CME Group

Special Executive Report

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New User-Defined Spreads for Trading
CBOT Treasury Bond and Note Futures Calendar Spreads with Tails via CME Globex

Effective Sunday, August 16, 2015 for trade date Monday, August 17, 2015, The Board of Trade of the City of Chicago, Inc. ("CBOT" or "Exchange") will enable a new User-Defined Spreads (UDS) type for CBOT Treasury Futures Calendar Spreads with Tails on the CME Globex electronic trading platform which shall be available for the September 2015 to December 2015 rollover. UDS enable market participants to customize and create the precise calendar spreads with tail percentages they wish to trade in real time. UDS for futures will be supported alongside exchange-defined futures spreads utilizing the following CME Globex codes:

- ZT Short-Term U.S. Treasury Note Futures (2-Year)
- Z3N 3-Year U.S. Treasury Note Futures
- ZF Medium-Term U.S. Treasury Note Futures (5-Year)
- ZN Long-Term U.S. Treasury Note Futures (6½ to 10-Year)
- ZB U.S. Treasury Bond Futures
- UB Long-Term U.S. Treasury Bond Futures

Background
The difference in duration of the nearby and first deferred Treasury futures contract months typically creates "tails" to manage for each quarterly rollover. For example, during the March 2015 to June 2015 rollover, the U.S. Treasury Bond futures calendar spread (ZBX) with a 3:2 ratio provided market participants with an electronic trading solution via CME Globex experiencing difficulty which was created in transferring positions with the standard 1:1 calendar spreads due to an unprecedented transition in risk exposures.

In May 2015, the Exchange launched Treasury Futures Ratio Calendar Spreads (ZTX, ZFX, ZNX, ZBX, and UBX) which provided an exchange-defined ratio spread for market participants experiencing difficulty rolling over positions using the standard 1:1 Treasury futures calendar spreads due to differences in risk exposures of the June 2015 and September 2015 Treasury futures contracts.

Following the prior rollover period, the Exchange further responded to the needs of the marketplace and launched a more flexible solution that allows for customized user-defined tails. Different approaches to calculating risk exposure can produce significantly different tails to manage for the Treasury futures quarterly rollover. For example, the use of spot or forward dollar value of basis point changes (DV01s) of the cheapest-to-deliver (CTD) notes or bonds can provide large differences in tails, particularly in the 2-Year and 5-Year Treasury Note futures calendar spreads.

The Exchange altered its convention for the exchange-defined Treasury Futures Ratio Calendar Spreads to adopt spot DV01s rather than forward DV01s for determining the ratios of the September 2015-December 2015 calendar spreads. Nevertheless, the lack of consensus regarding the means to calculate the "tails" of the Treasury calendar spreads suggests that a more flexible solution that permits customized user-defined tails would be preferred to the exchange-defined Treasury Futures Ratio Calendar Spreads.

Trading UDS for Treasury Futures Calendar Spreads with Tails on CME Globex
UDS for Treasury Futures Calendar Spreads with Tails will provide a flexible CME Globex solution that will support the wide range of tails that may exist for a Treasury futures quarterly rollover. The UDS for Treasury Futures Calendar Spreads with Tails combines the standard 1:1 Treasury Futures calendar spread pricing and the existing functionality of the Covered UDS Trade Futures Allocation for the

execution of Covered (Delta Neutral) options on CME Globex. Both the UDS for Treasury Spreads with Tails and the exchange-defined Treasury Futures Ratio Calendar Spreads will be available for the September 2015 to December 2015 rollover. Market participants will be able to access the UDS for Treasury Spreads with Tails via CME Direct.

Details of the Trade
Market participants seeking to roll positions with tails will likely need to buy or sell a certain percentage of one futures leg in order for them to maintain similar risk exposure in the deferred contract as they had in the nearby contract. For this purpose, in any given calendar spread transaction, UDS for Treasury Futures Calendar Spreads with Tails enables market participants to define the tail leg, the tail delta and its price per futures contract. That is, the tail delta is specified as a percentage (expressed in decimal terms with two decimal places) of the number of 1:1 Treasury futures calendar spreads in the transaction, executed at a given futures price.

The tail delta may be applied to either the nearby leg or the deferred leg of the calendar spread, regardless of whether the corresponding calendar spread trade was a buy or sell. However, the direction (buy or sell) of the tail leg must be identical to the direction of the leg in the corresponding calendar spread. For instance, a buyer of the calendar spread (buying nearby leg and selling deferred leg) may manage their tails by buying more of the nearby leg or by selling more of the deferred leg. A buyer of the calendar spread may not manage their tails by selling the nearby leg or by buying the deferred leg.

Tail deltas may range from 0.01 to 0.99 (i.e., 1% to 99%), in minimum increments of 0.01 (i.e., 1%). Tail leg prices must be within the Price Reasonability Range as defined by the Global Command Center, and must comply with the minimum price increment for outright transactions in the Treasury futures at hand. Good till Cancel (GTCs) and Good till Date (GTDs) order types are not available for executing UDS for Treasury Futures Calendar Spreads with Tails.

Example
Assume that the September 2015 and December 2015 2-Yr Treasury Note futures contract imply tail deltas of 10% with spot DV01s and -3% with forward DV01s. The positive tail shows that the December 2015 contract has the higher spot DV01. The negative tail indicates that the September 2015 contract has the higher DV01. UDS for Treasury Futures Calendar Spreads with Tails can facilitate such differing views of the appropriate tail leg. If, for example, a market participant has a short position in September 2015 2-Yr T-Note futures and is seeking to roll into a short position of 100 December 2015 2-Yr T-Note futures:

If the market participant has determined the tail delta for the Sep15-Dec15 2-Yr T-Note (ZT) futures is 10% (0.10), such market participant might roll their position using the UDS for Treasury Spreads with Tails by creating a strategy with the following characteristics:

Buy 100 ZTU5-ZTZ5 Calendar Spreads. Buy 0.10 ZTU5 at 109.4375 (109-140).

If the market participant has determined the tail delta for the Sep15-Dec15 2-Yr T-Note (ZT) futures is -3% (-0.03), such market participant might roll your position using the UDS for Treasury Spreads with Tails by creating a strategy with the following characteristics:

Buy 97 ZTU5-ZTZ5 Calendar Spreads. Sell 0.03 ZTZ5 at 109.078125 (109-025).

Trade Allocation Rounding Convention and Pricing
Market participants planning to use UDS for Treasury Futures Calendar Spreads with Tails should be mindful of key differences between the trade allocation of these UDS and the standard Treasury calendar spreads. Experienced users of Covered UDS Trade Futures Allocation for the execution of Covered (Delta Neutral) options on CME Globex will be familiar with the trade matching algorithm First In First Out

(FIFO) (Type F) and the rounding convention in the allocation of futures. The spread and leg prices will be calculated in accordance with the current CME Globex convention. The tail futures quantity will be calculated by multiplying the tail delta by the number of executed Treasury calendar spreads.
When the filled spread order would result in a fractional number of tails, a rounding algorithm is used. In general, normal rounding conventions apply but the algorithm also takes into consideration resting orders' prior fills to determine whether there were "partial futures" that were not allocated in earlier match events. For example, if two executions occur that would have each resulted in 4.3 tails, the first one is rounded down to 4 but the second is rounded up to 5, since the cumulative number of tails is 8.6 which is rounded to 9. If the next execution calls for 2.6 tails, the cumulative number of tails would be 11.2, thus it is rounded down and 2 tails are filled.

Similarly, the Exhibit below demonstrates how a UDS Treasury Futures Calendar Spread with Tails would have allocated futures tail amounts, assuming a trade quantity of 100 1:1 calendar spreads and a tail delta of 22% (0.22), where the 100 1:1 calendar spreads are executed in 10 separate transactions with spread quantity of 10.

Exhibit: Allocation of 100 UDS Treasury Futures Calendar Spreads with 22% Tail

10 Transactions. Each = Execute 10 1:1 Spreads with 22% Tail	Cumulative # of 1:1 Spreads	Cumulative # of Tail Contracts	Tail Contracts Assigned
1	10	2.2	2
2	20	4.4	2
3	30	6.6	3
4	40	8.8	2
5	50	11	2
6	60	13.2	2
7	70	15.4	2
8	80	17.6	3
9	90	19.8	2
10	100	22	2

Comparisons to Standard 1:1 Treasury Calendar Spreads

UDS for Treasury Futures Calendar Spreads with Tails are similar to standard 1:1 calendar spreads in terms of spread pricing convention, minimum price increment (equal to ¼ of 1/32nd of a price point per calendar spread), access, non-reviewable range, maximum order quantity, and ineligibility for block trades.

UDS for Treasury Futures Calendar Spreads with Tails differ from standard Treasury calendar spreads by trade matching algorithm First In First Out (FIFO) (Type F) and by assigning spread leg prices using only the standard pricing method. UDS for Treasury Futures Calendar Spreads with Tails are not eligible for the Single Line of Entry of Differential Spreads (SLEDS) pricing method, whereas standard 1:1 Treasury futures calendar spreads are available for both pricing methods, standard and SLEDS.

Improper Conduct With Respect to User-Defined Spreads on CME Globex

Although the CME Globex system provides certain protections such as reasonability checks with respect to tail deltas and the futures price on covered instruments, the UDS functionality requires users to exercise diligence and care in the creation of spread instruments, including the creation of covered strategies. In 2012, an enhancement was made to the algorithm responsible for allocating futures on such covered strategies to ensure that resting covered combination orders are allocated an appropriate number of futures.

Market participants are reminded that knowingly creating and/or trading UDS instruments in a manner intended to deceive or unfairly disadvantage other market participants is considered uncommercial conduct detrimental to the welfare of the exchange and will result in disciplinary action for violation of Rule 432 ("General Offenses"). Additionally, the Global Command Center may price adjust or cancel trades that are deemed to negatively impact the integrity of the market pursuant to the provisions of Rule 588 ("Trade Cancellations and Price Adjustments").

For more details regarding improper conduct with respect to User-Defined Spreads on CME Globex, please refer to CME Group Market Regulation Advisory Notice (RA1304-5) issued on March 11, 2013.

Please refer to the CME Globex Notice from July 2015 for more technical details about UDS for Treasury Futures Calendar Spreads with Tails.

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