# Transaction Costs, Trade Throughs, and Riskless Principal Trading in Corporate Bond Markets


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# Disclaimer

- I only speak for me.
  - Not Interactive Brokers or USC

**But I hope that lots of people are listening!**

# A Telling Observation

- Exchange-listed bond trading was quite liquid in corporate bonds before the mid 1940s and in municipal bonds before the late 1920s.
- Transaction costs then were substantially lower than they are now.
  - See Biais and Green (2007).

# The Issues

# When Are Broker-Dealers Brokers?

- Most broker-dealers trade net and profit from their markups.
  - Few broker-dealers act as pure agency brokers who profit from commissions.
- Markups on riskless principal trades (RPTs) are identical to adding on commissions.
- Broker-dealers who arrange RPTs while filling customer orders effectively act as brokers.

# Pre-trade Transparency Issues

- Unlike commissions, customers do not see dealer markups before they trade.
  - They can see them after the fact by examining TRACE data, but doing so is time-intensive.
- Customers generally do not see best bid and best offer prices before they trade.
  - They must query multiple dealers which is prohibitive for small traders.

# Who Can Offer Liquidity?

- Most investors cannot effectively offer liquidity in these dealer markets.
  – Even through electronic new order-driven venues.
  – No trade-through rules protect standing orders.
  – Few brokers let customers use these venues.
- Payments for order flow effectively prevent most retail customers from benefiting from innovative trading technologies.

# The Net Result

- Small traders and many institutional traders trade at a disadvantage because they do not know market prices as well as dealers do.
- Transaction costs are high in bond markets in comparison to transaction costs in equities.
  - Risk considerations suggest the opposite.
- Buy-side traders can not easily offer liquidity to other buy-side traders.

# My Study

# What I Did

I compared 3M TRACE trades to about 464M contemporaneous NBBO records aggregated by Interactive Brokers from quotes reported to it by various electronic trading venues to

- Measure transaction costs,
- Identify trade throughs, and
- Determine which trade throughs are RPTs.

# What I Learned:
# The Main Empirical Results

# Electronic Trading

- Markets are increasing electronic.
  - The median bond had a bid (offer) present for 98.9% (77.4%) of the trading day.
  - 10% of all bonds had a two-sided market during more than 98.9% of the trading day.
- Many bonds look like small and mid-cap NASDAQ stocks from the 1980's.
  - 1% (229) of all bonds traded more than 22 times per trading day, on average.

# Transaction Costs

- The average customer roundtrip transaction cost was 125 bp, or about 4 months interest for a 4% bond.
  - Equivalent to 50¢/share for a $40 stock!
- Costs are smaller for bigger trades.
- Recent results from the NY Fed using cruder (but still reliable) methods show that these costs have been declining.
  - See its Liberty Street Blog.

# Trade Through Frequencies

- 47% of all trades trade through a standing quote when a two-sided quote was standing 2 seconds or more.
  - The 2-second restriction ensures that the quote was available to the trader.
- Many trade-throughs are due to net pricing.
  - But the price dis-improvement is much greater than normal commissions.
  - 77 bp dis-improvement for the 31% of all trades with dis-improvement > 10 bp.

# Riskless Principal Trades

- 42% of all reported trades appear to be RPT pairs for which the time between trades is less than 1 minute.
  - Less than 2 seconds separate the trades in 73% of these pairs.

# RPTs Markups

- 46% of all RPT pairs have no markup.
  - Agency trades by Interactive Brokers and others.
- The average markup for non-zero RPTs is 54 bp.
  - Total transaction costs are higher.
- The total markup value is $667M for the year ended March 31, 2015.

# Trade Throughs by RPT status

- 32% of all trade throughs are also non-zero-markup riskless principal trades.
  - The correlation between the markup and the price (dis-)improvement is -86%!

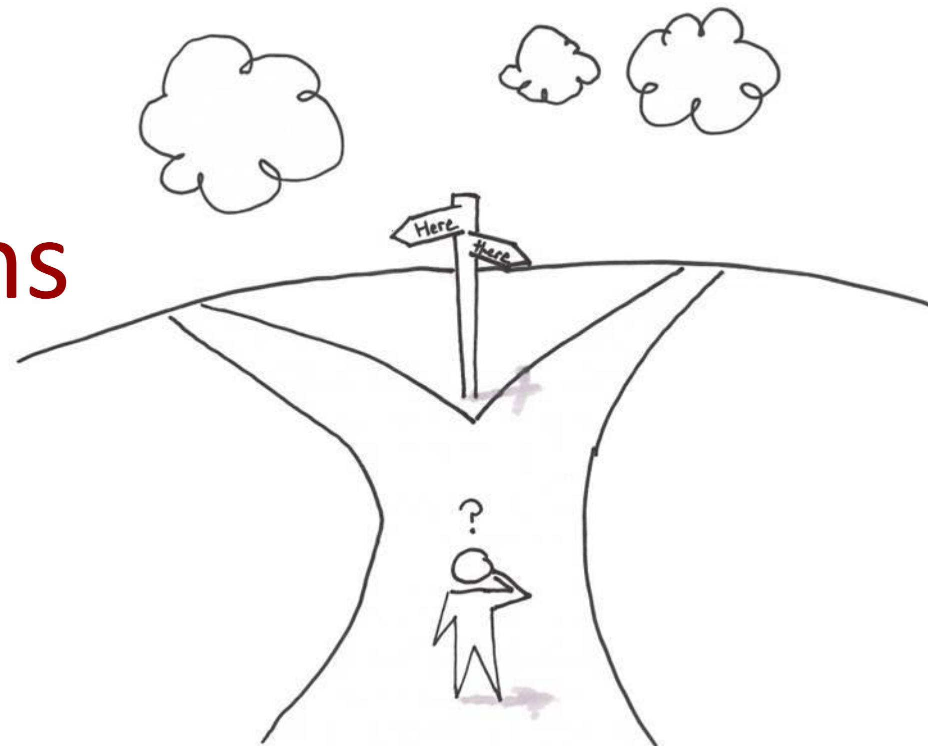
➔The dealers often act as brokers.

# Full Year Projections

For the year ended March 31, 2015,

- Total customer bond transaction costs were $26B.
  - Investors paid these costs for bond liquidity.
- Total trade-through value is about $700M based on reported quotation sizes.

# Policy Recommendations



# Greater Pre-Trade Transparency

- At a minimum, the FINRA should require that brokers disclose their RPT markup rates on a pre-trade basis, and certainly always post-trade.
  - FINRA and MSRB currently propose post-trade disclosure.
- Bond markets would benefit greatly from having a NBBO (National Best Bid or Offer) facility.

# Better Market Structure

- The SEC should consider
  - enacting a trade through rule for bonds.
  - Requiring brokers to post limit orders of willing customers to order display facilities (ODFs) that widely disseminate these prices.
- Before class action attorneys create a Manning Ruling for bonds.

# More about ODFs

- Competition improves prices.
  - Any investor could effectively offer liquidity in an ODF.
  - National exposure of customer orders would allow any dealer or buy-side trader to fill these orders.
- Similar order handling rules in the equity markets vastly improved those markets.
  - Consider the evolution of NASDAQ.

# The Dealer Argument

- Dealer profits will fall.
- Dealers will withdraw.
- Liquidity and markets will dry up.
- Issuer funding costs will skyrocket.

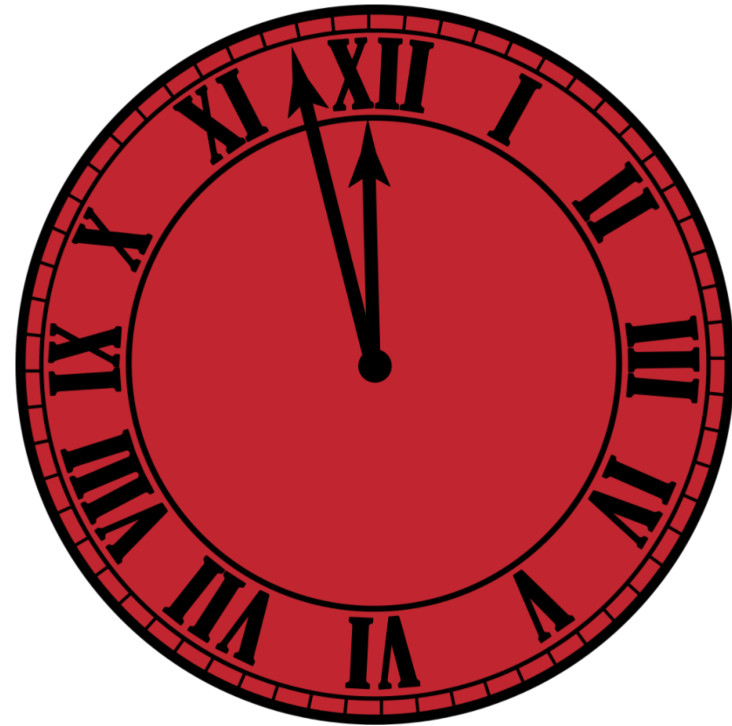
# The Truth About ODFs

- The existence of one or more ODFs whose prices constrain trades will indeed decrease dealer profits, and they will withdraw.
- But only because buy-side traders will be able to effectively offer liquidity to each other.
- Cutting out the middleman saves costs.
- Volumes will increase as liquidity increases.
- Funding costs will decline.

# Can We Live with Fewer Dealers?

- Yes, if they are displaced because other traders provide their services at lower costs.
- What about during market crises?
  - Markets always exist at some price.
  - In extremis, most dealers disappear anyway.
- Electronic dealers who provide better service at lower cost will replace traditional dealers.
  - The large number of issues ensures that dealers always will be important in bond markets.

# Conclusion



# The Long-View Perspective

- Bond markets are increasingly electronic.
  - Spreads are narrowing
  - But markups remain high.
- Small changes by FINRA, MSRB, and SEC can substantially increase liquidity provision by buy-side traders.

# What If We Don’t Regulate?

- Sophisticated institutions will demand more and better access to ATSs.
- Interactive Brokers will continue to vacuum up sophisticated retail and institutional clients.
- Someone will publish a private NBBO, but most brokers will not make it available to most of their clients.
- Most retail clients will continue to trade as they do.

# Why Regulate?

- Dealers won’t support pre-trade transparency.
  - They make more money in opaque markets.
- Brokers won’t support ODFs unless required.
  - They get too much payment for order flow.
- But investors will benefit, and they will pay more for their bonds when first issued.
- Cheap buy-side liquidity will reduce systemic risks.

# Another Telling Observation

- Bonds represent interest risk plus some credit risk.
- Both risks trade separately in highly liquid and transparent markets.
  - Pure interest risk trades in Treasury and futures markets.
  - Pure corporate credit risk trades in stock markets.
- Why should the combination trade in opaque markets?

# A Final Observation

- Greater pre-trade transparency makes trading bonds in Europe cheaper than in the US.
  - International Index Company disseminates indicative quote indices from many dealers on an intraday basis every minute for every bond in the iBoxx universe.
  - See Biais and Declerck (2013).
- But they also have long way to go.

# Rhetoric

# Arguments against Change

- Since bond markets work well, we shouldn't make radical changes that could destroy them.
  - Do they?
  - Why would order handling rules and more transparent information harm bond markets?
- Bonds are different from stocks.
  - But only in how their values accrue and who is interested in investing in them.
  - The economics of the bilateral search for liquidity are the same for bonds and stocks.

# How Lobbyists Delay the Inevitable

- Unbalanced type I and II errors cause loss-averse regulators to poorly estimate their probabilities.
- Concerns about high implementation costs cause regulators to protect the status quo.
  - “If it ain’t broke don’t fix it.”

➔Regulators often favor **incremental** changes.

  - Requests for low-value pilot studies and lengthy cost-benefit studies.

# The Counter Argument

- Outcomes are highly predictable when similar precedents are well known.
  - Trading interest, instrument risk, and hedging costs are the primary relevant issues for deciding market structure.
  - Securities are securities: "If it looks like a duck and quacks like a duck, it must be a duck."
- Examples
  - Active bonds and small- to mid-cap stocks
  - U.S. bonds and European bonds
  - U.S. bonds now and U.S. bonds 100 years ago.

# Common Law Is Well Understood

- Rules that codify obvious fiduciary responsibilities can only be beneficial.
  - For example, trade-through regulations serve to lower enforcement costs when participants ignore their fiduciary responsibilities.
- Rules that prohibit obvious conflicts of interest can only be beneficial.
  - For example, payments for order flow.

# Alternative Incremental Continua

1. Order handling rules (“Bonds are different”)
   a. ✓ Trade price transparency (TRACE and EMMA)
   b. Post-trade markup transparency (Now proposed)
   c. Pre-trade markup transparency
   d. Pre-trade National Best Bid or Offer
   e. Order display requirements
   f. Trade through rules
2. Bond activity (“Bonds are securities”)
   a. Move active bonds to appropriate systems first
   b. Move less active bonds later

# My Expectations

- The adoption of trade-through and order-handling rules will likely lower corporate bond transaction costs by about 20%, or about $5B on a base of $26B.
- But trading volumes will probably expand by at least as much so that total industry revenues will likely stay the same.
- Bonds will be more valuable because they will be more liquid, and issuers will benefit.

# Q and A

# Hedging Costs:
# Another Important Issue

# Capital Costs of Hedging

- Hedging is essential for moving liquidity among similar instruments.
  - For example, between a newly issued 15-year on-the-run bond versus a 14-year seasoned issue, both from the same issuer.
- Capital requirements are based on
  - gross positions for dealers in commercial banks.
  - net risk positions for hedge funds and others.

➔Traditional dealers have been withdrawing.
  - (They also exit due to low volatility.)