



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

Larry Harris

Fred V. Keenan Chair in Finance
USC Marshall School of Business



Disclaimer

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

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



The Issues





What Do Broker-Dealers Do?

- Most broker-dealers trade net.
 - They profit on markups.
 - Few broker-dealers act as pure agency brokers who profit from commissions.
- The markup on riskless principal trades (RPTs) is identical to adding on a commission.
- 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.





Market Structure Issues

- 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.
- Greater pre-trade transparency makes trading bonds in Europe cheaper than in the US.



My Study



What I Did

I compared 3 million TRACE trades to about 464 million contemporaneous quotes from electronic venues to

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

Quote Data from Interactive Brokers

- Interactive Brokers provided me with a record of the best bids and offers that it saw in 17,000+ corporate bonds between December 15, 2014 and April 15, 2015.
- IB consolidated the best bids and offers reported by several electronic market centers including BondPoint.
- Similar data have never been analyzed before.



Main Empirical Results





Trade Activity

- The median bond only traded 0.34 times per trading day.
 - No surprise here.
- But 1% (229) traded more than 22 times per day, on average.
 - Like small- and some mid-cap stocks.



Quote Activity

The median bond

- Was quoted to IB 116 times per trading day.
 - Some double counting likely.
- Had a bid present for 98.9% of the trading day and an offer present for 77.4% of the day.

10% of all bonds had a two-sided market during more than 98.9% of the trading day.

- This surprises everyone but traders.



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 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.
 - It does not affect the results much.
- Many trade-throughs are due to net pricing.
 - But the price dis-improvement is much greater than normal commissions.
 - 77 bp for the 30.5% with dis-improvement > 10 bp



RPT Identification Method

- Using TRACE data only, I found all adjacent trade reports with the same size.
- A potential RPT is an adjacent pair involving
 - A customer trade and an interdealer trade, or
 - Two customer trades on opposite sides.
- I do not double count trades.



Riskless Principal Trades

- 42% of all trades are potential RPT pairs for which the time between trades is less than 1 minute.
- Less than 2 seconds separate the trades in 73% of the potential RPT 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.
- Markups are greatest for retail trades, which are most common.
- 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 RPTs.
- For these trades, the median difference between the markup and the price (dis-)improvement is zero.
- The correlation between the markup and the price (dis-)improvement is -86%!



Full Year Projections

For the year ended March 31, 2015,

- Total customer bond transaction costs were \$26B.
 - Investors paid these costs (plus some exchange fees) 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.
 - Before class action attorneys create a Manning Rule for bonds.
- Requiring brokers to post limit orders of willing customers to order display facilities (ODFs) that widely disseminate these prices also would prevent many trade throughs.



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 Response to ODFs



**Western Civilization as
we know it will end!**



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?



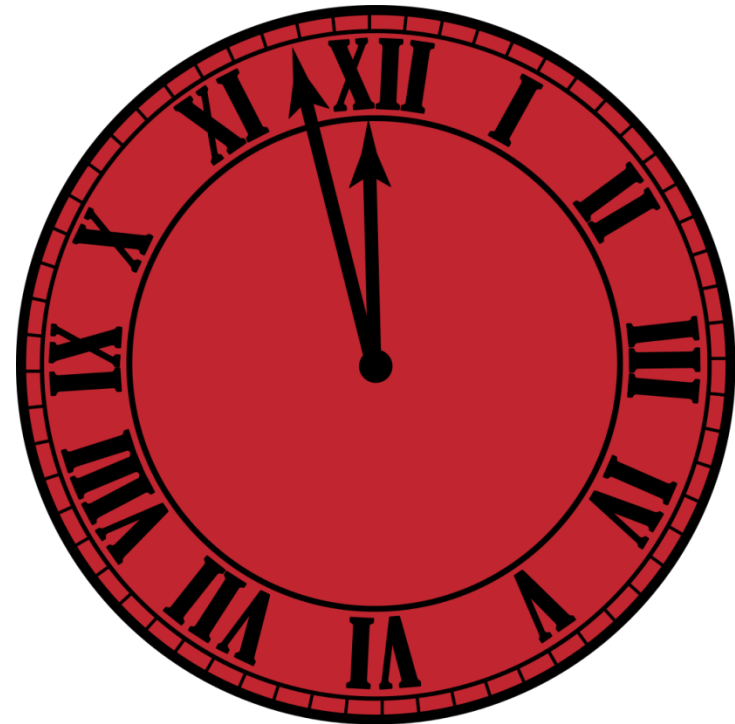
- Yes, if they are displaced because other traders provide their services at lower costs.
- What about during market crises?
 - Markets always exist at some price.
 - In extremis, most dealers disappear anyway.
- Electronic dealers who provide better service at lower cost will replace traditional dealers.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

Poster in Dinosaur Dealer's Office





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 push bond markets into the 21st Century.



What If We Don't Regulate?

- Sophisticated institutions will demand more and better access to ATs like BondPoint.
- 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.
- Class action attorneys may step in.



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).



Another Telling Observation

- Practitioners recognize that bonds represent interest risk plus some credit risk.
- Pure interest risk trades in highly liquid and transparent Treasury and futures markets.
- Pure corporate credit risk trades in highly liquid and transparent 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.



Q and A