



INTEREST RATES

# Classic Bond Futures Soar the Gap

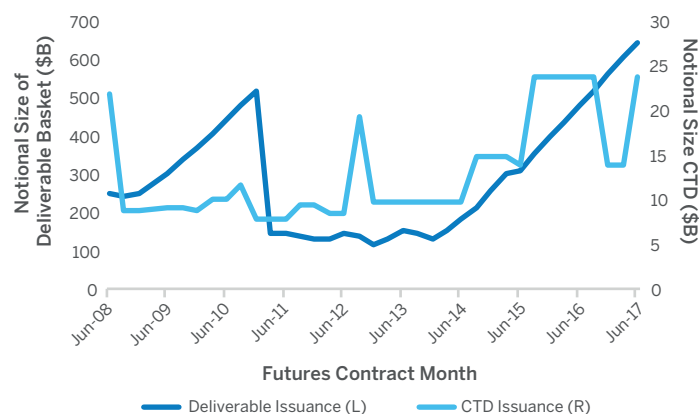
In the two and a half years since the impact of the U.S. Treasury's suspension of issuing new 30-year bonds was felt, Classic Bond futures at CME Group have continued to thrive and grow in contracts traded, participants trading, and open interest.

The Chicago Board of Trade (CBOT or Exchange) (now a CME Group exchange) originally listed the Classic Treasury Bond futures contract for trading in 1977 to create trading opportunities based on the long end of the U.S. Treasury yield curve. Since then, Classic Bond futures have grown to be one of the most successful fixed income products in terms of market liquidity, trading volume and open interest, and number and diversity of market participants. As with all listed products, the Exchange rigorously monitors the Classic Bond futures market to ensure that the market is in full compliance as a designated contract market with the Core Principles of the Commodity Futures Trading Commission (CFTC) and the Commodity Exchange Act (CEA).

### Classic Bond Futures: The Basics

Classic Bond futures call for the physical delivery of original issue Treasury bonds with remaining terms to maturity of at least 15 years and less than 25 years. Because the eligible bonds that constitute the delivery basket of Classic Bond futures vary in coupon and maturity, the Exchange utilizes a conversion factor system to normalize for differences in duration by pricing each deliverable bond to yield six percent. The nuances in the conversion factor system and the interaction of the futures and cash markets mean that there is one single bond that becomes the cheapest-to-deliver (“CTD”) instrument in each delivery period. As Exhibit 1 demonstrates, the size of the delivery basket of eligible bonds is large – **with hundreds of billions of US dollars in notional amount, the Classic Bond futures contract has the third largest delivery basket of all U.S. Treasury futures** – with the size of the CTD varying anywhere from 10 to 25 billion US dollars.

**Exhibit 1: Size of Classic Bond Futures Delivery Basket and CTD in US Billions**

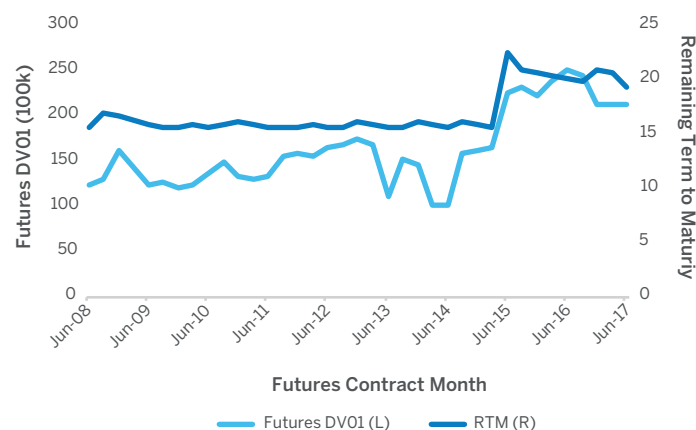


Source: CME Group, 2008-2017.

### What is the Bond Issuance Gap?

From early 2001 to 2006, the U.S. Treasury suspended new issuance of 30-year Treasury bonds, subsequently creating a gap in the maturity of eligible deliverable bonds into Classic Bond futures, starting in March 2015. This issuance gap, coupled with the current low interest rate environment, effectively increased the remaining term to maturity (“RTM”) of the CTD from approximately 15 years to 21 years. For every year between 2015 and 2020, the RTM of the CTD will decrease by one year until the Classic Bond futures’ CTD RTM is expected to return to approximately 15 years in 2021. **Because the CTD RTM jumped by five years, the DV01 of Classic Bond futures also jumped approximately 35% in 2015**, as Exhibit 2 demonstrates.

## Exhibit 2: Classic Bond Futures DV01 (per \$100,000) and CTD RTM (years)



Source: CME Group and Bloomberg LP, 2008-2017.

To successfully manage the approaching jump in CTD DV01 and RTM, the Exchange undertook two actions in 2015:

1. The Exchange significantly reduced the likelihood of a dominant CTD issue by making the 5-3/8 of February 2031 Treasury bond ineligible for delivery into Classic Bond futures; and
2. The Exchange enabled trading of a DV01 neutral 3:2 Classic Bond futures calendar spread between the March 2015 and June 2015 expiries. **Approximately 67% of Classic Bond futures OI moved through this novel spread.**

These two actions successfully removed the potential negative impacts of the bond issuance gap from adversely impacting the Classic Bond futures market, with the 3:2 DV01 neutral calendar spread noted by the risk community as a key element of the Exchange's handling of the gap, and by **Risk Magazine in its announcement of CME Group as the Exchange of the Year.**

## Two Low Duration Bonds Jockey for Position as CTD in the Post Bond Gap Environment

When interest rates are below six percent (i.e., the notional yield that CBOT utilizes in the conversion factor calculation), the Classic Bond futures' CTD is typically found at the front end of the delivery basket. With the five-year gap pushing the CTD RTM from 15 years to 21 years in 2015, there was some concern that the Treasury bond instrument at the front of the

basket – the 4 1/2s of February 2036 – would be the CTD for the next five years; this has not been the case. As Exhibit 3 evidences, in the nine quarters since June 2015, there has been considerable switching between the 4-1/2s of February 2036 and the 5s of May 2037. And, as demonstrated in Exhibit 4, the current difference in value between the 4-1/2s of February 2036 and the 5s of May 2037 is less than half of 1/32nd.

## Exhibit 3: CUSIP Delivered into Classic Bond Futures Contract

Year	Quarter	Coupon	Maturity	CUSIP
2015	June	5.00%	5/15/2037	912810PU6
2015	September	4.50%	2/15/2036	912810FTO
2015	December	4.50%	2/15/2036	912810FTO
2016	March	4.50%	2/15/2036	912810FTO
2016	June	4.50%	2/15/2036	912810FTO
2016	September	4.50%	2/15/2036	912810FTO
2016	December	5.00%	5/15/2037	912810PU6
2017	March	5.00%	5/15/2037	912810PU6
2017	June	4.50%	2/15/2036	912810FTO

Source: CME Group, 2015-2017.

## Exhibit 4: Value of 4-1/2s of 2/36 and 5's of 5/37

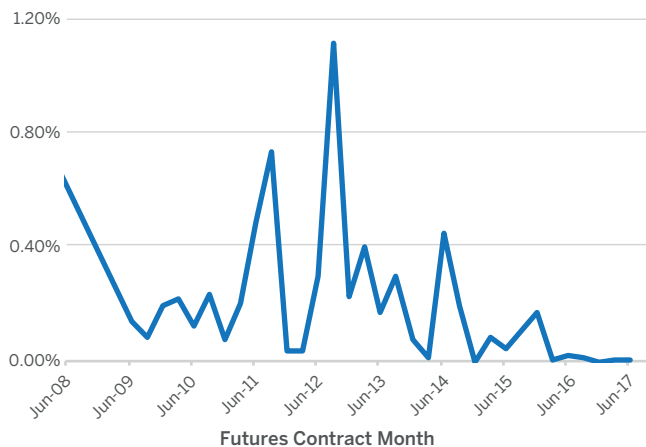
CUSIP	Clean Cash Price	Conversion Factor	Futures Price <sup>1</sup>
912810FTO	129.2031	0.8349	154.75
912810PU6	137.3438	0.886	155.016
		Difference	0.263

Source: CME Group, Treasury Analytics, 7/20/17

In addition, while there is a huge amount of notional dollar volume traded in the Classic Bond futures market, only a very small fraction of this volume is taken to physical delivery. Over the last ten years, the **average percentage of the Classic Bond futures deliverable basket taken to physical delivery is 0.23%, and the average percentage of the single CTD CUSIP taken to delivery is 4.7%**. Exhibits 5 and 6 show the quarterly breakdown of deliveries between March 2008 and June 2017.

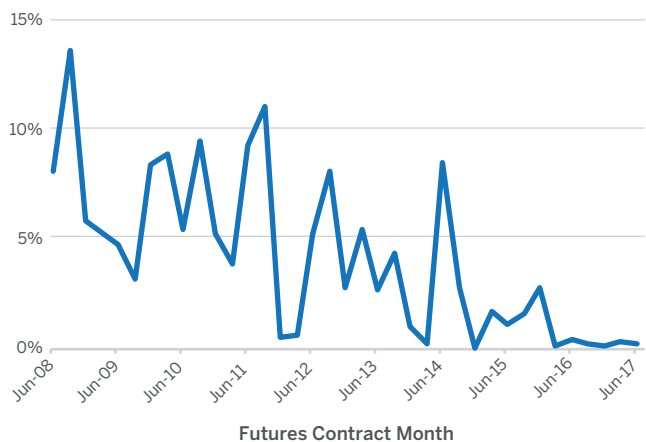
<sup>1</sup> Futures price is equal to the clean cash price divided by the conversion factor.

### Exhibit 5: Percentage of Delivery Basket Delivered into Classic Bond Futures



Source: CME Group, 2008-2017.

### Exhibit 6: Percentage of CTD Delivered into Classic Bond Futures



Source: CME Group, 2008-2017

### CME's June 2005 Implementation of Position Limits Successfully Reduce Potential Market Manipulation

In June 2005, the CME Group implemented position limits for the last 10 trading days in expiring Treasury futures contracts to mitigate congested deliveries that might arise due to structural imbalances between the Exchange's Treasury futures markets and the underlying cash markets in Treasury bonds and notes. These position limits are reevaluated annually – and as needed – to address the shifting face of the Treasury futures and underlying cash markets. These limits

significantly reduce the possibility of a squeeze by limiting the number of positions a market participant can take on.

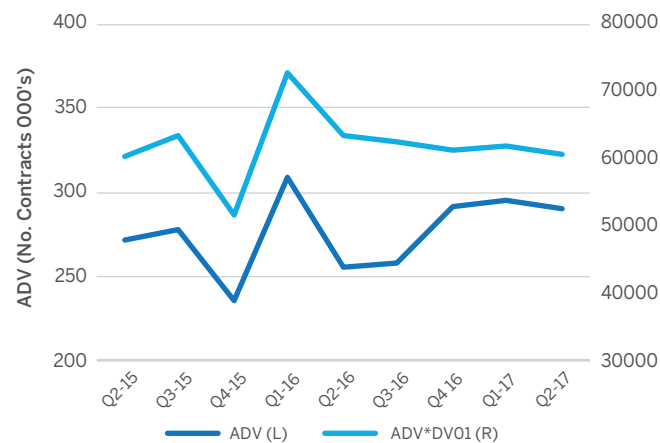
Furthermore, the CME Group's Market Regulation Department continuously monitors the Treasury futures market and its participants to ensure to that the markets are fully compliant with the CFTC's Core Principles and the Commodity Exchange Act (CEA).

### Classic Bond Futures Continue to Thrive and Grow in Average Daily Volume, Open Interest and Large Open Interest Holders

The decade of lead time prior to the impact of the Treasury bond issuance gap provided ample time for CBOT to anticipate, plan, and respond to the gap to ensure market stability in Classic Bond futures. Since 2015, when the bond gap first impacted the Classic Bond futures' delivery basket, Classic Bond futures volume has grown. Options on Classic Bond futures have also significantly increased since 2015, as Exhibit 8 illustrates.

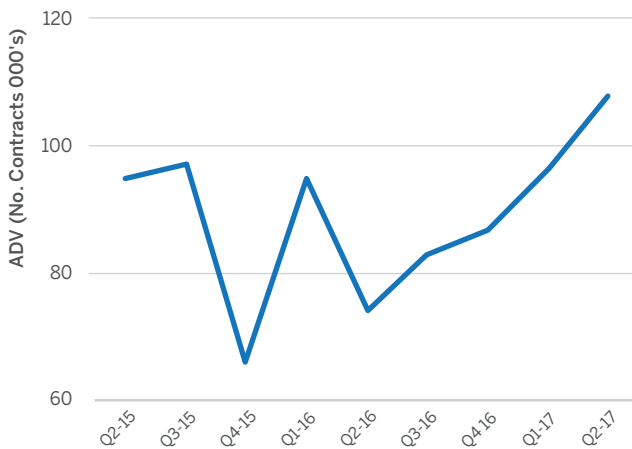
Additionally, as reported in CME Group's *The New Treasury Market Paradigm*, the shifting regulatory landscape for banks has led to increased demand for off-balance sheet Treasury exposures and has contributed to the increasing growth of the Classic Bond futures market in relation to the underlying cash bond market.

### Exhibit 7: Post Bond-Gap Environment Classic Bond Futures Average Daily Volume (Quarterly Average) and DV01 Adjusted Volume



Source: CME Group, 2015-2017.

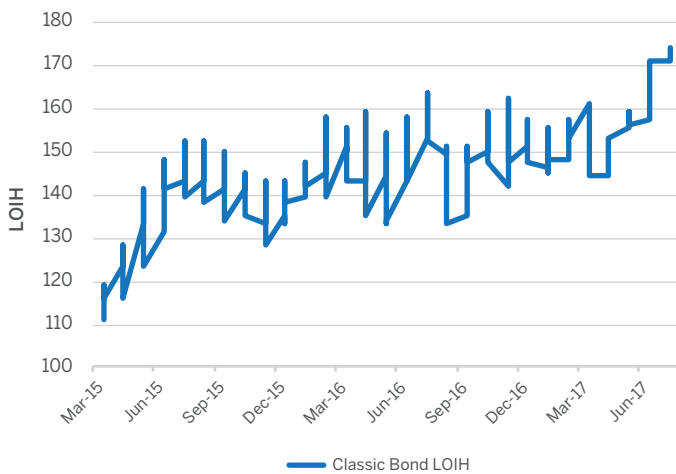
**Exhibit 8: Post Bond-Gap Environment Classic Bond Options Average Daily Volume (Quarterly Average)**



(Source: CME Group, 2015-2017.)

Additionally, as Exhibit 9 demonstrates, **the number of large open interest holders (“LOIH”) in Classic Bond futures has risen 50% since March 2015.**

**Exhibit 9: Number of Large Open Interest Holders in Classic Bond Futures**



Source: CME Group, 2015-2017.

## Why Hedge and Create Exposures to the Treasury Yield Curve with Bond Futures?

The benefits of using Classic Bond futures to price and hedge market exposures at the far end of the US Treasury yield curve are numerous: off-balance sheet risk management, counterparty credit risk mitigation, increased capital efficiencies, standardization, and pricing transparency, unparalleled market liquidity, low transaction costs, trade certainty, global market access, and anonymous trade execution.

While the Treasury bond issuance gap of 2001-2006 created a unique environment for the Classic Bond futures market, CME Group responded proactively and effectively to ensure that the Classic Bond futures markets continued to function as intended. The robust increases in market liquidity, volume, open interest, and number and diversity of market participants in recent years is testament to the security and future of the CME Group’s Treasury futures markets.

## Want To Know More?

- [US Treasury Futures and Options](#)
- [Understanding Treasury Futures](#)
- [The Basics of US Treasury Futures](#)
- [US Treasury Futures Delivery Process](#)
- [The March-June 2015 Treasury Bond Futures Roll](#)
- [Classic Bond Futures on CME Group website](#)
- [The New Treasury Market Paradigm](#)
- [Treasury Analytics](#)
- [Treasury Futures Delivery Options, Basis Spreads, and Delivery Tails](#)



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Data sources: CME Group unless otherwise noted

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