Third Quarter 2014

Quarterly Interest Rate Review

A Global Trading Summary of Interest Rate Futures, Options and OTC Products

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As the world’s leading and most diverse derivatives marketplace, CME Group (cmegroup.com) is where the world comes to manage risk. CME Group exchanges offer the widest range of global benchmark products across all major asset classes, including futures and options based on interest rates, equity indexes, foreign exchange, energy, agricultural commodities, metals, weather and real estate. CME Group brings buyers and sellers together through its CME Globex electronic trading platform and its trading facilities in New York and Chicago. CME Group also operates CME Clearing, one of the world’s leading central counterparty clearing providers, which offers clearing and settlement services across asset classes for exchange-traded contracts and over-the-counter derivatives transactions. These products and services ensure that businesses everywhere can substantially mitigate counterparty credit risk.
THIRD QUARTER HIGHLIGHTS

Interest Rate Complex: +12% Jan-Sep 2014 vs. Same Time Period in 2013
• Average 6.9 million contracts traded per day YTD, up 16% from the beginning of the year.
• Quarter-end Open Interest (O.I.) surpassing 53.9 million contracts.
• In Q3, reached an all-time high of 74.7% penetration of U.S. Treasury cash market.

Options Volume Soars in September: 1.9 million+ ADV +28% YoY
• Quarter-end open interest reached 32.4 million, with 66% held in Puts
• Eurodollar options: Q3 ADV of 918,819, +21% vs. Q3 2013; September ADV was 1.2 million+
• Fed’s updated rate projections drove increase in Quarterly and 1-Year Eurodollar Mid-Curve options – representing 54% of the volume
• Weekly Treasury options: 78,968 contracts in ADV, +48% vs. Q3 2013.

Trading Up 67% in 30-Day Fed Funds Futures and Options vs. Previous Quarter
• Averaged 37,385 contracts per day, +67% from Q2 2014 and +107% YoY.
• Traded 103,000+ futures contracts on July 10, our highest volume day for 2014 for the product (the day following the release of the June FOMC meeting minutes).

Deliverable Swap Futures (USD): Steadily Growing, Active Base of Participants
• Q3 ADV was 7,253 contracts per day, +13% vs. previous quarter and +27% YoY.
• Open Interest reached a new record high of 148,000 contracts on Sep 15, 2014 and has remained above 105,000+ contracts more than two weeks following the roll.
• Now Available! Portfolio margining of DSFs and Ultra T-bonds with Cleared OTC IRS

Cleared OTC IRS: Clearing the Way Forward
• In Q3 2014, we averaged $163.1 billion per day, +37% from the previous quarter’s notional ADV.
• We continue to see strong momentum in our open interest growth, which is now over $20 trillion – more than doubled since January – with a 56% market share in terms of buy-side open interest, while our competitor has stagnated.
• More than 495 clients have cleared through CME Group

For the latest news and product information, visit cmegroup.com/interestrates
Fed Poised to End Quantitative Easing

The Federal Reserve (Fed) is poised to end quantitative easing at its Federal Open Market Committee (FOMC) meeting on 28-29 October 2014. The next decision point for the Fed is whether or not to keep reinvesting the interest and principal received from MBS and Treasuries as they pay their coupons or mature.

The Fed’s QE programs have created a very large balance sheet, now at $4.5 trillion, or just over 25% of one year’s nominal GDP. Given that only about $1.2 to $1.5 trillion is actually needed to run the banking system, this is a pretty deep hole, in terms of how many years it may take to shrink the Fed’s balance sheet to a level more consistent with the size of the economy and banking system needs. When one is in a deep hole, the first step is to stop digging – ending QE does that. The decision not to reinvest interest and principal is the obvious next step to start the process of shrinking the balance sheet, and the announcement could come as early as the October meeting or in one or two meetings afterwards.

Accompanying the end of QE is a vigorous debate about the timing of a Fed decision to abandon its zero rate policy of keeping the target federal funds rate in a range from 0.00% to 0.25%. Fed Chair Yellen has argued consistently that more slack in labor markets needs to disappear and some wage pressure develop before taking the first step to increase the target federal funds rate range to 0.25% to 0.50%. Yet a consensus of FOMC members are looking for the first rate increase in 2015 and to finish the year with the federal funds rate around 1-1.25%.

There is little question from the data that US labor markets are improving. The unemployment rate is now 5.9%, compared with a four decade average level of 6.5%. Moreover, since state and local governments stopped shedding jobs in mid-2013, the strength of private sector job creation has been unmasked, and the US is averaging just over 225,000 net new jobs created per month. For sure, the level of part-time jobs has not fallen as fast some would like, partly because the retail sector has shifted to more part-time workers as a response to growing e-commerce sales and uncertainties over storefront sales. The labor force participation rate is lower than some analysts would prefer, but this ratio hit its peak in January 2000 and has been on a 15-year secular decline. The issues with labor force participation are structural and not at all influenced by monetary policy.

If labor markets were all the Fed was considering, then a hike in the target federal funds rate during 2015 would be almost a done deal. The Fed, however, has a dual mandate, and looks at inflation as well. There is virtually no wage or inflation pressure currently as measured in the data. Moreover, commodity prices are on a weakening trend. And the US dollar is strong, which helps contain inflation pressures with a six- to nine-month lag. The lack of inflation pressure is the main reason the Fed might choose to delay a decision to abandon zero short-term rates. The health of the labor markets and the fact the US economy is in the fifth year of an economic expansion argues that it is past time to dismantle the emergency policies from the Bernanke era, including QE and zero rates. Moreover, zero short-term rates distort markets and can lead to risky, “search for yield” behavior by market participants. Our current base case is that the FOMC decides to abandon zero rates sooner rather than later, but they raise the target federal funds rate only to about 1% before halting the rise, in steps that may involve skipping an FOMC meeting or two in this incremental process.

For more of Blu’s views and commentary, visit cmegroup.com/putnam

All examples in this report are hypothetical interpretations of situations and are used for explanation purposes only. The views in this report reflect solely those of the authors and not necessarily those of CME Group or its affiliated institutions. This report and the information herein should not be considered investment advice or the results of actual market experience.
PRODUCT OVERVIEW

EURODOLLAR FUTURES AND OPTIONS

Record 6.8+ Million in Eurodollar Futures Traded on September 17

- As the Fed’s Securities Purchase program winds down and the marketplace anticipates rate normalization, participants are focusing attention on the front end of the yield curve.
- White and Red month Eurodollar contracts are seeing strong volume increases from this shift:
  - **White months**: Growth driver for entire Eurodollar complex, +52% in Q3 compared to 2013 (Q3 growth for entire Eurodollar futures and options complex was 29%).
  - **Red months**: Futures and options +37% compared to Q3 2013.

This volume shift indicates market is expecting Fed activity in 2015.

Jump in Eurodollar Open Interest vs. Previous Year

- Quarter-end open interest in Eurodollar futures and options was **41.6 million** contracts, +35% vs. Q3 2013.
- Anticipation of a rate Fed normalization cycle is an important theme across several client segments.
- Open interest in Eurodollar futures set a record on September 12th 2014. O/I hit 13.5 million contracts. This trend indicates that a diverse segment of market participants are turning to standardized product in order to achieve their investment goals.

Surging Eurodollar Options Activity Indicates Anticipation of a Fed Move

- 1,239,263 options traded in September, +29% YoY
- Increase in usage of **White and Red month** options contracts also reflects a shift in market sentiment. These options now account for 44% of volume.
- ZIRP caused usage of White and Red month options to decline. Usage bottomed in Q4 2012, and has steadily increased since that time.
PRODUCT OVERVIEW

EURODOLLAR OPTIONS (CONTINUED)

Open Interest Soars Following Sep FOMC Statement
- Open interest reached **28.6 million** contracts, a 5-year high
- **3.6 million** in O.I. was added in just 11 days following FOMC statement
- Puts account for **66%** of open interest
- Sharp Increase in quarterly and 1-year Mid-Curve options trading following Fed’s updated projections -- was **54%** of the volume

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Call Option 3M</th>
<th>Put Option 3M</th>
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<th>% in Put Options</th>
<th>Total</th>
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<td>E9</td>
<td>4,922,271</td>
<td>9,070,360</td>
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<td>E2 (GREENS)</td>
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<td>E3 (BLUE)</td>
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<td>E4 (GOLD)</td>
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<td>E5</td>
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<td>All</td>
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<td>34.63%</td>
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TREASURY OPTIONS

Activity in Treasury Options Also Reflects Near-Term Focus
- **676,351** Treasury options traded per day in Sep, **+28% YoY**
- Activity in 2-Year Treasury Note options: **+99%** to 11,618 ADV in Sep
- **Record 62%** traded electronically
- ETH ADV: **103,000** contracts/ day

WTOs: Low-Cost Risk Management Tools leading into Economic Events
- Weekly Treasury Options (WTOs): Available in all durations, from 2-Year to Ultra T-Bonds
- Record month for WTOs, averaging **95,110** options /day
  - **445,752** on Sep 4-5 (around Non-Farm Payroll)
  - **187,392** on Sep 17 (around FOMC Statement)
- WTOs accounted for **14%** of Treasury options ADV in Sep
- Record Sep ADV in Weekly 5-Year Treasury options – 18,175 per day
INCREASED USE OF FUTURES

TREASURIES

Penetration of the U.S. Treasury Cash Market Continues to Rise

- Treasury futures notional volumes reached an all-time high of 74.7% penetration of the underlying cash market.
- Participants continue to turn to listed futures and options contracts to manage Treasury exposure and to optimize their balance sheets.

LARGE OPEN INTEREST HOLDERS

Growth in Large Open Interest Holders for Interest Rates Complex

- We continue to see a growing number of large open interest holders across interest rate futures and options – now up to 1,696.
- That represents 409 new large open interest holders added over the past year
- Adds to the trends supporting migration of participants to futures as alternatives to OTC products.

Source: CFTC Commitment of Traders Reports.

DELIVERABLE SWAP FUTURES

Deliverable Swap Futures Reaches Record O.I. and Monthly ADV

- Record open interest surpassed 148,000 contracts ($14.8 billion notional) on Sep 15, 2014.
- Record monthly ADV of 14,697 contracts in Sep 2014
- More than 2.6 million contracts have traded since launch.
Cleared OTC IRS

- Open interest surpasses $20 trillion in September, up from $15.6 trillion in June 2014 (+28%).
- Represents a 56% market share of client's notional outstanding
- 495+ global market participants have cleared at CME, choosing the most capital-efficient solution
- Compression via Coupon Blending: 10,000+ trades blended, $535 billion in reduced cleared notional
- Total risk offsets via Portfolio Margining: Now over $3.9 billion in initial margin savings
- DSFs and Ultra T-bonds now available for portfolio margining as of September 22
VALUE-ADDED TOOLS

Commitment of Traders Tool | cmegroup.com/ircot

- Get a visual representation of where open interest is being held in all reportable markets as defined by the CFTC – valuable for identifying trends and participation.

- Updated to reflect data across weekly CFTC published reports.

Daily Treasury and Eurodollar Market Updates

- Get daily market reports for our Treasury and Eurodollar products automatically delivered to your inbox.

- This email provides timely information on options activity and the distribution of puts and calls.

- To subscribe, email: david.reif@cmegroup.com
VALUE-ADDED TOOLS

QuikStrike Essentials
Free Web-based Options Analytics Tool

Features Include:

- 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 cmegroup.com/quikstrike
VALUE-ADDED TOOLS

REPORT: Using CME Eurodollar Curve Trades to Enhance Risk/Reward Positions

First in a new 4-part report series from experienced Eurodollar trader Joseph Choi

Curve trading is one of the best-kept secrets in a trader's arsenal, but a valuable strategy that Joseph Choi used frequently as a successful senior proprietary trader on Wall Street.

In Mr. Choi’s first report, learn the benefits of curve trading and how to use nonlinearity to construct and trade a Eurodollar futures butterfly structure, in order to:

- Improve returns and risk/reward positions on the yield curve
- Create a useful analytical platform to better construct a Eurodollar portfolio — in all types of market conditions
- Enhance directional trades of Eurodollars

Download your copy at cmegroup.com/education/curvature-trading-directional-trading.html

Coming in October: Part 2 in the 4-part series focuses on how to apply curve trades and nonlinearity to improve the results in a range trading strategy.

About Joseph Choi
Joseph Choi was a senior proprietary trader in J.P. Morgan’s Global Currencies and Commodities Group, where he was one of the largest discretionary users of Eurodollar futures and options. Mr. Choi started the Curve Advisor newsletter in 2011 to help clients explore opportunities in curvature trading.

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NOW AVAILABLE

NEW Eurodollar Bundle Futures and Options


Capitalize on these exciting new avenues to trade long-dated Eurodollar exposures as a single line item, linked to the world’s deepest futures liquidity pool.

Initial Listing includes 2-, 3- and 5-Year Bundle futures and options, complementing our existing suite of Eurodollar contracts and listed Eurodollar Packs and Bundles combinations.

KEY BENEFITS

Operationally simple. Single line item valued at $1 million in notional, offering easy execution

Capital efficiency. Receive efficient margin treatment due to single-line-item nature

Simple, transparent pricing. Average pricing allows ability to associate with yield levels.

Options. Offers a standardized, cost-effective alternative to OTC bilateral products.

Dedicated Market Makers Quoting Tight Bid/Ask Spreads and Top of Book Depth

<table>
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<th>Markets on September 30, ≈ 11:00 a.m. CT</th>
<th>Tickers</th>
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<td>Bundle Future</td>
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<td>5-Year</td>
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</table>

For more information, visit cmegroup.com/bundlefutures
Learn How You Can Benefit from the Liquidity and Efficiencies of Our Interest Rate Solutions.

Contact Us Today at interestrates@cmegroup.com.
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Swaps trading is not suitable for all investors, involves the risk of loss and should only be undertaken by investors who are eligible contract participants (ECPs) within the meaning of section 1(a)18 of the Commodity Exchange Act. Swaps are a leveraged investment, and because only a percentage of a contract’s value is required to trade, it is possible to lose more than the amount of money deposited for a swaps position. Therefore, traders should only use funds that they can afford to lose without affecting their lifestyles. And only a portion of those funds should be devoted to any one trade because they cannot expect to profit on every trade.

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