FOURTH QUARTER 2014
Quarterly Interest Rate Review

A Global Summary of Interest Rate Futures, Options and OTC
- Highlights
- Quarterly Outlook
- Product Overview
- IR Trends & Events
- IR Resources
FOURTH QUARTER HIGHLIGHTS

Interest Rate Complex Reaches New Heights in 2014

- Average Daily Volume (ADV) of 7 million contracts, up 19% from 2013 – with Q4 ADV up 43% year-over-year to 7.4 million contracts
- Open Interest (OI) for the complex reached an all-time high of nearly 48 million contracts, up 28% from the end of 2013 – with approximately 18.3 million contracts in Futures and 28.5 million in Options
- On October 15, 2014, CME Interest Rate futures and options volume hit a record of 20,088,750 contracts surpassing the previous single day record of 19,417,635 on May 29, 2013

Fed Funds Futures Volume Ramping Up

- In Q4 2014, Fed Funds Futures ADV hit 40,000 contracts for the first time since Q3 2011, driven by anticipation of a Fed rate hike
- Q4 2014 was the fourth consecutive quarter of volume growth with ADV nearly 3 times that of the previous year
- OI reached 748,000 contracts at the end of 2014, up 172% year-over-year

Eurodollars Shifts to the Front of the Curve

- Quarterly Eurodollar Options OI increased during each of the last 9 months of the year to finish 2014 at over 10 million contracts
- ADV in Quarterly and Serial contracts surpassed 300K for the first time since Q1 2012. Volume in these contracts was up 53% from Q3 2014
- Eurodollar Futures continued to exhibit steady volume growth during Q4 with an increase of 7% from the previous quarter

DSF: Steady Growth Continues since launch in December 2013

- Q4 2014 ADV reached a record high of 7,325 contracts or $735 million in notional
- Open Interest hit a record of 156,000 contracts ($15.6 billion notional) in December

Weekly Options Volume Surges in 2014

- Weekly Treasury Options Q4 ADV was up 77% from Q3 2014 and up 51% year-over-year
- OI also increased 78% from Q3 2014 to 143,000 contracts

Circuit Breaker Implementation

- Circuit breakers were implemented in FX, Metals and Treasury products on Monday, December 22, 2014
- Circuit breakers, in addition to the other Globex risk control measures such as price banding, MOQ, Velocity Logic and Stop Logic, will add to safety and security for customers who trade CME products.
- For more information on Treasury Circuit Breakers please see the advisory

For the latest news and product information, visit cmegroup.com/interestrates
From a purely US labor market perspective, the Federal Reserve (Fed) might be expected to abandon its near-zero federal funds rate policy during 2015. Labor markets are healthy, the unemployment rate is below its 50-year average of 6.2%, having dropped into the mid-5% territory. Hourly wage growth has been very sluggish, yet, with strong job creation and expanded hours worked, total labor income is posting nice gains. The economic challenge for the Fed, however, is that core inflation remains below target and will likely remain so for a long time to come.

Our view is that the Fed is likely to look through the sustained low inflation rate and move rates upward in 2015, but not by much. The Fed may decide to push short-term rate higher, maybe just to 1.00%, to signal that the US economy is doing fine and no longer needs emergency support, such as quantitative easing or zero short-term rates. With core inflation below 2%, though, the Fed is not likely to be in any rush to make its decision and also not likely to want to embark on an extended series of incremental rate-rise steps as the Greenspan-Fed did back in 2004-2006.

With US inflation prospects in the limelight, we want to examine the main causes for the lack of price pressures and assess the Fed’s level of concern. Currently, inflation has been contained by falling oil prices, the relative tightness of fiscal policy, and the lagged impact of the strong US dollar.

Falling energy prices, when driven by a supply boom, as they appear to be, represent a long-term positive factor for the economy. As lower crude oil prices feed through to lower prices at the gas pump, it frees up discretionary spending and raises consumer confidence. Also, lower energy prices are not part of the core inflation rate that the Fed prefers to use when assessing policy. The Fed is likely to look through the oil price decline and not see it as a reason to delay a rate-rise decision.

The relative tightness of fiscal policy is another factor that the Fed will probably ignore. The US federal budget deficit ballooned to almost -10% of GDP in FY-2009. Since then, however, gridlock in Washington has held federal government expenditures to almost no growth, while five straight years of economic expansion has allowed revenues to growth quite strongly. It now appears that the US federal budget may record only a very small deficit in FY-2016 of -1% of GDP, and then actually move slightly into surplus territory in FY-2107. The Fed may view fiscal responsibility in a positive light for the economy, not a reason to delay the rate-rise decision.

The strength of the US dollar is probably foremost among the factors pushing the core inflation rate lower, and about which the Fed is paying considerable attention. While the dollar impacts a wide variety of goods and services directly through imports, the critical aspect has been the monetary policies of two major central banks. The European Central Bank (ECB) and the Bank of Japan (BoJ) are committed to massive asset purchase programs (i.e., QE) to expand their balance sheets, which sends a clear signal to global market participants that these central banks are quite comfortable with their currency depreciating against the US dollar. It is this last aspect of mercantilist policies aimed at competitive devaluations that may give the Fed some pause. And, the QE programs of the ECB and BoJ also work to keep sovereign government bond yields artificially low. This spills over to the US Treasury market, because, even at below 2% yields on the 10-year Treasury note, the US is still the high yield issuer among the largest, mature, industrial countries – attracting global investors searching for yield. The result is that the US Treasury market probably no longer reflects well the underlying health of the US economy, and the shape of the yield curve is not likely to mean what it once did in terms of signalling the relative accommodation or tightness of monetary policy. The reality is that there is very little if anything the Fed can do about ECB and BoJ policies. However, these policy stances may work to delay the timing of the Fed rate decision.

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.
PRODUCT OVERVIEW

INTEREST RATE PRODUCT TOTALS

Overall Interest Rate Volume Records

- Q4 2014 futures ADV neared 6M contracts, up 5% from Q3 2014
- Combined with options ADV of 1.5M, overall ADV reached 7M for the second consecutive quarter and for 2014 in total

EURODOLLAR FUTURES AND OPTIONS

Record ADV for Eurodollar Futures in 2014

- Eurodollar futures ADV was 2.6M in 2014, with each quarter surpassing 2M in ADV
- OI levels remained over 10M contracts with a high of nearly 13M at the end of August

Options Focus on the Near Term

- OI is shifting towards the front of the curve, as quarterly contracts gain share versus mid-curve contracts. This is likely an indication that investors are increasing focus on Fed rate hikes
- In Q4 2014, quarterlies OI reached almost 16M contracts, more than doubling Q4 2013 OI, while mid-curves contracted by 21%
PRODUCT OVERVIEW

TREASURY FUTURES AND OPTIONS

Futures ADV Reaches 3 million contracts

- ADV peaked in the fourth quarter at just over 3M
- This trend represents an increase of 37% from Q4 2013 and the fourth straight quarter of volume growth
- Futures OI ended 2014 at a record high of over 7M contracts. Prior to 2014, futures OI had never breached the 6M contract level at a year or quarter end

Treasury Options: Electronic Usage Continues to Grow

- Incremental growth in Treasury options is driven by increased activity in the electronic marketplace
- ADV executed on Globex reached a record 65% of total volume in Q4 2014, up 7% from Q4 2013

Weekly Treasury Options (WTOs): Picking up the Pace

- WTOs allow investors to target specific economic events and data releases. Available in all durations from 2-Year to Ultra T-Bonds, WTO’s are most widely used in 5 and 10-year note futures and the Classic bond contract
- October was a record month for WTOs- averaging 95,110 options per day. WTO ADV for the fourth was approximately 70,000
PRODUCT OVERVIEW

**Fed Funds**

Fed Funds Futures Strength Continues as Investors Focus on the Fed in 2015

- ADV for Q4 2014 was over 45k contracts, resulting in the fourth consecutive quarter of volume growth

- OI continues to increase with volume and ended 2014 with 748k contracts. OI nears the all-time quarterly high set in Q2 2011 of 773k

**Large Open Interest Holders (LOIH) on the Rise**

- The number of LOIH nearly doubled in the Fed Funds futures market, from 63 in 2013 to 103 in 2014

- Anticipation of Fed activity has led to both an increase in market participants in Fed Funds complex and an increase in the number of LOIHs

**OTC Products**

Market Share Continues to Grow

- Q4 2014 ADV grew to $144B notional, 2.4 times 2013 ADV

- Record 64% market share for OTC IRS Open Interest, up 53% from the end of 2013

- Nine clearing members now live with Portfolio Margining, with 36 firms benefiting from this solution. Total risk reductions account for $3.9B in initial margin savings
Penetration of the U.S. Treasury Cash Market Continues to Rise

Treasury Futures notional volumes reached an all-time high of 74.9% penetration of the underlying cash market. Participants continue to turn to listed futures and options contracts to manage Treasury exposure and optimize their balance sheets.

Growth in Large Open Interest Holders Across all Interest Rate Products in 2014

Despite a slight pullback in Q4 2014, the number of large open interest holders increased significantly in 2014, up over 15% at year-end as published in the CFTC Report.
IR TRENDS & EVENTS

After launching on September 22, Eurodollar Bundle Futures went through their first successful delivery with 778 contracts delivered – 8,300+ contracts in Eurodollar Equivalents.

A diverse group of participants are taking advantage of the new CME Eurodollar Bundle futures and options, which provide a new avenue for trading long-dated Eurodollar exposure.

With the contracts’ expiration on December 15th, the first delivery process was a success and there have been volumes in the first three months of trading with over 28,000+ contracts in Eurodollar equivalents traded.

<table>
<thead>
<tr>
<th>Bundle Futures</th>
<th>Final Settlement Price</th>
<th>Total Contracts Traded</th>
<th>Eurodollar Equivalents</th>
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</thead>
<tbody>
<tr>
<td>2-Year</td>
<td>99.179</td>
<td>1,909</td>
<td>15,272</td>
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<tr>
<td>3-Year</td>
<td>98.7681</td>
<td>886</td>
<td>10,632</td>
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<tr>
<td>5-Year</td>
<td>99.2216</td>
<td>126</td>
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</table>

This product offers exciting new ways to trade long-dated Eurodollar exposures, linked to the world’s deepest futures liquidity pool with benefiting including:

- **Operational simplicity**: Single line item, 1 million in notional value, easy execution
- **Capital efficiency**: Efficient margin treatment due to single-line-item nature
- **Simple, transparent average pricing**: Allows ability to associate with yield levels
- **Options**: Creates an efficient alternative to OTC bilateral products

For more information, visit cmegroup.com/bundlefutures
Mind the Gap: Treasury Bond Basket Solution

As previously announced, CME Group made slight changes to the deliverable grade for Treasury Bond (ZB) futures contracts expiring in June 2015, September 2015, and December 2015.

Due to the moratorium on Treasury Bond issuance between 2001 and 2006, futures contracts are faced with a five year gap in deliverable terms to maturity at the nearby end of the ZB futures deliverable basket. After extensive consultation with market practitioners, the exchange has chosen to exclude the 5 3/8% Feb 2031 bond from delivery eligibility in order to minimize the impact on deliverable supplies.

The result is that the average duration of the cheapest-to-deliver security will jump from ~15 years in the March 2015 contract to ~21 years in the June 2015 contract, greatly affecting their relative risk exposure and price, as detailed in the table below.

In response to user demand, the Exchange will enable a new Bond futures calendar spread with a 3:2 ratio, in addition to the standard 1:1 calendar spread listed on Globex and traded in the open outcry market. This new ratio spread contract (symbol: ZBXH5-ZBXM5) is designed to help customers mitigate the risk the delivery gap introduces into the execution the March-June 2015 calendar roll.

Effective Sunday, February 15 (trade date Tuesday, February 17), due to unique changes in the deliverable basket affecting the upcoming March-June Treasury Bond (ZB) calendar roll, a new reduced-tick ratio calendar spread will be listed for trading on CME Globex. The March-June 2015 Treasury Bond Futures Roll: Mind the Gap is available now for more information.
CME Group recently developed the Treasury Yield Curve Spread Tracker tool in response to customer demand for a means to monitor actively traded Treasury futures spreads over time.

Available as a downloaded Excel spreadsheet, the tool applies the same ratio as CME Globex spreads but expresses the index price in terms of basis points, as opposed to the Globex pricing in terms of net change from prior settlement. The price is rounded to the nearest tradable price in the Treasury spread market.

Below is an example of the type of time series one can create leveraging the new Yield Curve Spread tracker tool, using the FV/TY futures spread and the OTR basis point spreads.

Data Sources: CME Group and Bloomberg

Notes:

For more information about Treasury futures yield curve spreads, please visit cmegroup.com/ics