}$ is the weekly return on the firm's equity; $S^{C(n)}_t$ is the ten-to-two-year slope of the term structure of swap yields for currency $C(n)$ (See Appendix C); and $r^{C(n)}_t$ is the three-month LIBOR rate for currency $C(n)$. The lead-lag polynomial $\phi(L)$ is

$$\phi(L) = \phi_{K_2} L^{K_2} + \cdots + \phi_1 L + \phi_0 + \phi_{-1} L^{-1} + \cdots + \phi_{-K_1} L^{-K_1}, \qquad (13)$$

Similar evidence on price pressure around Corporate Bond issuance

- Results show similar price pattern:

Figure 3. The Cumulative Impact of Debt Issuance on Other-Bond Yield Spreads



The solid line is the estimated cumulative other-bond yield-spread impact of debt issuances (scaled to reflect the impact of Deutsche Telekom's issuance of 15.5 billion Euro of debt in June of 2000), as implied by the constrained model. The dashed lines are two-standard-error confidence bands. The estimates obtained from the unconstrained model are marked '×'.

- Supply effect due to new issuance affect other (close substitute) bond yields
- However, Treasury results even more striking (more data, recurrent and easily anticipated events).
- N.B.: methodology might be useful as it accounts for variation in interest rate levels, size and riskiness of bond issue.

Are trading profits real?

- It seems hard to reconcile consistent sharpe ratio of 1.5 in a liquid market since 1980 with 'slow-moving' capital
- Hedge funds (not insurance company) should have moved into this trade if the profits are indeed significant and sizable.
- Suggests that microstructure effects might be preventing these from being tradable:
  - Repo specialness? (strategy requires shorting the on-the run note and buying back when it becomes off-the-run)
  - Actual Bid-ask spreads? (strategy sharpe drops from 1.44 to 0.9 accounting for 'average' bid-ask spreads.
- Would be interesting to see cumulative profits of trading strategy: skewness, kurtosis, drawdowns?
- Performance through the current crisis (i.e., through Lehman)?
- Scalability/leverage? (dollar P&L if buys all the issue?)
- That said, there is evidence from other markets that risky 'arbitrage' strategy can take a long time to disappear
  (for example: the strategy of front running the GSCI commodity futures index roll with a sharpe of 4 took almost 10 year from 2000 to 2010 to disappear - Mou (2011))

Implications

- Significant evidence of price impact upon issuance across markets (corporate bond, IPOs, Treasury auctions).
- Why? price concession to intermediaries because of finite risk-bearing capacity? Or implicit collusion/non-competitive dealer behavior?
- Two Trading Anecdotes
  1. Price-impact of settlement trades in LIBOR-swaption market disappeared with 'threat' of taking physical delivery:
     - Short put, payoff $-\max(K - S, 0)$
     - At maturity, when cash-settling, observe 'price impact': the underlying S decreases around settlement date, so losses on short exacerbated (forced to 'buy' at K something 'worth' S).
     - Ask for physical delivery, i.e., actually buy at K and receive S (not just cash-settling)

     $\Rightarrow$ price impact disappears!
  2. When marking to market or daily repeated trading in OTC option markets (both cases market 'anticipates' direction), ask for two-way prices and randomly 'surprise' the market.
- What can the Treasury do? Experiment with:
  - size of issues
  - frequency of issues
  - number of invited participants into auctions ($\sim$ Google?).
- Keep track and estimate its price-impact.
- Trade in Treasury markets (if profits are real, why not hedge the issuance risk by doing the "arbitrage trade"?)

Conclusion

- Striking results on price pressure effects around Treasury auctions.
- Adds to Issuance supply effects documented in other markets.
  - equity IPO
  - index reconstitutions
  - corporate bond issuances
  - futures rolls
- Difficult to reconcile with slow-moving capital (which applies more to 'one-off' unpredictable dislocation).
- Hard to believe that trading profits can be substantial after accounting for all the costs (repo, bid-ask

$\Rightarrow$ Limits to arbitrage more plausible than slow-moving capital for the repeated Tresaury auctions (else should start a hedge fund!).

- What can the Treasury do: Experiment with issuance practices.
- One Caveat: the price impact results in equity markets around auction dates seem hard to reconcile with issuance price pressure.
  - 'discount rate' effects discussed in the paper seem inconsistent with price-pressure.
  - Equity hardly a good hedge for Treasury.
  - Information? Realized volatility channel?