

The Meaning and Implications of “Regular and Predictable” (R&P) as a Tenet of Debt Management

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TBAC Charge

A pillar of Treasury's debt management policy has been to operate in a "regular and predictable" manner. However, as a precise definition of "regular and predictable" has not been provided, the meaning of "regular and predictable" is subject to interpretation.

We would like the Committee to comment on the meaning of "regular and predictable" and its implication for debt managers' ability to alter auction sizes. At what point does the added flexibility of moving these auction sizes violate the Treasury's fundamental paradigm of "regular and predictable?"

Outline

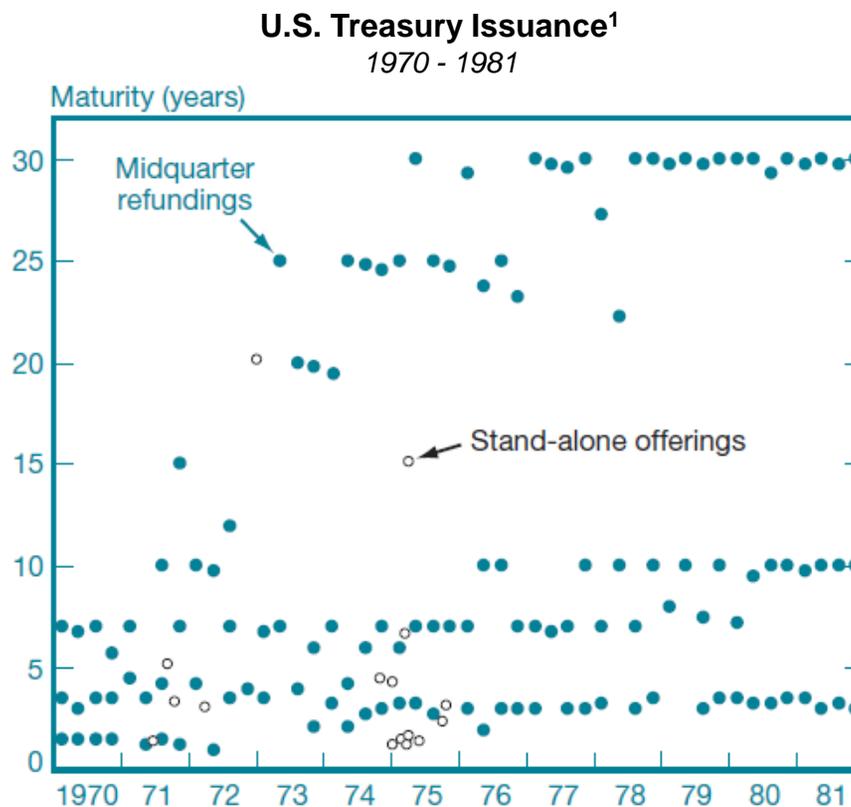
- **Debt Management Goals and History of R&P**
- **Current Operating Environment**
- **Benefits and Potential Opportunity Costs of R&P**
- **Boundaries of R&P Framework**
- **Conclusion**

Treasury's Debt Management Goals

- **To fund the deficit and refinance maturing debt at the lowest cost to taxpayers over time**
- **Manage Treasury's cash flows in an uncertain environment**
 - Uncertain net financing needs
 - Uncertain auction demand conditions
 - Uncertain market liquidity, in light of recent regulatory and market micro-structure changes
 - Uncertain economic and financial market outlook
 - Uncertain Federal Reserve policies going forward
- **Manage the risk profile of outstanding debt**

In the Mid-1970s, Treasury Began Transitioning to an R&P Auction Framework

- Analysis by Garbade¹ shows that up until the mid-1970s, Treasury exercised more tactical discretion in the timing, maturity, and size of new issues in response to perceived market opportunities, unforeseen variations in its cash needs, or to manage the WAM of its outstanding securities
- By the mid-1970s, the costs of tactical discretion in terms of generating potential market disruptions came more into focus, tilting the debate in favor of adopting a more “regular and predictable” auction process
 - The size of the deficit to be financed increased significantly
 - The tactical and discretionary issuance left market participants unprepared and collided with private sector issuance of securities with similar credit ratings and tenors (i.e. close substitutes)



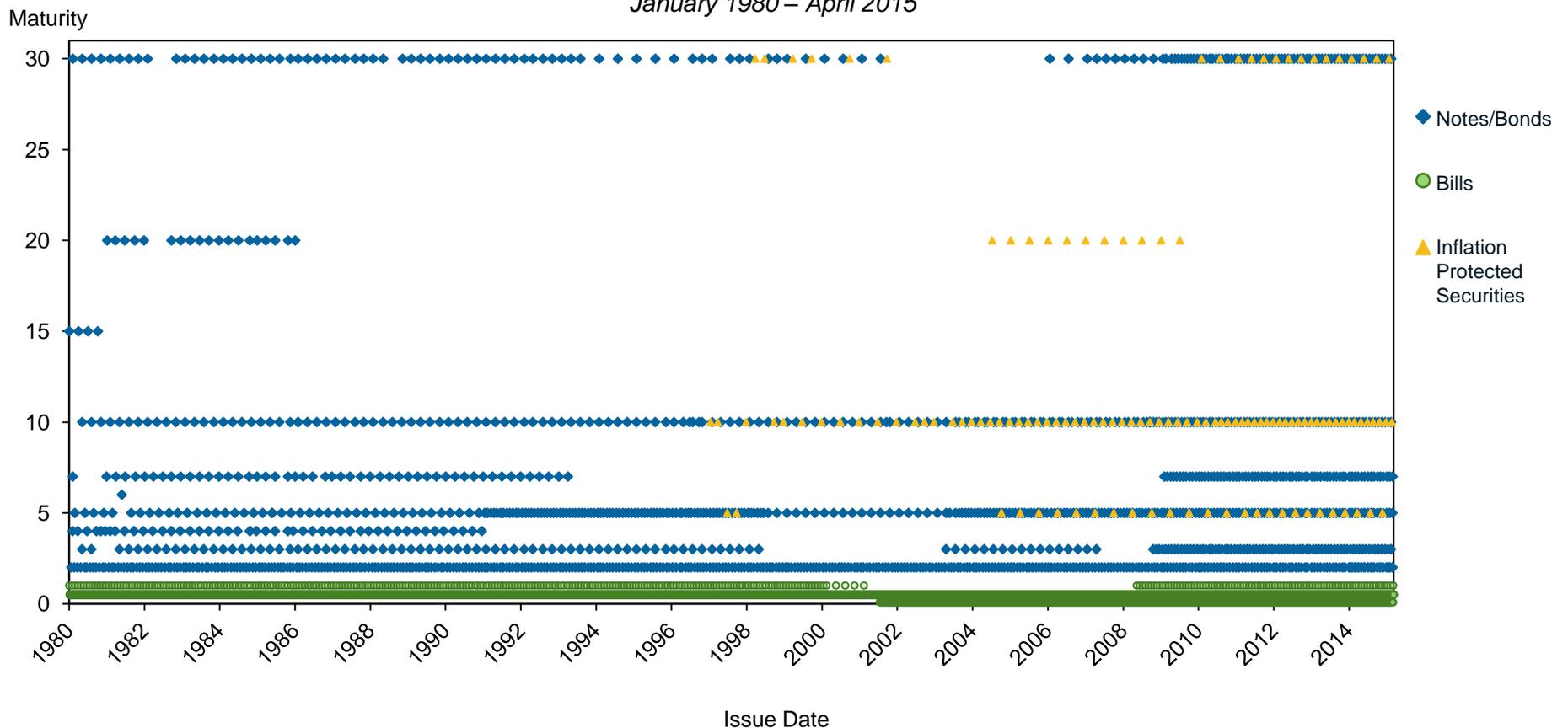
1. Kenneth D. Garbade, "The Emergence of 'Regular and Predictable' as a Treasury Debt Management Strategy," FRBNY Economic Policy Review, March 2007.

Since the Transition, Treasury Has Adhered to an R&P Auction Framework

- **Regular auctions with a set schedule**—standardized communication process around the size of auctions
- **As much forward guidance regarding future auction sizes as is feasible**
 - Generally communicated as part of the Quarterly Refunding announcement
- **Much longer lead times in communicating decisions to introduce or eliminate particular maturities or instruments**
 - Generally, lead times of anywhere from one quarter to several years

U.S. Treasury Issuance—Regular and Predictable

January 1980 – April 2015



Source: U.S. Treasury.

Treasury's Current Operating Environment

- Potential variability in budget deficits
- Sizeable stock of outstanding debt to roll over
- Potential structural changes in investor demand over time
- Changes in the financial regulatory environment and market structure that affect market liquidity and auction demand conditions
- Federal Reserve decisions in terms of policy rates and its balance sheet going forward
- Constraints periodically posed by the debt ceiling

Treasury needs to retain enough flexibility within its current R&P framework to be able to adjust to these uncertain conditions over time

Benefits and Potential Opportunity Costs of R&P

Benefits of the current R&P framework

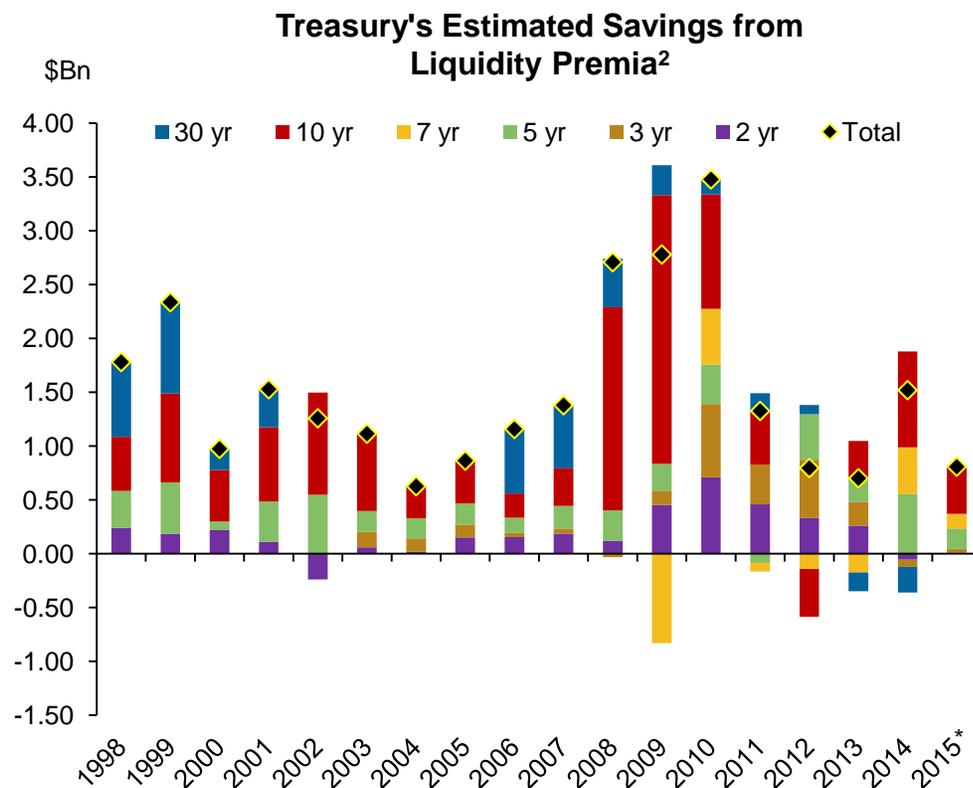
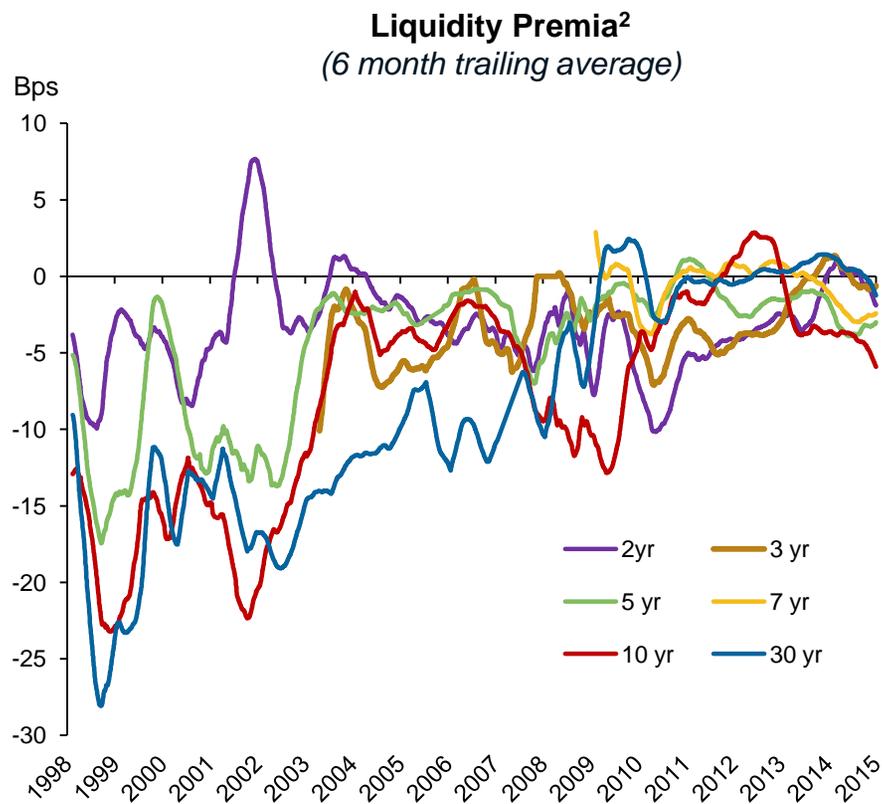
- Lowers Treasury borrowing costs
- Provides a reliable liquid benchmark curve that benefits other markets, e.g. corporate bonds and Treasury derivatives (futures & options)
- Helps reduce rollover risk by spreading out maturities in a predictable fashion

Potential opportunity cost of retaining the current R&P framework

- Prevents Treasury from quickly reacting to
 - Breakdowns in market functioning
 - Potential relative value opportunities
 - Structural dislocations in the curve driven by market segmentation
 - Possible market timing opportunities

Following an R&P Framework Has Lowered Treasury Borrowing Costs

- Removes uncertainty, allowing investors to plan for future issuance
- Encourages broad-based auction participation
- **Treasury has saved an estimated \$27 billion¹ since 1998 by capturing liquidity premia for on-the-runs**
 - Although liquidity premia has tended to narrow over this period, given the sharp increase in Treasury's gross borrowing needs since 2008, the dollar amount of savings has remained significant



1. Committee participant's estimate.

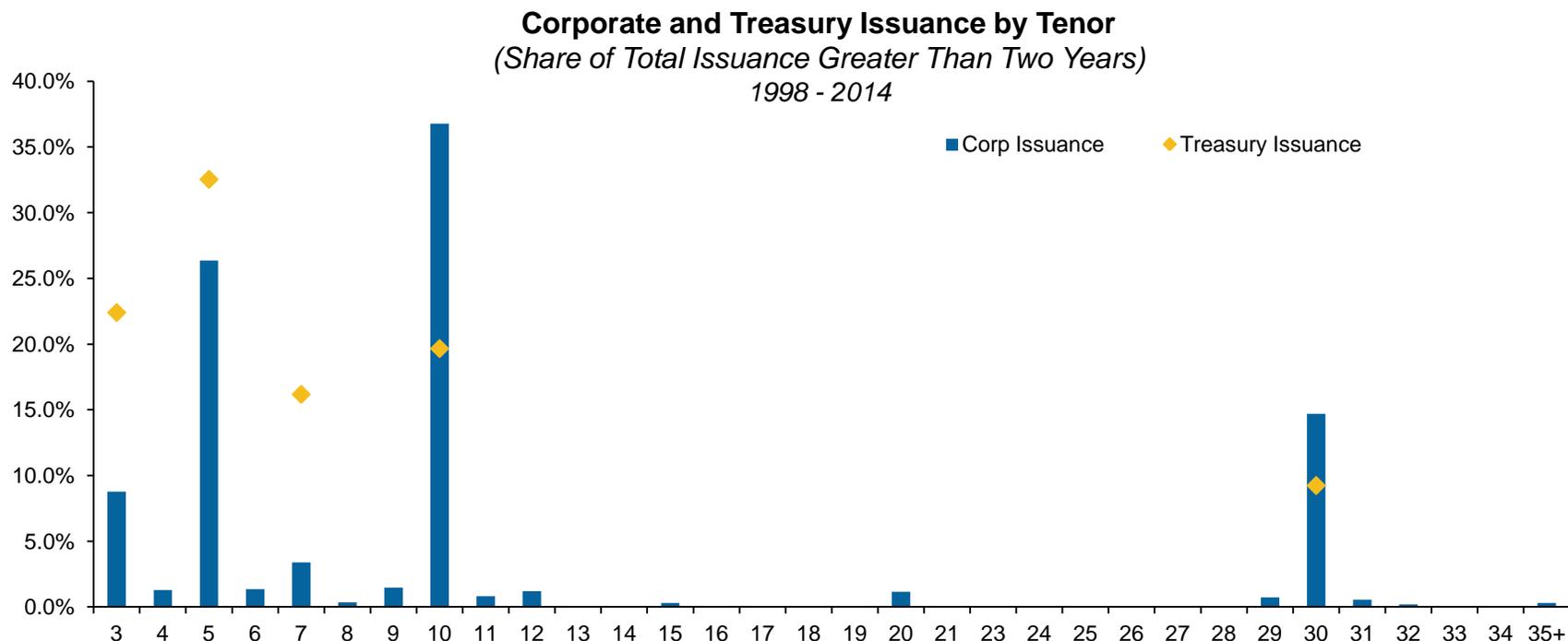
2. Richness of on-the-run Treasury versus fourth old.

Source: Committee participant's models.

* Year-to-date as of April 2015.

R&P Framework Creates Positive Externalities

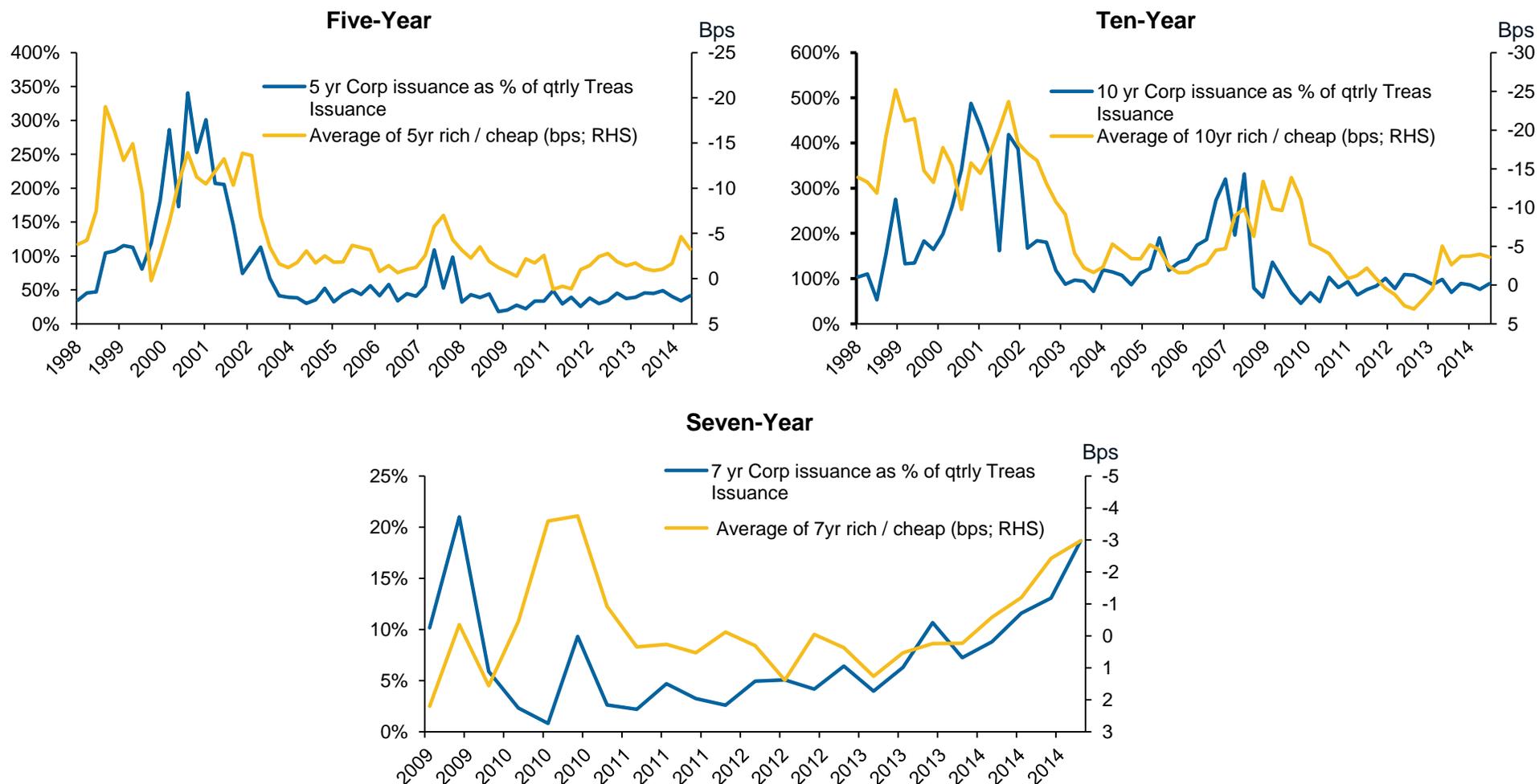
- **Provides a reliable liquid benchmark curve that benefits other markets, e.g. corporate bonds and Treasury derivative markets**
 - Availability of liquid benchmark Treasuries, which R&P enables, provides a basis for hedging interest rate risk and pricing credit risk
- **Dependence of these markets on a liquid Treasury benchmark curve creates structural demand for on-the-run Treasuries that at least partly accounts for their liquidity premia**
 - Maintaining R&P Treasury issuance will help retain on-the-run Treasuries as the benchmark for other markets, enabling the Treasury to continue to benefit from their richness
- **Treasury might benefit from exploring the possibility of issuing at additional maturities that match corporate funding needs**
 - Some corporate issuers have recently found it effective to issue at maturities between 10 and 30 years, suggesting Treasury might benefit from introducing another benchmark maturity in this range



R&P Framework Creates Liquid Benchmarks for Private Sector Issuance

- Corporate issuers prefer to price off of liquid benchmark issues
- Ultimately enhances Treasury on-the-run liquidity premia
- A mutually beneficial relationship exists between corporate issuance and on-the-run Treasuries—both parties benefit

Quarterly Corporate Issuance (as % of Treasury Issuance) Compared to Liquidity Premia¹

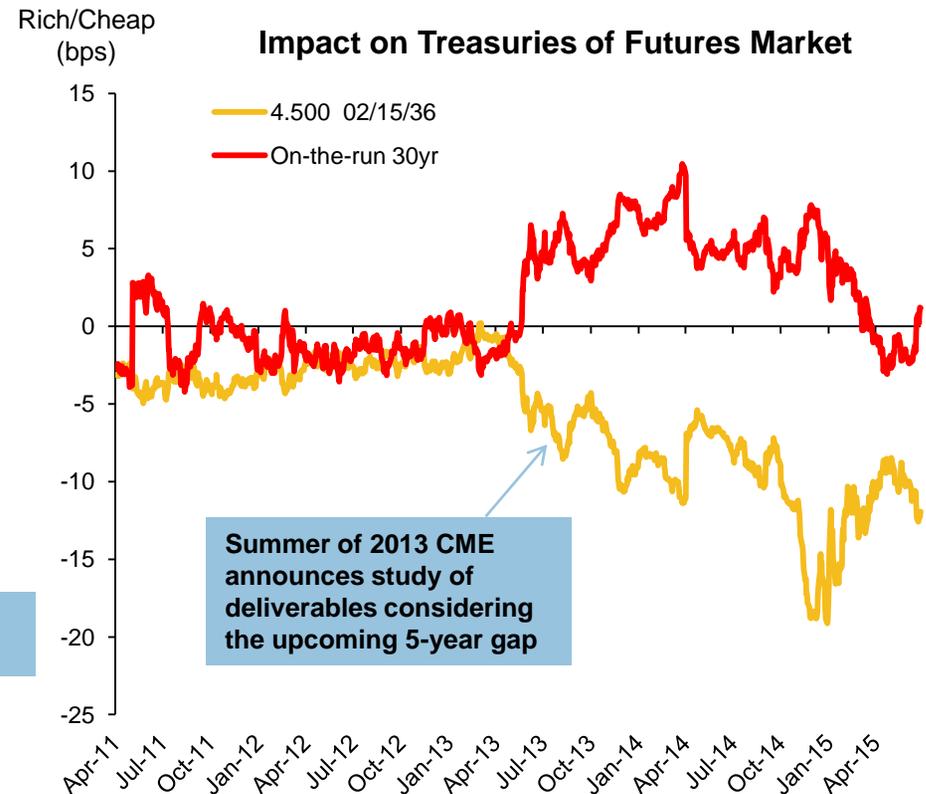
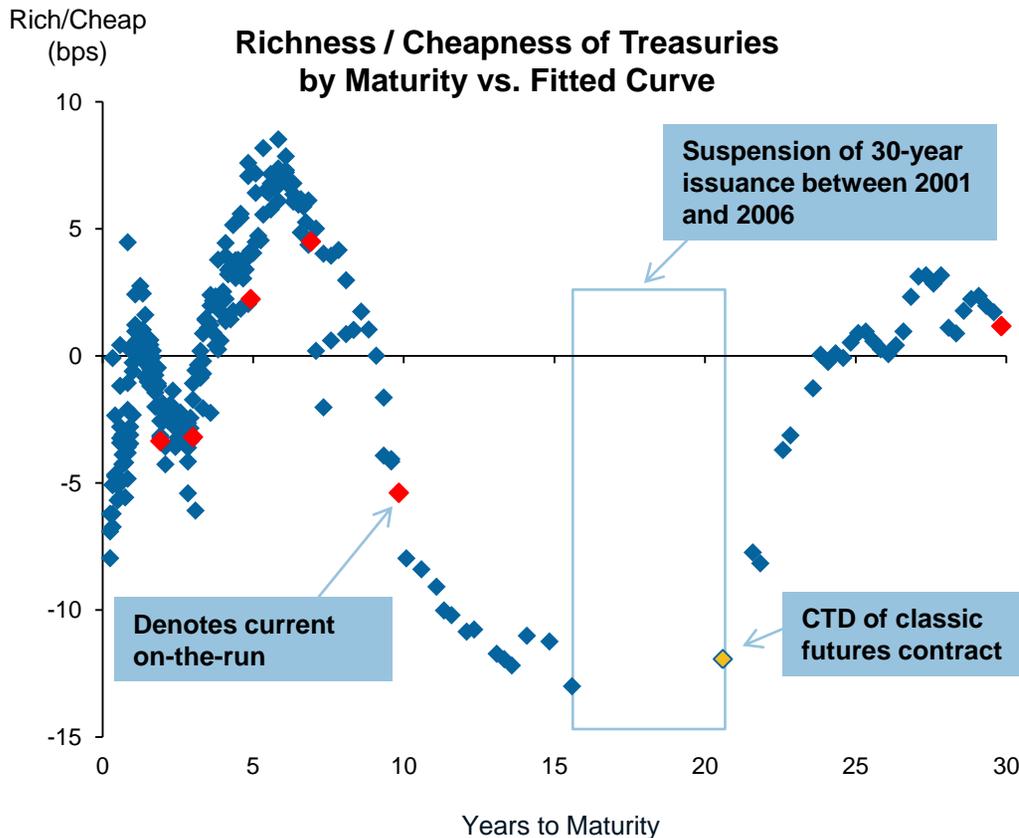


1. Richness of on-the-run Treasury versus fourth old.
Source: Committee participant's models.

R&P Helps Maintain A Full Curve of Liquid Benchmark Issues

Suspension of 30-year issuance in 2001 illustrates the unintended consequences of deviating from R&P

- **Budget surpluses at the time reduced financing needs, leading first to reduced auction sizes and finally a suspension of 30-year issuance**
 - Market participants were aware suspension was possible, but were nonetheless surprised by the announcement in October 2001
- **Looking beyond the market's immediate reaction to the suspension, the full implications and costs of suspending 30-year issuance were not apparent until years later, despite resumed issuance in 2006**
 - The Treasury curve currently has a gap in the 15- to 20-year part of the curve
 - Delivery requirements for futures contracts were consequently forced to be modified as deliverables became limited due to the 5 year gap in 30-year issuance—issuance gap created substantial richness for off-the-run securities that are cheapest to deliver for settlement of futures contracts
- **This effect has reduced the liquidity premia that Treasury is capturing from 30-year Treasury issuance**



Potential Opportunity Costs of Retaining Current R&P

Monetizing substantial market dislocations

- Treasury has occasionally deviated from R&P when markets have suffered from severe illiquidity (e.g. reopening of several Treasury issues in 2008)
 - Can serve a valuable purpose by restoring market function and by ensuring sustained confidence and liquidity for Treasury securities

Extracting value from rich parts of the curve

- R&P issuance does not capture demand dynamics that create richness at certain parts of the curve
 - Given the efficiency of markets and Treasury's sizable gross issuance needs, it is extremely difficult for Treasury to extract relative value from tactical opportunities in the market
 - However, persistent dislocations driven by market segmentation or shifting preferred habitats of market participants over time may provide opportunities for the Treasury to modulate issuance gradually and transparently

Responding to changes in term premia

- Yields on longer-dated securities tend to include term premia, therefore raising their ex-ante costs as a source of funding when compared to shorter-dated securities
 - However, trying to reduce this cost would require taking views and timing the markets, which is difficult to do sustainably over the long-run
 - There is a substantial variation in approaches and resulting estimates of term premia embedded in the curve

Responding to changes in inflation risk premia

- TIPS securities have embedded inflation risk premia that, at times, could be significantly undervalued given the market environment
 - Maintaining static issuance when risk premia may be undervalued could potentially be a cost to Treasury
 - Gauging investor demand along with embedded inflation premia could be one area of modulation (size relative to nominal coupon issuance) within the R&P framework

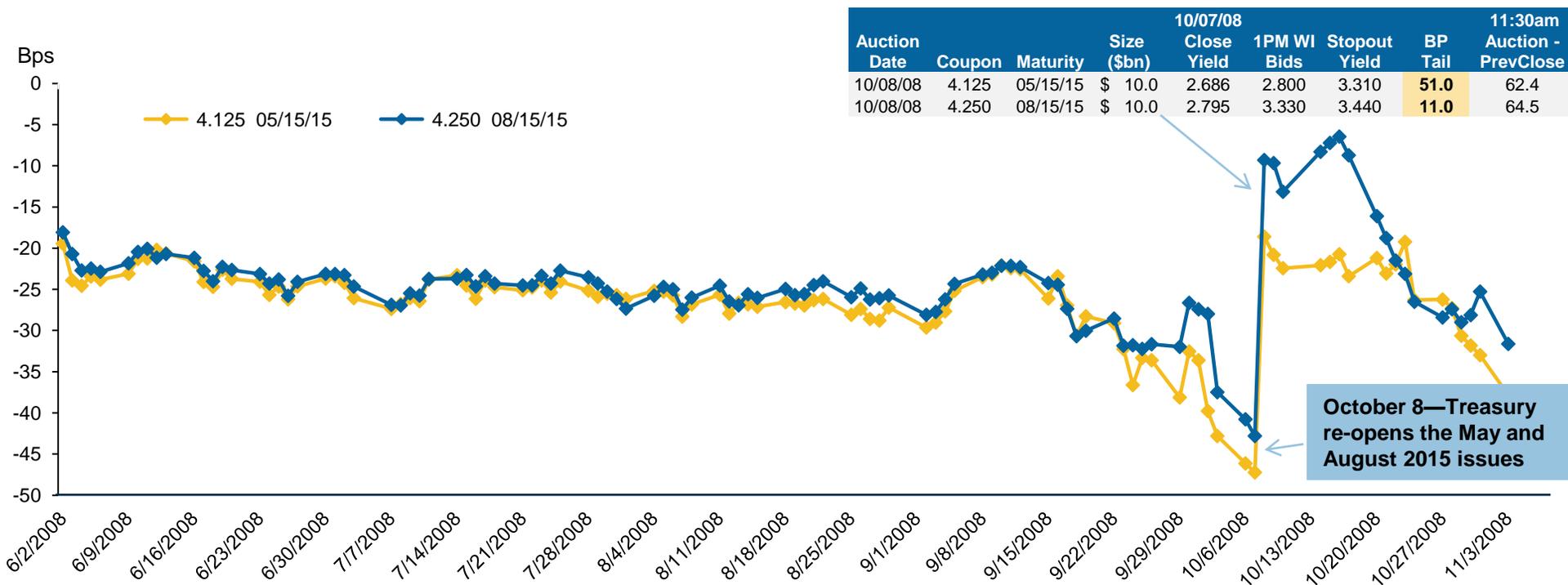
Attempts at market timing could damage credibility of the auction process and increase uncertainty for market participants, potentially resulting in higher borrowing costs over the long run

2008 Reopening of Several Treasury Issues Alleviated Market Dislocations

Illustrates Difficulties Treasury Faces In Capturing Relative Value Opportunities

- **Several Treasury issues were experiencing a substantial shortage of supply in 2008; Treasury announced reopenings of these issues which provided much-needed liquidity to alleviate the severe squeezes**
 - Treasury was able to alleviate severe strain and restore a well-functioning market by deviating from its usual R&P framework
- **However, the market priced in the impact almost instantaneously after the announcement, eliminating the richness of those securities ahead of the actual reopening**
 - Treasury was not able to extract any benefit from the market-driven relative value opportunity as the market re-priced the securities before the reopening

Richness/Cheapness vs. Fitted Curve



Source: Committee participant's models.

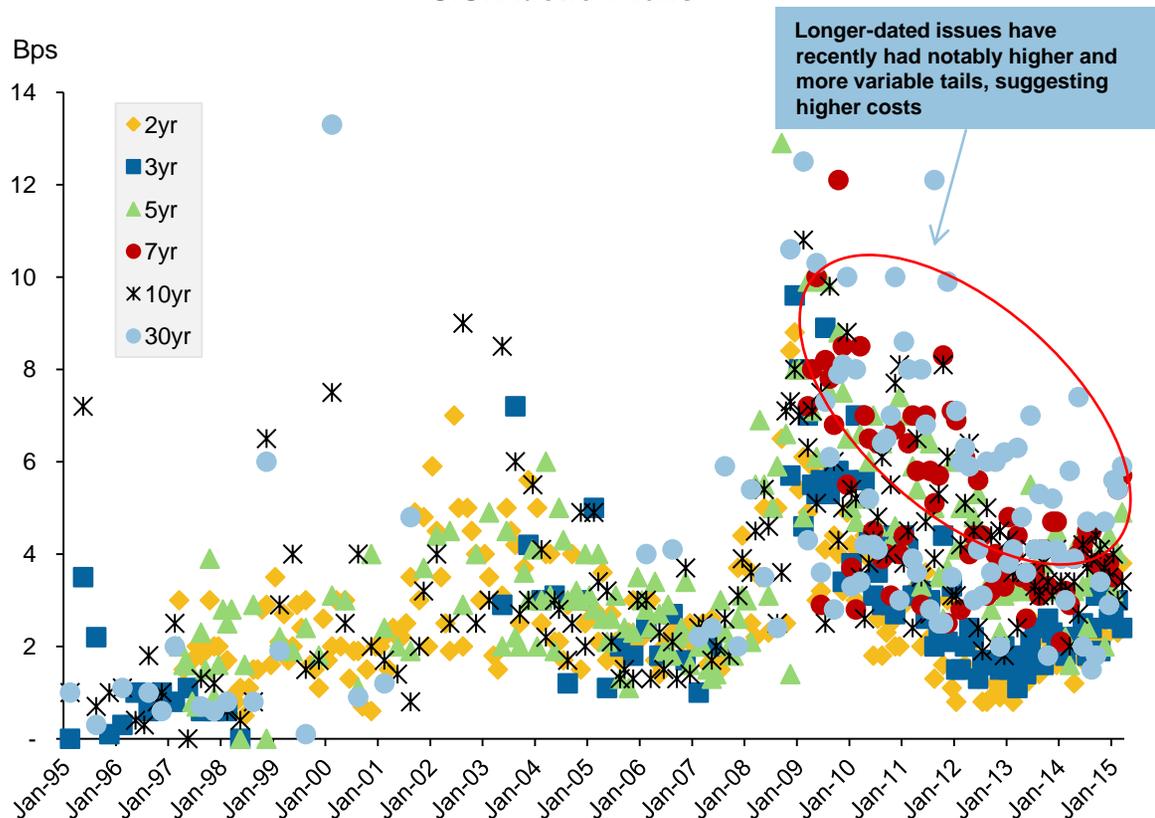
Boundaries Within Which the Treasury Can Deviate From the Current R&P Framework

- **Five parameters potentially to modulate**
 - Size
 - Frequency
 - Maturity
 - Instrument (Bills, Coupons, TIPS, Floating Rate Notes)
 - Lead-time in notifying market
- **Considerations when Treasury is contemplating potential changes in any of these parameters**
 - Auction tails provide insights into market depth and the potential for variance in auction sizes
 - Sufficient communication is critical for keeping any changes in auction parameters within the bounds of R&P
 - Primary Dealers play an important role and constraints need to be appropriately considered
 - Monetary policies particularly with respect to Fed balance sheet management
 - Sustainability of demand across all interest rate cycles
- **Adopting a formulaic approach is unlikely to generate persistent benefits to the Treasury and could possibly raise Treasury borrowing costs by introducing greater complexity and thus uncertainty into the auction process**

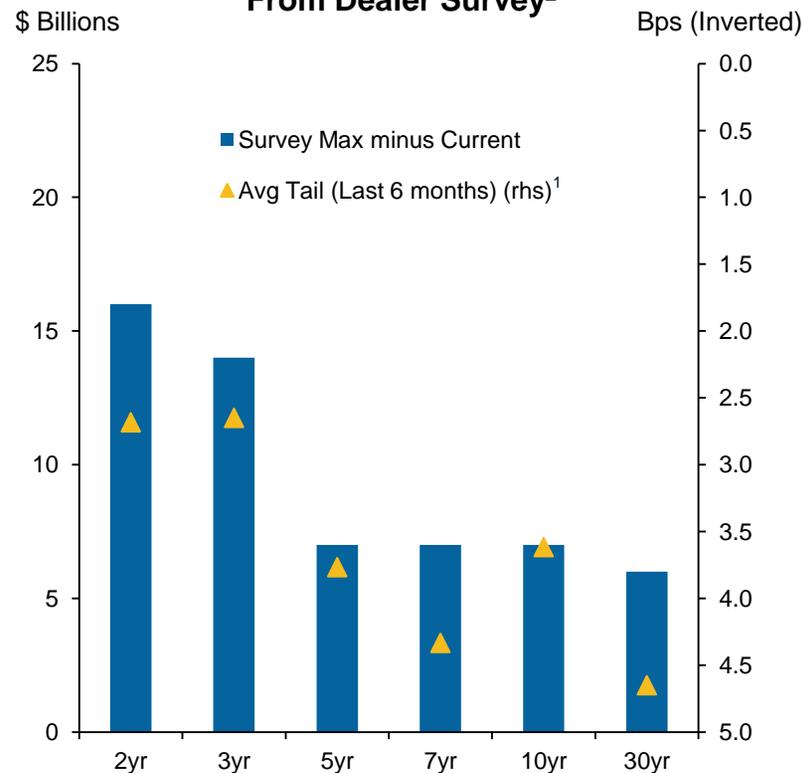
Auction Tails May Provide Insight for Modulating Auction Sizes

- Auction price tails, as measured by allotted yield minus median yield, can provide guidance on market depth, identifying parts of the curve that can absorb greater supply as well as the potential cost of increasing issuance at certain parts of the curve
 - Persistently elevated tails may be a good way to identify market segmentation, and assess opportunities to modulate size while still remaining within the bounds of R&P
- Other metrics that may be useful in identifying market segmentations and modulating auction sizes include: persistent richness / cheapness of certain parts of the curve and inflation breakeven levels
- In addition, available float of deliverable bonds into futures contracts can provide guidance on the lower bound for issue sizes
- Dealer surveys are useful in gaining insight on market's ability to absorb variations in auction sizes—recent survey seems to indicate greater potential for increasing 2 year and 3 year auction sizes, consistent with the auction tail analysis

U.S. Auction Tails¹



Potential Increase in Auction Size From Dealer Survey²



1. Source: Bloomberg. Allotted yield minus median yield, as of March 31, 2015.

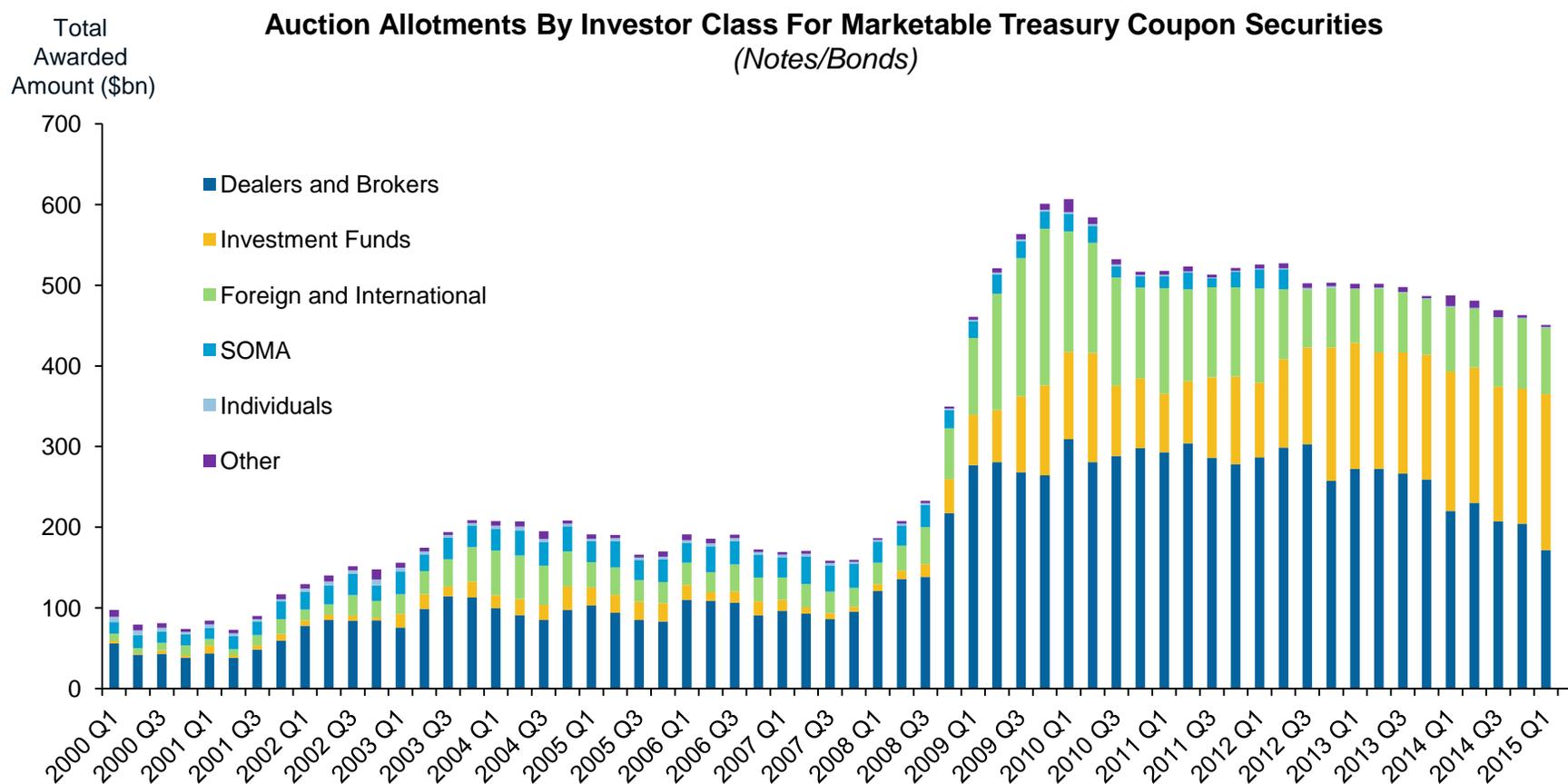
2. Source: U.S. Treasury. Primary Dealer Auction Size Perspectives for March 19, 2015.

Treasury Communications is a Critical Parameter

- **Treasury can generally modulate most auction parameters as long as sufficient lead time and transparency are provided**
 - Encourages widespread participation and better enables primary dealer participation in the auction process
- **Treasury should continue its current practice of providing as much lead time as possible**
 - Communication lead time should be commensurate with the magnitude of the change
- **Treasury should continue its current communication practices, including:**
 - As much transparency and lead-time as possible in announcing auction sizes and, to the extent possible, providing guidance as to whether and how current auction sizes are likely to change over time
 - Alterations to any of the other auction parameters—e.g. frequency, introduction or elimination of new maturities or instruments—requires sufficient lead-time for adequate study and discussion with market participants
 - To the extent possible, communicate broad medium- to longer-term objectives to market participants, e.g. medium-term goals regarding the WAM or desired maturity/instruments composition of outstanding debt
 - Communication tools can help market participants better digest potential changes in issuance thereby lowering cost to Treasury

Altering the Current R&P Framework Can Affect the Primary Dealer System

- **Primary dealers are the ultimate liquidity providers during auctions; they are required to bid a pro rata share of each auction**
- **However, they operate under capital and other balance sheet constraints**
 - While primary dealer allotments have declined recently, they are still running at levels that are substantially greater than pre-crisis levels
- **A reasonable degree of R&P is necessary given the requirements of the primary dealer system**

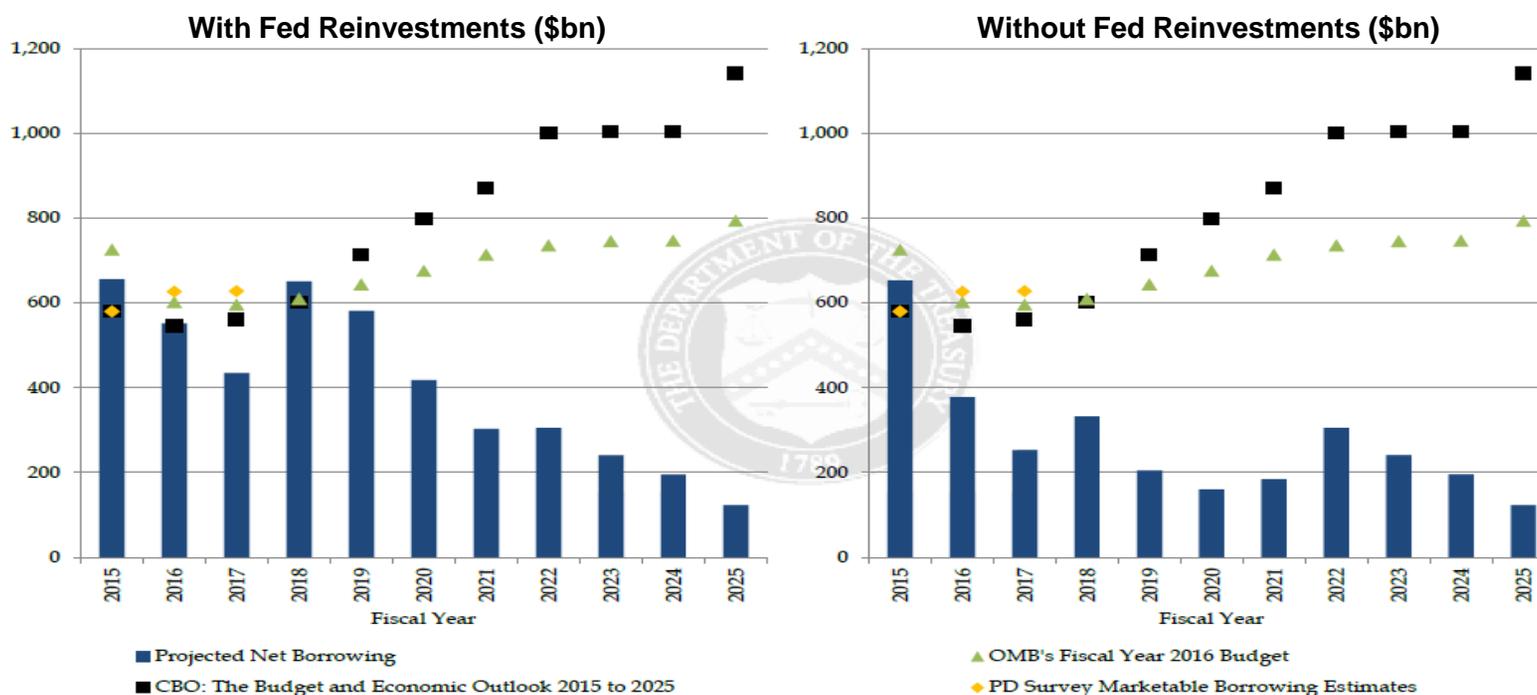


Source: U.S. Treasury.

Treasury's R&P Framework Given Monetary Policy Uncertainty

- **Providing the market with the stability of the current R&P framework may be particularly important in light of the uncertainty regarding Fed policies going forward**
 - The Fed's current policy is to reinvest maturing Treasury securities at auction
 - While Fed balance sheet policies going forward are uncertain, the Fed has indicated it intends to reduce its securities holdings "in a gradual and predictable manner primarily by ceasing to reinvest repayments of principal on securities held in the SOMA"¹
- **If the Fed's pace of reinvestments changes over time, the Treasury would need to adjust its auctions to offset**
 - In this case, the Treasury might find it advantageous over time gradually—and with as much transparency as possible—to alter the sizes of existing auctions, or even introduce/change maturities
- **Similarly, if the Fed were to decide to outright sell any of its Treasury holdings, these sales could possibly compete for the same investor base as that of Treasury auctions**

Impact of SOMA Actions on Projected Net Borrowing Assuming Future Issuance Remains Constant



1. Federal Reserve "Policy Normalization Principals and Plans," September 2014.
Source of graphs: U.S. Treasury.

Conclusions

- **R&P has been an important and beneficial pillar of Treasury Debt Management**
 - Ultimately the current R&P framework has helped reduce Treasury borrowing costs—estimated \$27 billion¹ since 1998
 - The current R&P framework also provides a public good by benefiting other markets (corporate and futures markets)
- **Tighter financial regulations and constrained balance sheets, large amounts of outstanding Treasury debt requiring rollover, changing market structure, and an uncertain path of Fed policy make R&P even more important today**
- **Some degree of flexibility over time is necessary to manage funding needs**
 - Flexibility is required to deal with uncertain funding needs and respond to structural changes in auction demand, market segmentations, and repair market malfunctions
 - It appears to be impractical for the Treasury to attempt to capture relative value or market timing opportunities
- **Flexible boundaries around the concept of R&P include:**
 - First Order Tool: Modulating **size** should be the primary tool (both across maturities and instruments),
 - Second Order Tool: **Frequency** of issuance should be kept more constant over the short term, requiring longer advance notice to market participants of potential changes
 - Third Order Tool: New **instruments** or additional **maturities** can be introduced over a longer-period of time to address market segmentation after careful study and discussion with market participants
 - R&P is not exclusive to issuance; it should also apply to buyback programs
 - In all cases, providing the market with sufficient **lead time** commensurate with the magnitude of the contemplated change is important, except in rare instances when speed and timeliness are essential, e.g. in repairing severe market malfunctions
- **There should be less flexibility in adopting any change that would interfere with maintaining a full curve of liquid, benchmark maturities**

1. Committee participant's estimate.