CME Group

The March-June 2015 Treasury Bond Futures Roll: Mind the Gap

JANUARY 16, 2015

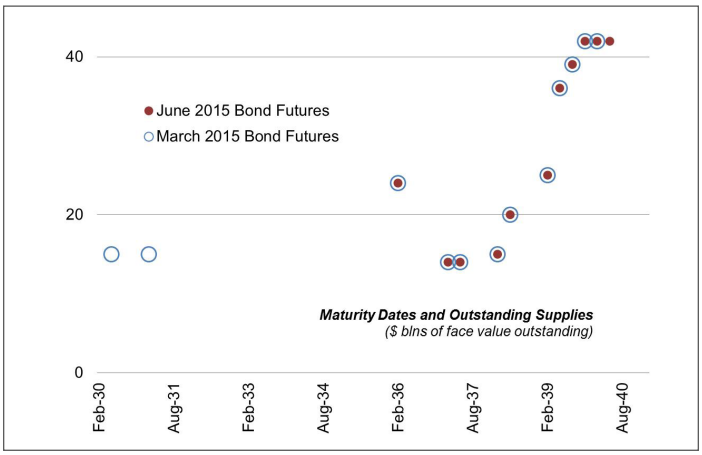
CME GROUP

To be eligible for delivery into a CBOT Treasury Bond (ZB) futures contract, a Treasury bond must have remaining term to maturity of at least 15 years but less than 25 years. Because the U.S. Treasury issued no bonds between early 2001 and early 2006, however, there is now a five-year gap in deliverable terms to maturity at the nearby end of the ZB futures deliverable basket.

For example, maturity dates of bonds eligible for March 2015 futures delivery span from May 2030 to Feb 2040. Because of the five-year gap in bond auctions, however, there are no delivery-eligible bonds with maturity dates between February 2031 and February 2036. See Exhibit 1.

Exhibit 1

Bonds Eligible for March 2015 and June 2015 Delivery into CBOT Treasury Bond Futures



Data Sources: CME Group, US Treasury Dept

The ZB futures contract design, in combination with the prevailing low interest rate environment, tends to cause the eligible bond issue with shortest remaining term to maturity to be the cheapest to deliver into any given futures contract. With this in mind, CME Group announced on 13 December 2013 that the 5-3/8% of Feb 2031 bond would be preemptively excluded from delivery eligible for delivery for the June 2015, September 2015, and December 2015 delivery months.

The Exchange chose this path after extensive consultation with market practitioners. Excluding the 5-3/8% Feb 2031 bond from delivery eligibility in these three futures delivery months promotes contract integrity, by preventing a small and aged bond from becoming an isolated cheapest-to-deliver issue. It exerts minimal impact on deliverable supplies. (Moreover, it merely brings forward a one-time five-year jump in term to maturity of the cheapest to deliver issue would have occurred, inevitably, no later than the March 2016 futures delivery month.)

Comparing Underlying Bonds

For any ZB futures contract, pricing and price dynamics typically reflect the combined influence of prices, coupon rates, terms to maturity, and delivery invoice conversion factors of bond issues that are plausible contenders for cheapest-to-deliver status. The same applies to futures contract risk exposure, as gauged by the dollar value of one basis point change in market yields to maturity (DV01). For this reason, the prices and risk exposures of March 2015 and June 2015 Treasury Bond futures contracts – ZBH5 and ZBM5, respectively — are very different. Exhibit 2 makes the comparison.

Exhibit 2

Cheapest to Deliver Bond Issues for ZBH5 and ZBM5 on 15 January 2015

Cheapest to Deliver Bond Characteristics	ZBH5	ZBM5	Difference
Coupon (%)	6.25	4.5	1.75
Maturity Date	5/15/2030	2/15/2036	
Term to Maturity	15 yrs 4 mos	21 yrs 1 mos	5 yrs 9 mos
CUSIP	912810FM5	912810FT0	
Market Price (Pts & 32nds of Pts)	154-19	139-30	14-21 (14.65625)
Yield to Maturity (%)	2.04	2.10	0.06 (6 bps)
Issuance Size ($ blns)	17.0	26.4	9.4
DV01 (per futures contract)	$169.80	$205.50	$35.70
Delivery Conversion Factor	1.0245	0.8244	
Futures DV01	$165.74	$249.27	$83.53
Futures Price (Pts & 32nds of Pts)	149-22	167-08	17-18 (17.5625)

Data Sources: Bloomberg, CME Group

Managing the March-June 2015 Roll

The quarterly roll of open Treasury Bond futures positions from ZBH5 to ZBM5 will occur in coming weeks. Suppose you have a long position of 1000 ZBH5. The DV01 of this position is about $165,740 per basis point (bp), equal to (1000 contracts) x ($165.74 per bp per contract). Assume ZBM5 has a DV01 of about $249.27 per bp. To structure the calendar spread so that the risk exposures on both legs are identical in magnitude, you would need to roll from a long position of 1000 ZBH5 to a long position of 665 ZBM5, equal to ($165,740 per bp per 1000 ZBH5) / ($249.27 per bp per ZBM5).

Couched in terms of "managing the tail" of the roll spread, the "tail" for the ZBH5-ZBM5 calendar spread is 50%, equal to (ZBM5 DV01 minus ZBH5 DV01) / ZBH5 DV01.

1:1 Calendar Spreads

Some futures position holders may opt to roll these exposures by using the standard 1:1 calendar spread as listed for trading on the Globex electronic trading platform or as traded in open outcry.

Taking this route, however, means actively "managing the tail" of the calendar spread by augmenting 1:1 calendar spread trades with outright transactions in either ZBH5 or ZBM5 to keep risk exposures in balance. (For more on this subject, please see CBOT Treasury Futures: Calendar Spreads.)

3:2 Calendar Spreads

In response to user demand, the Exchange will enable a new Bond futures calendar spread with a 3:2 ratio. Buying (selling) one 3:2 Bond futures calendar spread will result in buying (selling) three ZBH5 and selling (buying) two ZBM5.

The 3:2 Bond futures calendar spread is approximately risk-neutral by design, because the DV01 of three ZBH5 is nearly equal to in magnitude to the DV01 of two ZBM5. For this reason, using the 3:2 calendar spread should significantly reduce the number and size of tails to manage via outright trading of either ZBH5 or ZBM5.

The 3:2 Bond futures calendar spread will be similar to the standard 1:1 calendar spread in terms of its minimum trading increment (equal to ¼ of 1/32nd of a price point, or $7.8125 per calendar spread), its trade-matching algorithm, and its functionality.

The 3:2 calendar spread will assign spread leg prices using only the standard pricing method. The new spread will not be eligible for the Single Line of Entry of Differential Spreads (SLEDS) pricing method. However, the 1:1 calendar spread will be eligible for both leg pricing methods, standard and SLEDS.

The symbol for the 3:2 Bond futures calendar spread is ZBXH5-ZBXM5. (By comparison, the symbol for the 1:1 Bond futures calendar spread will remain ZBH5-ZBM5.)

In terms of pricing convention, the 3:2 Bond futures calendar spread will be quoted in terms of weighted price difference, as 3*ZBH5 minus 2*ZBM5. For example, at price levels shown in Exhibit 2, the ZBXH5-ZBXM5 calendar spread would be priced at 114-18

= 3*(ZBH5 price) minus 2*(ZBM5 price)

= 3*(149-22) minus 2*(167-08)

= 3*149.6875 minus 2*167.25

= 449.0625 minus 334.50

= 114.5625 (114-18)

To revisit the customer holding a long position of 1000 ZBH5 and looking to roll into 665 ZBM5, the customer could roll most of this exposure by selling 333 of the ZBXH5-ZBXM5 spread. The result would be to sell 999 ZBH5 and to purchase 666 ZBM5. Finishing the job would be light duty, requiring the customer merely to sell one ZBH5 contract and to sell one ZBM5 contract outright.

Ready to Roll

Rolling risk neutral positions from ZBH5 to ZBM5 can be accomplished by both traditional and new means of rolling spreads with tails. Customers may utllize calendar spread algorithms developed by front end solutions to manage trails with both the standard 1:1 Bond futures calendar spread and the outright order books. The absence of implied pricing from both the standard 1:1 and the new 3:2 Bond futures calendar spreads should minimize unanticipated impact on these traditional rollover strategies.

Customers may also choose to execute spreads with tails on the trading floor via open outcry.

Additionally, customers should consider adding the new 3:2 Bond futures calendar spread to their rollover strategy. As our rollover example demonstrates, strategies utilizing a combination of the new 3:2 Bond futures spread and the outright order books may be optimal if each of these offers sufficient liquidity during the ZBH5 to ZBM5 rollover.

PM1288/00/0115