TBAC Charge # 2

- The extent of publicly available data on transactions in U.S. Treasury markets is substantially less than what is available for other major asset classes. For example, cash Treasury securities do not have any public transaction or order book reporting.

- Observers have cited several potential benefits associated with greater transparency in the Treasury market including 1) improved market efficiency, 2) reduced transaction costs, 3) enhanced fairness, 4) improved risk management practices and 5) greater participation by new entrants, who may otherwise be reluctant to engage in a market where they have less information than their counterparties.

- Others have suggested that the current level of transparency in the Treasury market is sufficient and note that additional trade reporting requirements could adversely affect the willingness of some intermediaries to engage in "block" trading of Treasury securities which could impair market liquidity

- We would like the Committee to comment the appropriate level and form of data that should be made available to the public, including that related to market prices, trading volumes, market participant inventories, and trends in market risk and liquidity.

Trace in Corp Bond Mkt

- The Trade Reporting and Compliance Engine (TRACE), introduced in 2002, captures real-time transaction data for all eligible public and private (144A) corporate bonds, including investment grade, high-yield and convertible debt, agency debt, and asset and mortgage-backed securities.

- Per FINRA, TRACE procedures and practices increase transparency by fully disseminating transaction information related to trades—namely time, price and volume. Brokers and firms are required to report to TRACE within 15 minutes of effecting a transaction (for corporate bonds)

- Per FINRA, bond liquidity may become clearer by consulting a bond's trading history—if a bond has not traded in days or weeks, it may be illiquid.

- Helps in discovery of the costs associated with buying or selling a bond before actually trading a bond

Trace Stats & History

- Brokers and Dealers Inventory of Corporate bonds has continued to decline.

- Since TRACE was introduced in 2002, we have seen that growth of Mutual Funds, Closed-End Funds and ETF holdings continue to outpace the daily trading volumes.

- Also, after TRACE was introduced for 144A bonds, the HY market participants anecdotally noted that liquidity among 144A issues has fallen.

- Mutual Funds, Closed-End Funds and ETFs Corporate Bonds holdings as a multiple of those held by Brokers and Dealers has gone up sharply in the recent years

Mutual Funds, Closed-End Funds and ETFs Corporate Bonds Holdings as a Multiple of Daily Trading Volume 2002 through Q3 2015

Mutual Funds, Closed-End Funds and ETFs Corporate Bonds Holdings as a Multiple of Those Held by Brokers and Dealers 1985 through Q3 2015
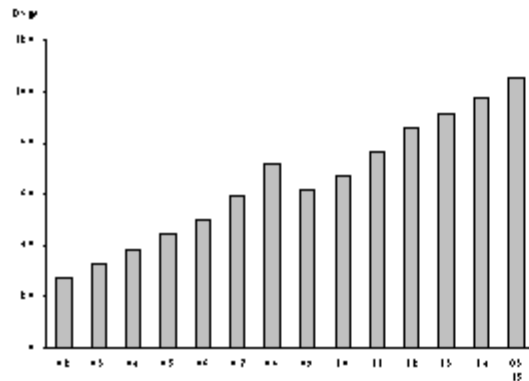
Source: Federal Reserve Board, SIFMA, Empirical Research Partners Analysis.
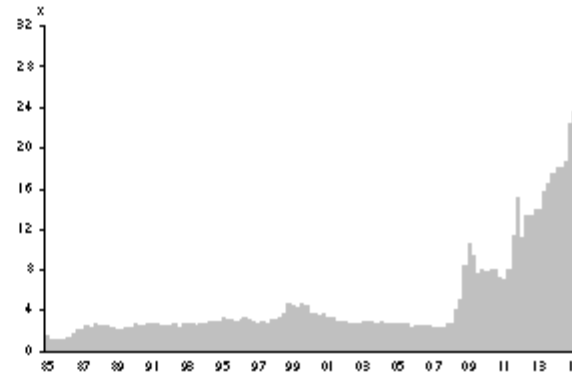
Source: Federal Reserve Board, Empirical Research Partners Analysis.

Equity Market

Equity Market

- All-to-all platform through centralized exchanges: e.g. NYSE, NASDAQ

- Price transparency: continuous pre-trade information, publicly available best quotation etc.

- Comprehensive execution information: immediate availability of prices and sizes of completed trades

- Smooth risk transfer: less transaction cost, better inventory risk sharing

Treasury Market

- Fragmented platforms: dealer & vendor dependent

- Price discovery: more difficult due to lack of centralized platform

- Opaque execution information: details of executed trades unavailable to all market participants

- Risk transfer: higher transaction cost, increasing inventory carry cost

Treasury Market

- Past developments increasing price transparency were actually through direct access platforms.

- Tradeweb, led by a consortium of dealers, provided the first true visibility into off-the-run pricing where levels were executable.

- Bloomberg, though older, was late to offer direct access so the transparency was lacking.

- This was because unlike other markets, risk transfer in Treasuries has been and remains principal-based, with dealers expected to be the conduit between end users.

Why so much daily volume has shifted to Treasury futures and SEFs

SEF Share of Total Swap Notional (Weekly Avg)
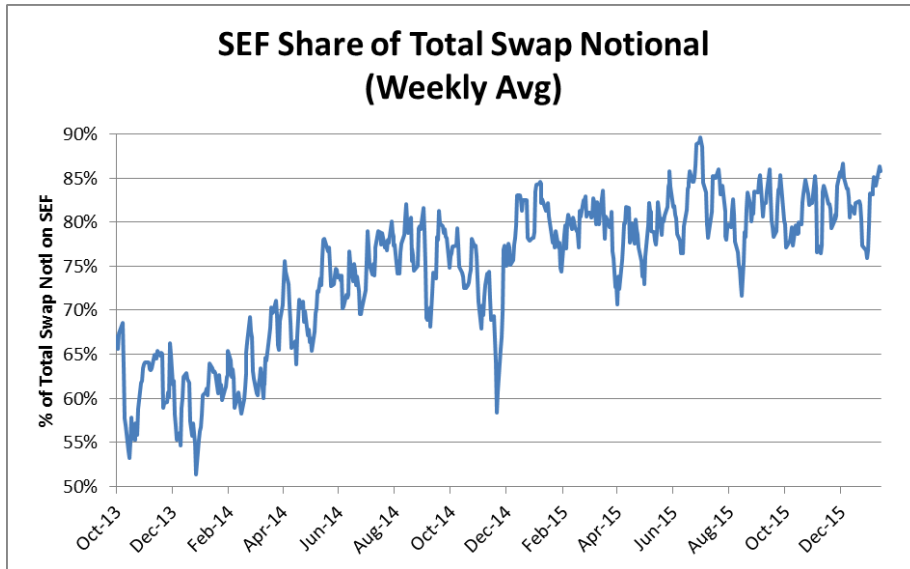
Source: DTCC

Trading activity in Treasuries futures has grown relative to cash, similar to the shift towards SEFs in swaps:

- Desire to move to a common platform

- All-to-all execution

- Anonymity

- Price transparency

Annual Avg Daily Trading Volume in Futures vs Hot-run Cash Issues
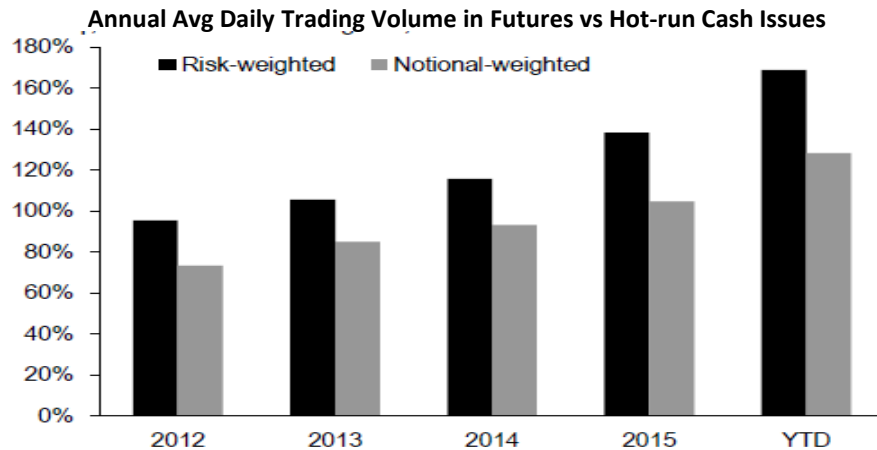
* Includes TU, FV, TY, TN, US, and WN. Risk weighted from the front futures DV01. We exclude the three weeks around the first delivery date to avoid distortions owing to the quarterly roll.
† Includes hot-run 2s, 3s, 5s, 7s, 10s, and 30s from two electronic interdealer markets (e-Speed and BrokerTec). Same dates excluded as above for consistency.
Note: YTD data through 1/21/16.
Source: J.P. Morgan, CME, Reuters, e-Speed, BrokerTec

What could Trace or SDR in Treasuries look like

Similarities to Trace / SDR:
- Block size -> all blocks above "X" amount would be reported as "X+"
  - "X" could equal 240mm similar to SDR

- Timing -> All reportable transactions would need to be recorded within 15 minutes

Differences to Trace / SDR:
- Limit on what transactions need to be reported -> minimum threshold for transaction size
  - Volumes in treasury market are significantly larger than other markets
  - Unless you had an all-to-all platform, operationally reporting all transactions would be tedious and too time consuming
  - Transactional data on small odd-lot amount may not add to increased transparency and liquidity in the market

- Consider grouping trades by maturity bucket
  - By giving trace data on specific off-the-run issues you could diminish liquidity and widen bid/ask -> opposite of goal

ADV of Treasury Products

Estimated ADV of ECN Treasury Products and Total Debt Outstanding
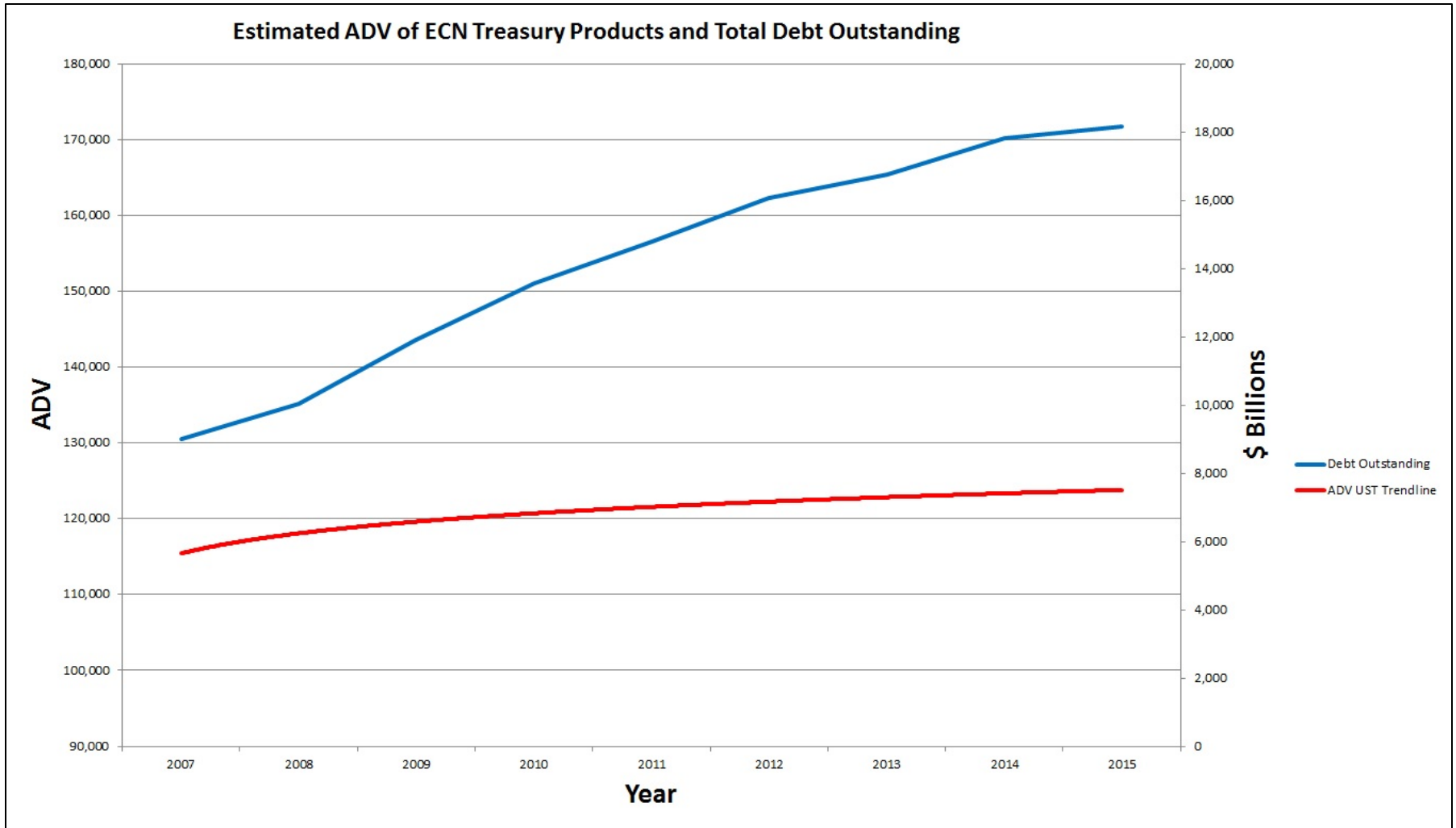
Lit Secondary has been relatively flat, while the Outstanding Debt has grown significantly

Is Public UST Information Sufficient? Lit vs Dark

The market for active UST's is bifurcated between Lit and Dark venues

- **Lit Venues (Interdealer ECN's): Broker Tec (BTEC), eSpeed (ESPD), Dealer Web**
    - BTEC (70+% market share for 2015) sells their market data that includes full depth of book, all order levels for a fee of $20,000 per month. Information is delivered via API.
    - ESPD also sells full order depth for substantially less, and maintains ~25% market share (2015 Stats).
    - Dealer Web market share is small.

- **Dark Venues (Dealer to Client) - no market data is made available**
    - Tradeweb has not allowed NON banks in as market makers.
    - Bloomberg (BBERG) only recently has allowed NON Banks. Citadel is active, and Virtu is working to on board. Through BPipe on BBERG, and for ~$10,000 per month, post traded volumes can be seen via an api.

Is Public UST Information Sufficient?

- Based upon market participant assumptions, the D to C Dark space is as large as the interdealer space, yet <u>Price</u>, <u>Time</u>, and <u>Volume</u> are basically dark.

- All pre or post trade data could easily be made available without attribution from D to D and all D to C venues.
    - Only issue to be resolved would be whether a real time display or an agreed upon delay is implemented analogous to TRACE for Corporate.
    - Given that in active USTs, we're only speaking about 2's 3's 5's 7's 10's and 30's, the data capture and publication should be very easy.

Is Public UST Information Sufficient? (Cont'd)

- In Off the Runs ("OTR's") - which includes hundreds of cusips - trade capture and reporting would be much more difficult
  - Given the illiquid nature of OTR's, a TRACE-like 15 minute delay in reporting Price, Time & Volume would have limited market impact.

- An advisable change to public reporting of Active UST data would be a minimum volume threshold in the D to C space.

- For all ECN data, as close to real time reporting could be expected for any volume amounts traded. In the D to C space, however, amounts less than $X Million in ALL active issues could require a reporting timeline of no more than 5 minutes. In Off the Runs, regardless of amounts traded, a reporting window of no more than 15 minutes could be required.

Additional UST Information that should be made available

- A consolidated and aggregated **UST ACTIVE TAPE**, could easily be made available for public consumption, yet it would only capture approximately 50% of the total UST market trades.

- This data could easily be aggregated from the existing ECN's, and the reporting delay is all that is really left to be determined.

- A related question: do the following also get called in for reporting and the appropriate delays in reporting?
    - Dealer to Client Direct
    - Electronic RFQ
    - Single Bank Portal
    - Telephone Market
    - Chat Room Trades

- For actives, a sub 5 minute delay would be recommended. Off the Runs, a 15 minute delay would be recommended, regardless of execution venue. Again, Price, Time, and Volume inputs would be required.

Secondary Market Transparency

- Although equally as large, the D to C component of ACTIVE USTs - especially Block Transactions, and the drilling down "at transaction level data" - could be viewed as disruptive to the current "working environment" in the Direct Dealer to Client space.

  - Large buy side firms are trying to manage large risk positions and hope to minimize market impact.

  - In the traditional, principal risk transfer model - deployed in USTs by the dealers - anything more than PTV, post trade with a notional +/- $XMillion traded with no longer than 5 minute and 15 minute reporting requirements will have limited negative impact. In addition, it will hopefully bring new players to the market place.

Secondary Market Transparency (Cont'd)

- Should quotes and or orders be made public?
  - LIT ECNs: full order books; *e.g.* full depth levels of Bids and Offers made available via an api and reported at near to real-time for a fee.
  - DARK: Capturing pre-trade market data in a D to C model is impossible, given that none really exists. If the long term desire is to move UST active trading to an ALL to ALL Lit Institutional venue, then some new entrants are coming to the market, and their success or failure can be easily monitored.

- What characteristics should be reported (e.g. participant type, aggressor side, volume, price)? Should the data be in real-time or delayed?
  - Any type of attribution to client type or name is not really necessary. In Client Limit Order Books "CLOBs" (BTEC, ESPD) most if not all participants are either FICC netting or PB'd.
  - Again, the greater issue is whether to drill down on the D to C venues and if so then, Price, Time and Volume are the only parameters required.

- Should the available data differ depending on the age of other characteristics of a particular security or transaction?
  - Regarding Active USTs traded on ECNs, or CLOBs or ATS's, a real-time reporting of all transactions would be recommended. For D to C venue or direct trades where notional amounts traded are less than $X mil, a reporting delay of no more than 5 minutes would be recommended. D to C trades executed with Notional of > $X million, a reporting delay of no longer than 15 minutes would be expected.

Existing Transparency Model for USTs?

- Given that 50% of Active UST's trade on Lit venues like BTEC (who have >70% market share and publish market data at or near real time to those participants willing to pay for full access), reporting on a SIP is almost available now.

- Larger issue is merging the dark D to C Active markets into the existing D to D market data, and creating a SIP or TAPE

- It is important to note that the Fed decided to publish complete transaction level details of its Large Scale Asset Purchases with a lag.
  - They didn't want to publish those details in real-time, but thought that the lagged disclosure would be beneficial. It would allow customers to keep tabs on the dealers and reduce the information asymmetry at the relationship level, if not at the individual-transaction level.

Takeaways

- The principal-based risk transfer model is disappearing from fixed income markets

- End users are forced to provide liquidity more so than ever before

- Greater transparency would help these end users limit volatility in the market

- Absent an all-to-all platform for risk transfer, these efforts are necessary but not sufficient

- Possible reporting timelines by type of transaction:

Category	Real-time	5 mins	15 mins
D to D actives (i.e. BTEC, ESPD)	X		
D to C actives < $X mio Notional		X	
D to C actives > $X mio Notional			X
Off the Run Trades			X