

INTEREST RATE PRODUCTS

# On-The-Run (OTR) U.S. Treasury Futures Reference Guide

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# INTRODUCTION AND KEY BENEFITS

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On-The-Run (OTR) U.S. Treasury futures prices are based on the yields of the on-the-run — the most recently auctioned — 2-year, 5-year, and 10-year Treasury notes. The contract design enables users to achieve cost-effective synthetic exposure to the most liquid benchmark maturity points on the Treasury yield curve, with the added benefit of cross-margining against other interest rate products traded on CME Group exchanges.

## Key Benefits

OTR Treasury futures offer many advantages to market participants

- *Synthetic price exposure to on-the-run Treasury yields*, for those lacking convenient access to the government securities cash or repo markets, or for those who face restrictions in their use of physical-delivery Treasury futures.
- *Means of establishing and holding futures-equivalent on-the-run Treasury positions* without any need for involvement in the repo market.
- *Capital-efficient access to benchmark points on the Treasury yield curve*, for index managers and yield curve traders.
- *Expiry by cash settlement* makes an alternative to traditional physical-delivery Treasury futures, for those who need or want to take futures contract positions to expiration.
- *Creating synthetic short exposures*, for fiduciary money managers whose plans may forbid short selling of cash Treasury securities but permit short positions in listed futures contracts.
- *Cross-margining with other interest rate futures and options* listed on CME Group exchanges, including Eurodollars, Treasuries and Interest Rate Swaps.

## New Trading Opportunities

Because OTR Treasury futures directly track benchmark Treasury yields, they create an interesting array of relative-value trading opportunities

- *OTR Treasury Cash vs. OTR Futures Spreads*: Mispricing in the shape of the forward yield curve may offer arbitrage opportunities for those who trade spreads between OTR Treasury futures and either on-the-run Treasury issues or “when issued” (WI) Treasury securities.
- *OTR Treasury Futures vs. Traditional Treasury Futures Basis Trades*: Combining a position in OTR Treasury futures with traditional Treasury futures, which track “cheapest to deliver” (CTD) securities, creates a synthetic version of the popular OTR/CTD cash-futures basis trade. Among other benefits, such futures-to-futures spread positions should benefit from potentially significant performance bond offsets at CME Clearing.
- *Treasury Yield Curve Spreads*: The simplicity of the contract design means that the performance of yield curve spread positions, constructed with OTR Treasury futures, will be easy to monitor in terms of either futures price spreads or implied Treasury yield spreads. It also means that the price action of OTR Treasury futures yield curve spreads should closely track the dynamics of cash market yield curve spread positions. Curve spreads among OTR Treasury futures, as well as spreads between OTR Treasury and traditional Treasury futures will be available as pre-defined Intercommodity Spreads (ICS) on CME Globex. For more information, including current spread ratios, visit [www.cmegroup.com/ics](http://www.cmegroup.com/ics).
- *Spreads to LIBOR and Swap Rates*: Pairing OTR Treasury futures with Eurodollar futures strips or Interest Rate Swap futures simplifies the execution and management of TED (Treasury vs. Eurodollar) spreads and Swap spreads. An added convenience is the similarity between OTR Treasury and Interest Rate Swap futures. Both are priced on the basis of a notional four percent coupon and are traded in terms of price points and 32nds.

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### Market Participants

The capital efficiencies that OTR Treasury futures provide should appeal to financial institutions with balance sheet constraints. And because they are designed for clear reference to key points on the Treasury yield curve, these contracts will be attractive to any institution seeking Treasury exposure at benchmark terms to maturity:

- Mutual Funds (1940 Act Funds)
- Index Funds
- Duration Managers
- Foreign Central Banks
- Proprietary Trading Firms
- Hedge Funds
- Spread Traders
- Relative Value Traders
- Primary Dealers
- Asset Managers
- Retail Fixed Income Traders

### Capital Efficiency

CME Clearing uses the SPAN framework to calculate performance bond levels. Thus, market participants who hold correlated positions with opposite risk exposures — for example, OTR Treasury futures, traditional Treasury futures and options and/or Eurodollar futures and options — should benefit from capital efficiencies arising from potentially sizeable initial margin offsets. To learn more about SPAN portfolio margining, please see “CME Span” in the Risk Management section of [www.cmegroup.com/clearing](http://www.cmegroup.com/clearing).

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These contracts will be attractive to any institution seeking Treasury exposure at benchmark terms to maturity.

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# CONTRACT DESIGN

OTR Treasury futures trade in price terms. They expire by cash settlement, with reference to on-the-run Treasury yields as reflected in ISDAFIX Benchmark Swap Rates and Swap Spreads on the last day of trading. The final settlement price formula converts the underlying on-the-run Treasury yield into a price index, whose dynamics resemble those of a hypothetical \$100,000 face-value Treasury note paying a semi-annual coupon rate of four percent per annum. OTR Treasury futures trade both in open outcry and on CME Globex.

## On-The-Run U.S. Treasury Futures Contract Specifications

(All times of day are Chicago time (CT), unless otherwise noted.)

|                                |   |
|--------------------------------|---|
| <b>Underlying Instrument</b>   | The notional price of a 2-Year, 5-Year or 10-Year U.S. Treasury note with \$100,000 notional face value, paying a semiannual coupon at the rate of four percent per annum. The price is based on the corresponding on-the-run Treasury note yield at the contract grade term to maturity. The on-the-run Treasury note yield is derived as the ISDA <sup>®</sup> Benchmark Swap Rate minus the ISDA Swap Spread, both at the contract grade term to maturity.   |
| <b>Price Basis</b>             | <p>Par is on the basis of 100 points.</p> <p><b>2-Year and 5-Year OTR Treasury futures:</b> Points (\$1,000) and quarters of 1/32 of a point. For example, 102-202 represents 102 and 20.25/32nds, 102-205 represents 102 and 20.5/32nds, 102-207 represents 102 and 20.75/32nds and 102-21 represents 102 and 21/32nds.</p> <p><b>10-Year OTR Treasury futures:</b> Points (\$1,000) and halves of 1/32 of a point. For example, 126-16 represents 126 and 16/32nds and 126-165 represents 126 and 16.5/32nds.</p>   |
| <b>Minimum Price Increment</b> | <p><b>2-Year and 5-Year OTR Treasury futures:</b> One-quarter of 1/32 of one point, or \$7.8125 per contract.</p> <p><b>10-Year OTR Treasury futures:</b> One-half of 1/32 of one point, or \$15.625 per contract, except for intermonth spreads, where the minimum price fluctuation shall be one-quarter of 1/32 of one point, or \$7.8125 per contract.</p>  |
| <b>Contract Months</b>         | <p>Expiry listings correspond to U.S. Treasury auctions for 2-year, 5-year and 10-year Treasury notes. For any contract, Final Settlement is on the morning of the auction of a new Treasury note during the contract's named delivery month. Initially, one expiry will be listed. Deferred expiries will be listed approximately 3-5 business days prior to expiration of the nearby expiry.</p> <p><b>2-Year and 5-Year OTR Treasury futures:</b> 2-Year and 5-Year OTR Treasury futures have monthly expiries. Each new contract will be listed on the auction announcement date for — and the beginning of WI trading in -- the contract's underlying reference Treasury note.</p> <p><b>10-Year OTR Treasury futures:</b> 10-Year OTR Treasury futures have February, May, August and November quarterly expiries. Each new contract will be listed on the business day following the auction announcement for – and the business day following the beginning of WI trading in — the contract's underlying reference Treasury note.</p> <p>Due to the limitations of the U.S. Treasury's Tentative Auction Schedule, the first trade date for any 10-Year OTR Treasury futures expiry is the business day following the Announcement Date of the underlying reference 10-year Treasury note, i.e., the day after the beginning of WI trading. The last trading day/final settlement takes place on the date of the next scheduled <u>new</u> 10-Year note auction in the following quarter.</p> |

|                               |  |  |   |   |
|-------------------------------|--|--|---|---|
| <b>Last Trading Day</b>       | Defined at time of listing as the date of the corresponding new Treasury note auction that is scheduled to occur in the futures contract's named delivery month, as indicated in the most recently published Tentative Auction Schedule of U.S. Treasury Securities. Trading in an expiring contract ceases at 10:01 a.m. on the last trading day.   |  |   |   |
| <b>Final Settlement Price</b> | Cash settlement. The final settlement value, measured in price points, is determined as:   |  |   |   |
|                               | 2-Year   | $100 * [ 4/r_2 + (1 - 4/r_2)*(1 + r_2/200)^{-4} ]$           |   |   |
|                               | 5-Year   | $100 * [ 4/r_5 + (1 - 4/r_5)*(1 + r_5/200)^{-10} ]$          |   |   |
|                               | 10-Year  | $100 * [ 4/r_{10} + (1 - 4/r_{10})*(1 + r_{10}/200)^{-20} ]$ |   |   |
|                               | $r_2$ , $r_5$ , and $r_{10}$ represent, respectively, ISDAFIX Benchmark Rates for the 2-Year, 5-Year and 10-Year term to maturity <u>minus</u> the ISDAFIX Swap Spread for the same term to maturity, as published at approximately 10:30 a.m. on the last trading day. (For example, if the ISDAFIX Benchmark Rate is 3.966 percent and the ISDAFIX Swap Spread is 0.315 percent, then $r$ equals 3.651 percent.) Final settlement price is final settlement value rounded to nearest one-quarter of 1/32 of one point. |  |   |   |
| <b>Block Minimums</b>         | For all OTR Treasury futures:<br>Regular Trading Hours (7:00 a.m. to 4:00 p.m.): 2,000 contracts<br>European Trading Hours (12:00 a.m. - 7:00 a.m.): 1,000 contracts<br>Asian Trading Hours (4:00 p.m. - 12:00 a.m.): 500 contracts  |  |   |   |
| <b>Trading Hours</b>          | <b>CME Globex:</b> 5:30 p.m. – 4:00 p.m., Sunday – Friday<br><b>Open Outcry:</b> 7:20 a.m. – 2:00 p.m., Monday – Friday  |  |   |   |
| <b>Ticker Symbols</b>         | <b>CME Globex:</b><br><b>Open Outcry:</b>  | 2-Year: <b>T2</b><br>2-Year: <b>TWO</b>                      | 5-Year: <b>T5</b><br>5-Year: <b>FIV</b> | 10-Year: <b>TN</b><br>10-Year: <b>TEN</b> |

## WHAT HAPPENS AT EXPIRATION?

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Trading in an expiring contract ceases at 10:01 a.m. Chicago time on its last trading day. The Exchange then determines the contract final settlement price on the basis of the pertinent on-the-run U.S. Treasury note yield, defined by the ISDA® Benchmark Swap Rate minus the ISDA Swap Spread, as determined in that morning's ISDAFIX survey. Note that, for any given term to maturity, the Swap Spread is simply the difference between the on-the-run Treasury yield and the par swap rate. The ISDAFIX survey is conducted at approximately 10:00 a.m., and the resultant ISDA Benchmark Swap Rates and Swap Spreads are generally published at 10:30 a.m. (For more about ISDAFIX, see "Appendix 1: How does ISDAFIX work?" on page 12.)

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The **swap spread** is simply the difference between on-the-run Treasury yield and the par swap rate.

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Final Settlement Values for OTR Treasury Futures =

$$2\text{-Year: } 100 * [ 4/r + (1 - 4/r)*(1 + r/200)^{-4} ]$$

$$5\text{-Year: } 100 * [ 4/r + (1 - 4/r)*(1 + r/200)^{-10} ]$$

$$10\text{-Year: } 100 * [ 4/r + (1 - 4/r)*(1 + r/200)^{-20} ]$$

### Example: 10-Year OTR Treasury Futures

Assume that on expiration day for a 10-Year OTR Treasury futures contract, the Morning ISDAFIX 10-Year Swap Rate is 2.601 percent and the ISDAFIX 10-Year Swap Spread is 0.043 percent (i.e., 4.3 bps). The Exchange computes the on-the-run 10-year Treasury yield ( $r$ ) as 2.558 (equal to 2.601 minus 0.043). Accordingly, the contract's final settlement value would be:

$$\begin{aligned} & \$100,000 * ( 4/r + (1 - 4/r) * (1 + r/200)^{-20} ) \\ & = \$100,000 * ( 4/2.558 + (1 - 4/2.558) * (1 + 2.558/200)^{-20} ) \\ & = \$112,652.52 = 112 - 20.88 / 32nds \end{aligned}$$

The final settlement price is 112-21/32nds, i.e., the final settlement value rounded to the nearest ¼ of 1/32nd.

# OTR TREASURY FUTURES LISTING CYCLE

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2-Year, 5-Year and 10-Year OTR Treasury futures listing cycles will correspond to the auction cycles for 2-year, 5-year and 10-year U.S. Treasury notes, respectively.

**The lifecycle of each futures contract will match the underlying Treasury note's lifecycle as the "on-the-run" issue.**

Each OTR Treasury futures contract will be listed around the beginning of WI trading\* in the contract's underlying reference Treasury note. The futures contract will continue to trade throughout this Treasury note's tenure as the "on-the-run" issue. Trading in the contract will terminate on the morning of the auction of a new Treasury note, approximately two hours before the contract's underlying reference Treasury note ceases to be the "on-the-run" issue and becomes the "old" Issue, also known generically as "off-the-run."

Initially, one futures expiry will be listed for each of the three contract grade terms to maturity (2-year, 5-year and 10-year). Subsequently, and in alignment with the Treasury Department's Auction Announcement schedule, a new futures expiry will be listed approximately three to five business days prior to expiration of the nearby futures. The expiration/last trading day for a specific futures contract is the date of the auction of a new Treasury note (corresponding to the contract's term to maturity) in that futures contract's named delivery month. Typically, this date will be as indicated in the latest "Tentative Auction Schedule of U.S. Treasury Securities" as published by the U.S. Treasury Department. Once this date is set as the contract's last trading day, it is fixed. It will remain the last trading/expiration day for that futures contract, regardless of any changes that the U.S. Treasury Department might subsequently make to its auction schedule.

To see the latest Tentative Auction Schedule of U.S. Treasury Securities, please visit: [www.treasury.gov/resource-center/data-chart-center/quarterly-refunding/documents/auctions.pdf](http://www.treasury.gov/resource-center/data-chart-center/quarterly-refunding/documents/auctions.pdf).

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Trading in the contract will terminate on the morning of the auction of a new treasury note.

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\* Each 2-Year or 5-Year OTR Treasury futures contract will be listed for trading on the Auction Announcement Date for the corresponding underlying reference (2-year or 5-year) Treasury note, whereas each 10-Year OTR Treasury futures contract will be listed for trading on the business day following the Auction Announcement Date for the contract's underlying reference 10-year Treasury note.

## 2-YEAR AND 5-YEAR OTR TREASURY FUTURES

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### 2-Year and 5-Year OTR Treasury Futures Will Have Monthly Expiries

The first trade date for each 2-Year or 5-Year OTR Treasury futures contract is the auction announcement date for, and the beginning of WI trading in, that futures contract's underlying reference 2-year or 5-year Treasury note. The futures contract's last trading day, and its final settlement, takes place on the day of the next scheduled auction of a 2-year or a 5-year Treasury note, respectively, in the following month.

Listing Example: Dec 2010 2-Year OTR Treasury Futures

The underlying reference for the Dec 2010 futures contract is the 2-year Treasury note that is auctioned in November 2010. Dec 2010 futures are listed for trading on the Auction Announcement Date for this Treasury note.

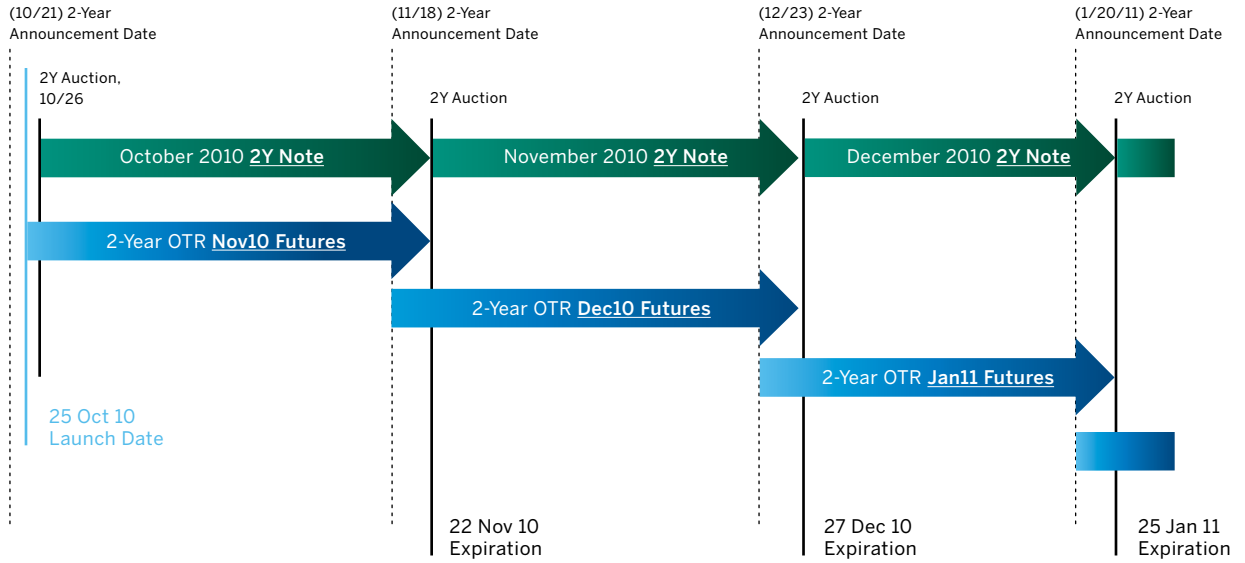
Moreover, the Dec 2010 futures will be listed so as to cease trading on the day in December 2010 which the Tentative Auction Schedule of U.S. Treasury Securities indicates as the date of auction for the next following new 2-year Treasury note. Termination of trading on the last trading day will occur at 10:01 a.m., approximately two hours before the Dec 2010 contract's underlying Treasury note ceases to be the on-the-run Treasury note. Upon expiration, the final settlement price of the Dec 2010 futures will be determined by the yield to maturity on a Treasury note with approximately 1 year 11 months of remaining term to maturity.

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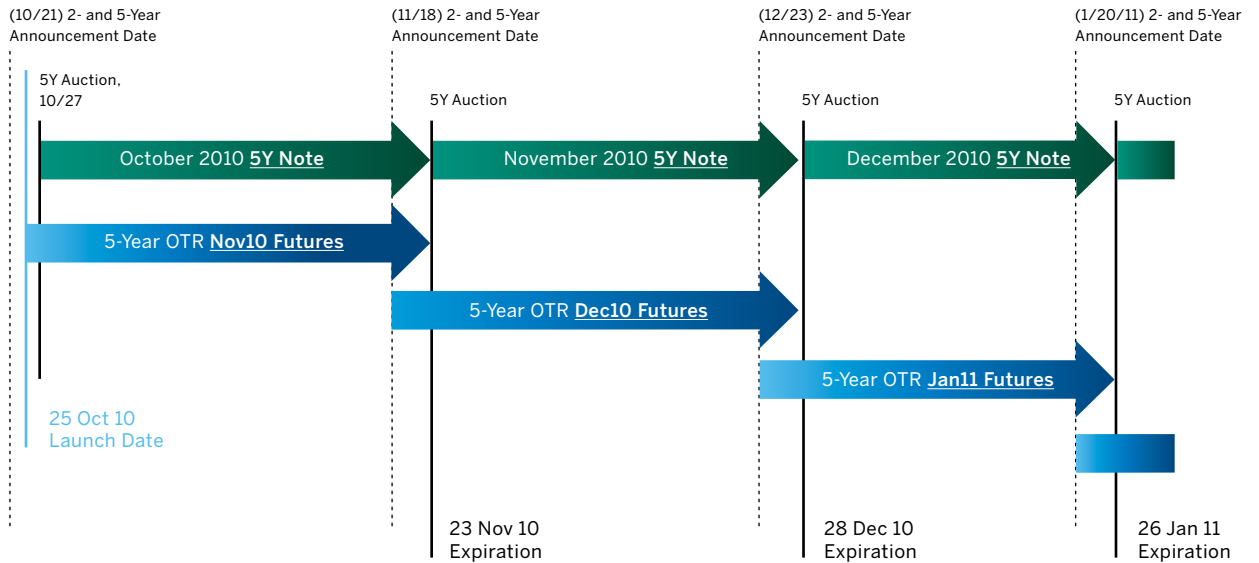
Futures are listed for trading on the **Auction Announcement Date** for the underlying Treasury Note.

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### 2-Year Listing Cycle Diagram



### 5-Year Listing Cycle Diagram



# 10-YEAR OTR TREASURY FUTURES

## 10-Year OTR Treasury futures will have quarterly expiries in February, May, August and November

While the U.S. Treasury conducts auctions of 10-year Treasury notes every month, it auctions new 10-year issues only four times a year, in February, May, August and November. An auction in any other month is a “re-opening” that adds to the amount outstanding of whatever 10-year note happens to be on-the-run at the time. Since these re-opening auctions do not change the status of the on-the-run Treasury issue, 10-Year OTR Treasury futures likewise adhere to a quarterly listing and expiration cycle.

Given the limited publication schedule for the Tentative Auction Schedule for U.S. Treasury Securities, the first trade date for any 10-Year OTR Treasury futures contract is the business day following the Auction Announcement Date for the contract’s underlying reference 10-year Treasury note, i.e., the day after the beginning of WI trading in that note. The last trading day for the futures contract, and its final settlement, is on the date given by the Tentative Auction Schedule for the auction of a new 10-year Treasury note three months later.

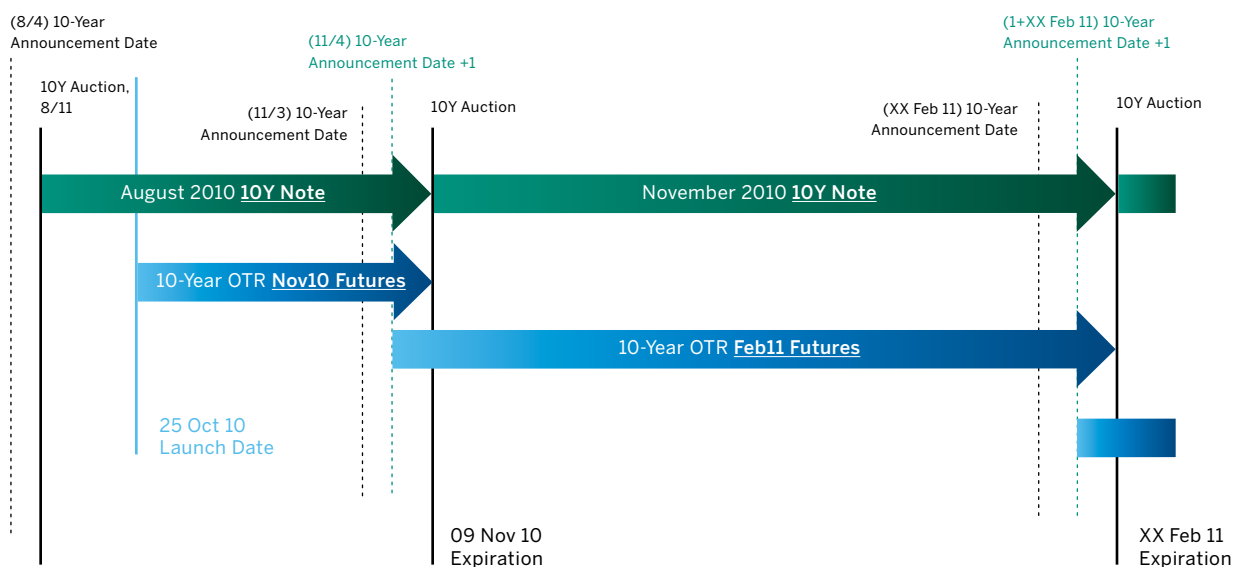
## Listing Example: Feb 2011 10-Year OTR Treasury Futures

The underlying reference Treasury note for the Feb 2011 10-Year OTR Treasury futures contract is the 10-year Treasury note that is auctioned in November 2010.

The Feb 2011 futures would begin trading (hypothetically) on 4 Nov 2010, the business day after announcement of the auction of this Treasury note.

Moreover, the Feb 2011 futures will be specified to cease trading on the date given by the freshly published Tentative Auction Schedule for the next auction of a new 10-year Treasury note in February 2011. Termination of trading on the last trading day will occur at 10:01 a.m., approximately two hours before the Feb 2011 contract’s underlying Treasury note ceases to be the on-the-run 10-year Treasury note. Upon expiration, the final settlement price of the Feb 2011 futures will be determined by the yield to maturity on a Treasury note with approximately nine years nine months of remaining term to maturity.

### 10-Year Listing Cycle Diagram



# HOW TO CALCULATE FUTURES FAIR VALUE

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**Review:** The futures contract Final Settlement Value is calculated using the spot on-the-run yield on the contract's expiration date.

**Question:** How do you determine futures fair value on any day prior to expiration?

**Requirements:**

Spot Price of the contract's underlying reference on-the-run Treasury note.

Term Repo rate for the on-the-run Treasury note to the business day following futures expiration.

If you are trading the OTR Treasury futures during the period of WI trading in the underlying market, you will also need to estimate the coupon of the WI Treasury note.

**What you need to calculate:**

Forward Price and Forward Yield of the futures contract's reference Treasury note, for forward settlement on the business day following futures expiration day.

Set  $r$  = Forward Yield

Then evaluate futures fair value =  
 $100 * [ 4/r + (1 - 4/r)*(1 + r/200)^{-2m} ]$

To determine fair value of an OTR Treasury futures contract prior to expiration, you need to calculate the forward yield of the contract's underlying reference Treasury note, for notional forward settlement on the business day following the futures expiration date. Once you calculate this forward yield, you can use it to evaluate the futures pricing formula. Alternatively, once you calculate the forward yield, you can refer to the CME Group [OTR Treasury Futures Price-Yield-DV01 Tables](#). OTR futures are designed such that each and every price level will map to a unique yield level. Having obtained the forward yield, you can locate the yield level in the Price-Yield-DV01 Table that is closest to it, so as to view the futures price corresponding to that yield.

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OTR Treasury futures are designed such that each price level will map to a unique yield level.

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Sample of the Price-Yield-DV01.xls Tables available at [www.cmegroup.com/otr](http://www.cmegroup.com/otr)

| 10-Year Price | Handle (Points) | Tail (32nds) | Implied Treasury Yield (% per annum) | DV01 (\$/contract) |
|---------------|-----------------|--------------|--------------------------------------|--------------------|
| 111.968750    | 111             | 31           | 2.6310                               | 93.371             |
| 111.984375    | 111             | 31 1/2       | 2.6293                               | 93.386             |
| 112.000000    | 112             | 0            | 2.6276                               | 93.401             |
| 112.015625    | 112             | 1/2          | 2.6260                               | 93.416             |
| 112.031250    | 112             | 1            | 2.6243                               | 93.432             |
| 112.046875    | 112             | 1 1/2        | 2.6226                               | 93.447             |
| 112.062500    | 112             | 2            | 2.6210                               | 93.462             |
| 112.078125    | 112             | 2 1/2        | 2.6193                               | 93.477             |
| 112.093750    | 112             | 3            | 2.6176                               | 93.493             |

#### How will futures fair value pricing differ from forward pricing of the Treasury note?

##### Notional Coupon Effect

The pricing formula embedded within the OTR futures design utilizes a 4% notional coupon.

When current coupons are below 4%:

Futures price is higher than the forward price of the note.

When current coupons are above 4%:

Futures price is lower than the forward price of the note.

##### Term-to-Maturity Effect

The pricing formula for the OTR Treasury futures contract assumes that the underlying Treasury note's remaining term to maturity at futures expiry is identical to the note's generic original term to maturity, i.e., a full 2 years, or 5 years or 10 years.

In fact, at futures expiration, the underlying Treasury note yield that determines the contract final settlement price will arise from a slightly seasoned Treasury note:

##### 2-Year OTR Treasury futures:

Utilizes a 1 year, 11 month note yield for a 2-Year futures price

##### 5-Year OTR Treasury futures:

Utilizes a 4 year, 11 month note yield for a 5-Year futures price

##### 10-Year OTR Treasury futures:

Utilizes a 9 year, 9 month note yield for a 10-Year futures price

The use of full original term to maturity in place of the true remaining term to maturity exerts a slight downward bias upon the futures price relative to the true forward price of the underlying Treasury note.

**Fair Value Example: 10-Year OTR Treasury Futures**

Calculate the fair value of (hypothetical) 10-Year OTR Treasury futures (Nov10 delivery month, TNX0) on 21 Sep 2010.

The futures contract's underlying reference Treasury note is 2-5/8 percent of August 2020, dated 15 Aug 2010, issued on 16 Aug 2010.

**Given**

Trade Date: 21 Sep 2010

TNX0 Futures Expiration Date: 9 Nov 2010

Futures Notional Forward Settlement Date: 10 Nov 2010

OTR Treasury note clean price for standard T+1 settlement (on 22 Sep 2010): 100-10+ (or 100 and 10.5/32nds)

OTR Treasury note yield for standard settlement: 2.587 percent per annum

Term Repo Rate, 22 Sep 2010 to 10 Nov 2010: 14 bps per annum

OTR Treasury note dated date: 15 Aug 2010

OTR Treasury note first coupon date: 15 Feb 2011

**Calculate**

Accrued Interest (15 Aug to 22 Sep) =

$$(2.625 / 2) * (38 \text{ days} / 184 \text{ days}) = \$0.271060$$

OTR Treasury note dirty price, 21 Sep =

$$100.328125 + 0.271060 = 100.599185$$

Interest Income, 22 Sep to 10 Nov =

$$(2.625 / 2) * (49 \text{ days} / 184 \text{ days}) = \$0.3495245$$

Financing Costs @ 14 bps per annum, 22 Sep to 10 Nov =

$$(100.599185 * 0.0014) * (49 \text{ days} / 360 \text{ days}) = \$0.0191697$$

$$\text{Carry} = \$0.3495245 - \$0.0191697 = \$0.3303548$$

$$\text{Forward Price} = \$100.328125 - \$0.330355 = \$99.997770$$

**Calculated Forward Yield:**

2.625% (based on the forward price of the Treasury note)

**Calculate 10-Year OTR Futures Fair Value:**

$$100 * [ 4/r + (1 - 4/r) * (1 + r/200)^{-2m} ]$$

$$r = 2.625$$

$$\$100,000 * 4 / r + (1 - 4 / r) * (1 + r / 200)^{-20}$$

$$\$100,000 * (4 / 2.625 + (1 - 4 / 2.625) * (1 + 2.625 / 200)^{-20}) =$$

$$\$112,024.52 = 112-0.78/32nds$$

Futures Fair Value = 112-1/32nd (rounded to the nearest minimum ½ of one 32nd increment)

| 10-Year Price | Handle (Points) | Tail (32nds) | Implied Treasury Yield (% per annum) | DV01 (\$/contract) |
|---------------|-----------------|--------------|--------------------------------------|--------------------|
| 111.968750    | 111             | 31           | 2.6310                               | 93.371             |
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| 112.093750    | 112             | 3            | 2.6176                               | 93.493             |

## APPENDIX: HOW DOES ISDAFIX WORK?

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For the U.S. dollar swap market, the ISDAFIX survey occurs each business day at 11:00 a.m. New York time. It covers 13 terms to maturity: 1 year through 10 years, inclusive, plus 15, 20 and 30 years. For Treasury-swap spreads, the survey's scope is 6 terms to maturity: 2 years through 5 years, inclusive, plus 7 and 10 years.

An ICAP or Reuters representative canvasses a panel of contributing dealers for their par swap rate quotes and swap spread quotes. The dealers in the canvass are selected and impaneled by ISDA, ICAP and Reuters on the basis of each contributor's reputation among dealers, perceived expertise, credit standing and scale of activity in the US dollar swap market. The US dollar contributor panel currently comprises 15 institutions:

- Bank of America
- BNP Paribas
- Credit Suisse
- HSBC
- JP Morgan Chase
- Morgan Stanley
- RBS
- Wells Fargo
- Barclays Bank
- Citigroup
- Goldman Sachs
- Deutsche Bank
- Mizuho
- Nomura
- UBS

For any given term to maturity, each contributing dealer provides to the ICAP or Reuters surveyor the midpoint of its own bid/offer spread, i.e., the average of the rate levels (or spread levels) at which that dealer would itself offer and bid a swap (or swap spread), for a notional amount of \$50 million. Importantly, the dealer's submission should be a function of its own bid/offer spread, not where it sees mid-market rates or swap spreads being quoted away from itself. Polling takes place by electronic interface (or, in some instances, by email or telephone). During the polling interval, a contributing dealer may update or amend the mid-market quotes it has submitted.

At the conclusion of the polling interval, ISDAFIX Benchmarks are determined as trimmed means. For US dollar swap rates and swap spreads, the Benchmark value at each term to maturity is calculated by

- (1) eliminating the four highest and the four lowest of the mid-market submitted quotes, and then
- (2) taking the simple average of the mid-market quotes that remain after the sample has been trimmed.

If every contributing dealer has reported, then the resultant Benchmark Swap Rate or Swap Spread will be an average of seven mid-market quotes. A US dollar Benchmark will be computed and posted, however, as long as at least 10 contributing dealers have participated. Although contributing dealers may submit their mid-market quotes up to five decimal places of precision, the ISDAFIX Benchmarks are computed to just three decimal places. The ISDAFIX Benchmark values and the mid-market quotes submitted by each contributing dealer, are published on Reuters and Bloomberg screens at around 11:30 a.m. New York time. To learn more, visit [www.isda.org](http://www.isda.org).

For more information on On-The-Run U.S. Treasury futures products, visit [www.cmegroup.com/otr](http://www.cmegroup.com/otr).

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