CME Group Interest Rate Options

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CME Group: Who We Are

CME Group is the world’s leading and most diverse derivatives exchange. It’s where companies, institutions and individuals from around the globe come to manage their business risks, hedge against fluctuations and protect themselves against price volatility.

Our Global Reach

- ACCESS IN 150 Countries
- CONNECTIONS THROUGH 11 Global Hubs
- RELATIONSHIPS WITH 12 Partner Exchanges
Interest Rate Options

Offer clients options across the Yield Curve

- These contracts make it possible to use a wide range of trading strategies to suit a number of goals
- Rate options products include Eurodollars, Treasury and Fed Fund based products, offering trading opportunities from gamma to vega

Key Highlights

➢ **Treasury Options**: Jan 2014 ADV 555,000 contracts/day

➢ **Eurodollar Options**: Open interest currently over 20 million contracts – more than doubled since 2012

➢ **Weekly Treasury Options**: Traded over 10.5 Million contracts in 2013 with over 19 Million contracts having traded since January 2011 launch
## Summary of 2013 Activity Block Thresholds

<table>
<thead>
<tr>
<th>Treasury Futures</th>
<th>ADV</th>
<th>Year-End OI</th>
<th>Block Thresholds</th>
<th>Regular 7a.m.-4p.m.</th>
<th>European 12a.m.-7a.m.</th>
<th>Asian 4p.m.-12a.m.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Year</td>
<td>229,428</td>
<td>760,802</td>
<td>5,000</td>
<td>2,500</td>
<td>1,250</td>
<td></td>
</tr>
<tr>
<td>5 Year</td>
<td>695,746</td>
<td>1,873,458</td>
<td>5,000</td>
<td>2,500</td>
<td>1,250</td>
<td></td>
</tr>
<tr>
<td>10 Year</td>
<td>1,293,365</td>
<td>2,211,389</td>
<td>5,000</td>
<td>2,500</td>
<td>1,250</td>
<td></td>
</tr>
<tr>
<td>Bond</td>
<td>338,743</td>
<td>648,059</td>
<td>3,000</td>
<td>1,500</td>
<td>750</td>
<td></td>
</tr>
<tr>
<td>Ultra</td>
<td>83,928</td>
<td>452,154</td>
<td>2,000</td>
<td>1,500</td>
<td>750</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2,641,210</strong></td>
<td><strong>5,945,862</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treasury Options</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Year</td>
<td>7,653</td>
<td>22,981</td>
<td>2,000</td>
<td>1,000</td>
<td>500</td>
<td></td>
</tr>
<tr>
<td>5 Year</td>
<td>96,573</td>
<td>811,877</td>
<td>7,500</td>
<td>3,750</td>
<td>1,875</td>
<td></td>
</tr>
<tr>
<td>10 Year</td>
<td>358,736</td>
<td>1,653,367</td>
<td>7,500</td>
<td>3,750</td>
<td>1,875</td>
<td></td>
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<tr>
<td>Bond</td>
<td>75,896</td>
<td>354,267</td>
<td>7,500</td>
<td>3,750</td>
<td>1,875</td>
<td></td>
</tr>
<tr>
<td>Ultra</td>
<td>350</td>
<td>5,928</td>
<td>800</td>
<td>600</td>
<td>300</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>539,208</strong></td>
<td><strong>2,848,420</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eurodollar Futures</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Options</td>
<td>110,402</td>
<td>7,145,550</td>
<td>10,000</td>
<td>5,000</td>
<td>2,500</td>
<td></td>
</tr>
<tr>
<td>Mid-Curves</td>
<td>484,263</td>
<td>10,184,340</td>
<td>10,000</td>
<td>5,000</td>
<td>2,500</td>
<td></td>
</tr>
</tbody>
</table>

1. Intra-commodity Treasury future spread block trades not allowed
2. Inter-commodity Treasury spread block trades may be executed as long as each leg meets the minimum requirement for the respective underlying.
3. Inter-commodity spreads for STIR futures may be executed as long as the sum of the legs meets the larger of the requirements.
4. Alternate threshold exists: To qualify, the contracts in years 6-10 must meet ¼ of the standard block thresholds.
5. Each leg of an options spread much meet the minimum threshold.
Interest Rate Options Market Development

CME Group Interest Rate options products include Eurodollars, Treasury and Fed Fund based products, offering trading opportunities from gamma to vega.
Eurodollar Options Product Suite

- Eurodollar Options expanded from 12 to 16 quarterlies on Nov. 18, 2013
- Weekly Options added on 2 and 3-Year Mid-Curves on Nov. 18, 2013
- Expirations ranging from weekly to December 2017, close to 4 years out
Treasury Options Overview

- Treasury Options 2013 ADV of 539,000 contracts/day – up 56% YOY
- Jan 2014 ADV of 555,000 contracts/day
- 2013 electronic percentage – 54% in 2013 with 60% traded electronically on CME Globex in November and December 2013
- June 20 – Record day in Treasury Options of 1.7 Million with a record 1.15 Million contracts trading on CME Globex
Eurodollar Options Overview

Highlights from 2013

- Average Daily Volume over 595,000 contracts – up 12% YOY
- Open interest currently over 20 million contracts – more than doubled since 2012
- Record volume of 3.4 million contracts traded in a single day on June 24th
Weekly Treasury Options

Expanding the range of standardized, short-dated Treasury Options

- Available in all durations (2-Year Notes — Ultra Treasury Bonds)
- High gamma options that complement the standard and flexible options on U.S. Treasury Futures
- Provide users with increased flexibility in managing existing option positions
- Offer unique opportunities to trade high-impact economic events, such as Treasury auctions and unemployment numbers

### Top Weekly Treasury Options Volumes and Events

<table>
<thead>
<tr>
<th>Trade Date</th>
<th>Total Volume</th>
<th>Open Interest</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Friday, July 05, 2013</td>
<td>310,478</td>
<td>94,837</td>
<td>July 2013 Unemployment</td>
</tr>
<tr>
<td>Thursday, June 06, 2013</td>
<td>195,582</td>
<td>336,084</td>
<td>June 2013 Unemployment</td>
</tr>
<tr>
<td>Friday, May 31, 2013</td>
<td>163,133</td>
<td>177,711</td>
<td>Japanese Economy</td>
</tr>
<tr>
<td>Wednesday, January 30, 2013</td>
<td>150,446</td>
<td>169,515</td>
<td>FOMC Statement</td>
</tr>
<tr>
<td>Friday, June 07, 2013</td>
<td>123,161</td>
<td>133,370</td>
<td>June 2013 Unemployment</td>
</tr>
<tr>
<td>Wednesday, June 05, 2013</td>
<td>117,917</td>
<td>257,249</td>
<td>June 2013 Unemployment</td>
</tr>
</tbody>
</table>
Weekly Treasury Options Overview

- Traded over **10.5 Million contracts** in 2013 with over **19 Million contracts** having traded since January 2011 launch
- 2013 ADV of **43,000 contracts**, up **106% YOY**
- Record day in WTOs on July 5, 2013:
  - **310,478 contracts** traded leading into non-farm payroll report
  - OI surpassed **455,112 contracts** leading into this number
### Weekly Treasury Options

**Leading Up to Economic Events**

- Anticipate increasing yields as a result of January 28-29th 2014 FOMC meeting
- An 18 basis point move on the CTD (2.19 to 2.36) on the 10 year note futures would target the 124 strike*
- Purchasing 124 puts on a Week 5 Option expiring Friday, January 31st will cost $62.50 per 1 contract (15.625 x 4**)
- Standard Option expiring February 21, 2014 would cost $296.875 per 1 contract (15.625 x 19**) Weekly Treasury Options offer a shorter-dated option for 375% less premium, pinpointing the economic event

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<table>
<thead>
<tr>
<th>Contract</th>
<th>Bid Qty</th>
<th>Bid Price</th>
<th>Ask Price</th>
<th>Ask Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 Yr Note Future MAR14</td>
<td>1411</td>
<td>125040</td>
<td>125045</td>
<td>801</td>
</tr>
<tr>
<td>Wkly 10 Yr Note JAN14-W5 124 Put</td>
<td>5592</td>
<td>3</td>
<td>5</td>
<td>5848</td>
</tr>
<tr>
<td>10 Yr Note MAR14 124 Put</td>
<td>14814</td>
<td>18</td>
<td>20</td>
<td>13897</td>
</tr>
</tbody>
</table>

Monday Jan 27th 2014 AM Markets

*www.cmegroup.com/duration – Estimate tool to equate a Treasury Futures price to a change in yield
**Assuming Mid-Market
Eurodollar Mid-Curve Options
Short-dated options on deferred Eurodollar futures

High gamma and theta options for trading out the yield curve – options on futures up to 5 years out the curve.
Q3 ADV in Mid-Curve Options of 645K

- 1-year “Red” – e.g., Mar 2014 option on Mar 2015 Eurodollar futures
- 2-Year “Green” – e.g., Mar 2014 option on Mar 2016 Eurodollar futures
- 3-Year “Blue” – e.g., Mar 2014 option on Mar 2017 Eurodollar futures
- 4-year “Gold” – e.g., Mar 2014 option on Mar 2018 Eurodollar futures
- 5-Year “Purple” – e.g., Mar 2014 option on Mar 2019 Eurodollar futures (launched March 11, 2013)

2-Year “Green” and 3-Year “Blue” Weekly Mid-Curve options have traded over 140,000 contracts since their November 18, 2013 launch

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Eurodollar Quarterly Options
Expanded from 12 to 16 Quarterly Eurodollar Expirations

- High vega options with expirations up to 4 years
- Longest-dated Interest Rate Option at CME Group
- Q4 2013 Long Dated Green ADV of $22 Billion+ in notional
- Traded over $7.5 Trillion notional since mid-October 2011 launch, with Open Interest over $1 Trillion notional
- Offer margin efficiencies compared to cleared and un-cleared swaptions

Our longest dated Year 4 Blue Quarterly options launched November 18, 2013 have trade over $12 Billion Notionally with open interest reaching over $10 Billion Notional.
Interest Rate Options — Request for Cross (RFC)

RFC functionality allows a sales desk to enter an options buy order and sell order on one ticket subject to Rule 539 Market Maker contact information can be found at www.cmegroup.com/rfq

**Process**

- A Request for Quote (RFQ) must be entered before the RFC can be submitted.
- Subsequent to the RFQ, the trader must wait 5 seconds before submitting the RFC order, which includes both the buy and the sell orders.
- If an RFC order is not entered within 30 seconds after the RFQ, the RFQ must be resubmitted.

**Matching**

- If the RFC price improves both the best bid and best offer in the order book or if there is no bid/offer in the order book, 100% of the RFC quantity will match at the RFC price immediately upon submission.
- If the RFC price matches or is outside the best bid or offer in the market, the applicable side of the RFC order will immediately match against the orders in the market at a price better than, or equal to, the RFC price. The remainder of the smaller quantity will then immediately match at the RFC price.

EOS Trader RFC ticket ensures time and RFQ compliance
QuikStrike Essentials
Free Web-based Options Analytics Tool

Visibility into Current and Historical Volatility by Strike
Concise Volume and Open Interest Information
Spread Analysis and Risk Graphs
Options Pricing Analysis
Learn more at www.cmegroup.com/quikstrike
Interest Rate Options Resources

Information and Tools

CME Group Interest Rate Products: www.cmegroup.com/interestrates

Market Maker Contact List www.cmegroup.com/rfq

Block Trade Requirements and Vendor Codes: www.cmegroup.com/irvendorcodes

Interest Rate Options Volume: www.cmegroup.com/iroptionsvolume

QuikStrike Options Analytics tool: www.cmegroup.com/quikstrike

Request for Cross (RFC) Information: www.cmegroup.com/rfc

Block Trade Rules and Procedures: www.cmegroup.com/block

Interest Rate Options Open Interest Profile Tool: www.cmegroup.com/iroptionsoi

Weekly Treasury Options: www.cmegroup.com/wto

Eurodollar Mid-Curve Options: www.cmegroup.com/midcurves

Resource Papers

Eurodollar Mid-Curves

Weekly Treasury Options

Treasury Options and the U.S. Economy
http://www.cmegroup.com/education/featured-reports/blu-putnam-us-unemployment-poised-to-dip-below-7-percent.html

Options Fundamentals
http://www.cmegroup.com/education/featured-reports/option-fundamentals-for-fixed-income-asset-managers.html

http://www.cmegroup.com/education/featured-reports/option-strategies-for-fixed-income-asset-managers.html
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