

# Treasuries

- Treasury Futures
  - Normal Daily Settlement
    - Lead Month
    - Second Month
    - Back Months
  - Final Settlement
    - Final settlement VWAP calculation:

## Treasury Futures

### Normal Daily Settlement

Daily settlement of 2-Year U.S. Treasury Note futures (ZT), 3-Year U.S. Treasury Note futures (Z3N), 5-Year U.S. Treasury Note futures (ZF), 10-Year U.S. Treasury Note futures (ZN), U.S. Treasury Bond futures (ZB), Ultra 10-Year U.S. Treasury Note futures (TN) and Ultra T-Bond futures (UB) is determined by CME Group staff based on trading activity on CME Globex.

### Lead Month

The designated lead month\* is settled according to the following procedure:

**Tier 1:** If the lead month contract trades on Globex between 13:59:30 and 14:00:00 Central Time (CT), the settlement period, then the lead month settles to the volume-weighted average price (VWAP) of those trade(s).

**Tier 2:** If no trades in the lead month occur on Globex between 13:59:30 and 14:00:00 CT, then the most recent trade (or prior settle in the absence of a last trade price) is used.

The lead month settles to the last trade/prior settle assuming that it does not violate the low bid or the high ask in the settlement period. If the low bid in the settlement period is higher than the last trade/prior settlement price, then the lead month settles to that bid. If the high ask in the settlement period is lower than the last trade/prior settle, then the lead month settles to that ask.

### Second Month

When the lead month is the expiry month, then the second month is defined as the calendar month immediately following the lead month. When the lead month is not the expiry month, then the second month is defined as the first expiring non-lead month.

**Tier 1:** If the lead month-second month spread trades on Globex between 13:59:30 and 14:00:00 CT, then the spread VWAP is calculated and rounded to the spread's nearest tradable tick. The spread differential is then applied to the lead month settlement price to derive the second month settlement, which is rounded to the outright's nearest tradable tick.

**Tier 2:** If a VWAP is not available due to an absence of trades, then the most recent spread trade is applied to the lead month settlement price to derive the second month settlement, which is rounded to the outright's nearest tradable tick.

If there are no trades in the lead month-second month calendar spread, then the prior-day spread relationship is used to derive the second month settlement.

In either of the above scenarios, if the derived spread differential in the lead month-second month spread is below the low bid in the settlement period in that spread, then the spread settles to that bid. If the calculated spread differential in the lead month-second month spread is higher than the high ask in the settlement period in that spread, then the spread settles to that ask. Additionally, if the derived second month settlement violates the low bid or the high ask in the outright market for the second month during the settlement period, then, the settlement will be adjusted to the nearest low bid or the high ask accordingly – provided the resulting price does not violate the low bid / high ask in the spread.

### Back Months

To derive settlements for all remaining months, the second chronological month's net change from its prior-day settlement is applied to the back month contracts' prior-day settlements, provided that this value does not violate the low bid or high ask between 13:59:30 and 14:00:00 CT for either the respective outrights or the consecutive-month calendar spreads.



### Treasury Futures Lead-Month\* Methodology

Treasury Futures Lead-Month designations are determined by CME Group according to the First Notice Date of the futures contract. These dates are all detailed in the Treasury calendar tab located on the CME [Group.com](http://www.cmegroup.com) webpage associated with each futures contract (link attached). The first Notice date is generally one business day prior to the beginning of the delivery month. For example, on trade date August 31st 2015 the December 2015 quarterly futures will become Lead-Month.

[http://www.cmegroup.com/trading/interest-rates/us-treasury/10-year-us-treasury-note\\_product\\_calendar\\_futures.html](http://www.cmegroup.com/trading/interest-rates/us-treasury/10-year-us-treasury-note_product_calendar_futures.html)

\*Lead-Month designations are used by CME Group to define both the anchor leg for settlements and for circuit breaker event triggers.

## Final Settlement

### Tier 1: VWAP calculation

On the expiring contract's last day of trading, it settles to a volume-weighted average price (VWAP) of trades on Globex between 12:00:00 and 12:01:00 p.m. Central Time (CT), the settlement period. This value is derived by adding the weighted VWAP of outright trades in the expiring contract to the weighted VWAP of trades in the companion reduced-tick spreads.

### Final settlement VWAP calculation:

$p_x$  = VWAP of the expiring contract

$p_s$  = VWAP of the reduced-tick spread and the trade price of the deferred contract nearest to the time of the trade in the reduced-tick spread (but not later than 12:01:00 CT)

$w_x$  = cumulative traded volume in the expiring contract

$w_s$  = cumulative traded volume in the reduced-tick spread

$$\left(\frac{w_x}{w}\right) * p_x + \left(\frac{w_s}{w}\right) * p_s$$

The calculated final settlement price is rounded to the nearest tradable tick. If this calculated value is the midpoint between two ticks, it is rounded to the tick closer to the last trade price in the expiring contract.

The final settlement price may penetrate unfilled bids or asks and, under certain circumstances, may settle outside of the settlement period for outright trades in the expiring contract.

### Tier 2: Outright bid/ask

If a VWAP is not available due to an absence of trades, then the most recent spread trade is applied to the lead month settlement price to derive the expiry month settlement, which is rounded to the outright's nearest tradable tick.

If there are no trades in the lead month-expiry month calendar spread\*, then the prior-day spread relationship is used to derive the expiry month settlement.

In either of the above scenarios, if the derived spread differential in the lead month-expiry month spread is below the low bid in the settlement period in that spread, then the spread settles to that bid. If the calculated spread differential in the lead month-expiry month spread is higher than the high ask in the settlement period in that spread, then the spread settles to that ask. Additionally, if the derived expiry month settlement violates the low bid or the high ask in the outright market for the expiry month during the settlement period, then, the settlement will be adjusted to the nearest low bid or the high ask accordingly.

\*The lead month is the anchor leg for the Tier 2 calculation outlined above, and is the contract expected to be the most active. The expiry month is the expiring contract.

If you have any questions, please call the [CME Global Command Center](#).

**Note:** In the event the aforementioned calculations described in this advisory cannot be made or if CME Group staff, in its sole discretion, determines that anomalous activity yields results that are not representative of the fair value of the contract, the staff may determine an alternative settlement price.