



# The Liquidity Crisis Scenario and Some Attenuating Solutions

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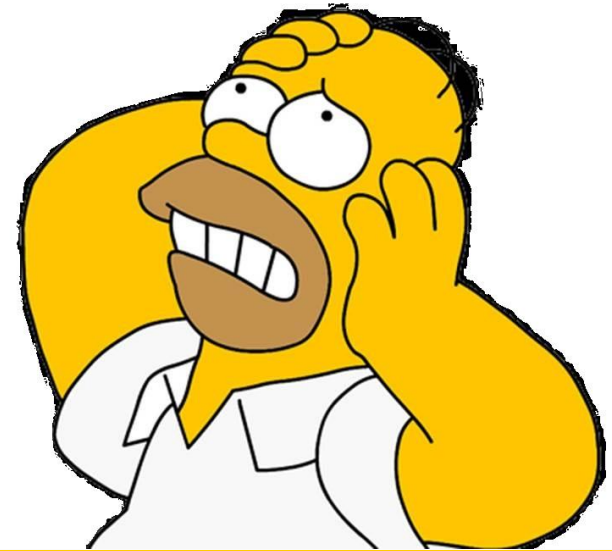
# Disclaimer

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

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



# The Feared Liquidity Crisis





# The Liquidity Crisis Scenario

- When interest rates rise, long-term bonds melt down as fearful sellers exhaust available liquidity.
  - The recent withdrawal of traditional dealers exacerbates the problem.
- Spiking interest rates cause or threaten a recession, and the Fed responds by pumping more money into the economy.
- People afraid of inflation spend to preserve wealth, and inflation ensues.



# Have I scared you?



# Possibility versus Probability

- Our risk aversion causes us to assign greater subjective probabilities to fearful possibilities.
  - Risk aversion is a natural response to unbalanced type I and II errors.
- But good decisions require good probability distributions.
- Our discussions at this conference should improve our understanding of the feared crisis scenario.

# The Scenario's Compound Statement

- **(1)** When interest rates rise, **(2)** long-term bonds melt down as **(3)** fearful sellers **(4)** exhaust available liquidity.
  - **(5)** The recent withdrawal of traditional dealers exacerbates the problem.
- Spiking interest rates **(6)** cause or threaten a recession, and **(7)** the Fed responds by pumping more money into the economy.
- **(8)** People afraid of inflation **(9)** spend to preserve wealth, and **(10)** inflation ensues.



# My Primary Purpose Tonight

- Discuss fixed income market structure and policy to obtain a better understanding of Statements 4 & 5 in the feared crisis scenario.
  - (4) “... exhaust available liquidity”
  - (5) “The recent withdrawal of traditional dealers exacerbates the problem”
- The discussion is important without the feared crisis scenario because we care about bond transaction costs.





# But First Some Quick Observations about

“(1) When interest rates rise, ...”



# Our Favorite Time Machines

- Financial markets are time machines in which people move money forward (investing) and backward (financing) in time.
  - Interest rates balance the investment demands with financing demands.
- Demographic issues strongly suggest that long-term real interest rates will remain low for a long foreseeable future.



# Demographic Trends

- Populations are aging throughout the developed world due to
  - Lower birthrates
  - Better healthcare
- The undeveloped world remains unsecure and thus not like to grow as much as desired.
  - Besides commodities, immigrant workers are its greatest contribution to the world economy.
- These trends are highly stable and predictable.



# Investment Demand

- Aging populations throughout the world are saving for their retirements.
- Economic uncertainties in the undeveloped world cause their risk-averse aristocracies to save in the developed world.
  - Why are the Saudis still pumping oil?



# Aging Consumption Demands

- Aging populations consume less capital-intensive goods.
  - Durable good acquisitions and replacements decline as aspirations for more die, the peacock effect ends, and improved products last longer.
  - People downsize as they realize that their assets own them rather than the converse.
  - Consumption bundles shift from capital-intensive goods toward services.
- Retirement savings also reduce consumption.



# Financing Demands

- Anticipating less future capital-intensive consumption, producers finance less investment in new plants.
  - Medical goods and devices for the infirm are the main exceptions.
- Fewer young people borrow for schooling.
  - Rising tuitions are an offsetting effect.



# The Bottom Line

- I expect to see near zero real interest rates for the long foreseeable future (much of the rest of my lifetime).
  - If another world war does not destroy capital.
- I don't expect interest rates to rise much.
  - (The Feared Crisis Scenario never gets triggered.)



# What is Normalization?

- The Financial Crisis hid the effects of these demographic trends.
  - Did interest rates drop because of the Crisis (and the policy responses of the Fed) or because of these demographic trends?
- Normal interest rates very likely will be lower than they were in the past.
- Conservatives try to conserve a familiar past.
  - The Fed is caught in a vise.





# Now My Main Topic: Corporate Bond Market Structure

(4) “... exhaust available liquidity”



# The Issues Relevant to this Conference





# 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 serve other buy-side traders.



# My Study





# What I Did

I compared 3 million TRACE trades to about 464 million 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 30.5% 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 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.



# Hedging Costs: Another Important Issue

(5) “The recent withdrawal of traditional dealers exacerbates the problem”



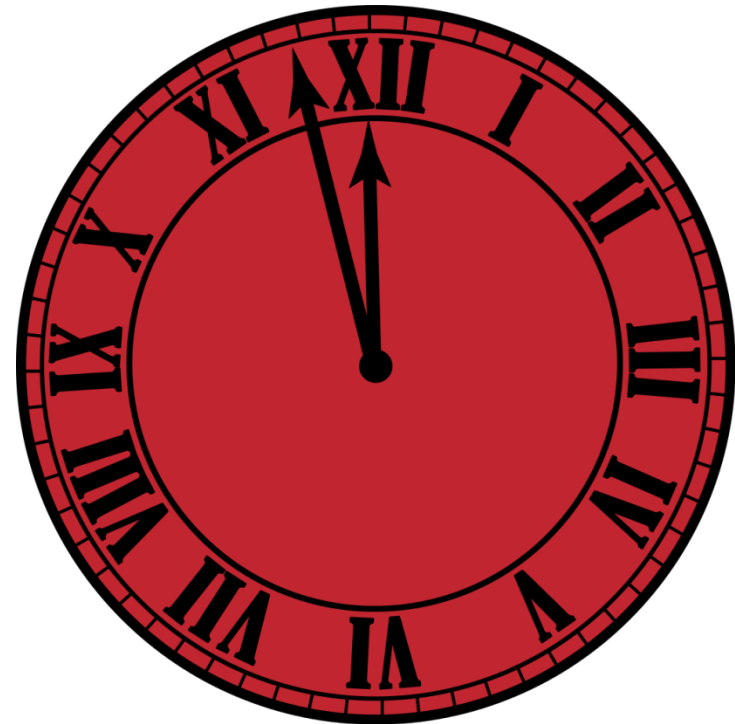
# Capital Costs of Hedging

- 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.)





# 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.



# 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.



# 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