First Quarter 2015

Quarterly Interest Rate Review

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

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» Quarterly Outlook
» Product Overview
The internal dynamics of the US economy in early 2015 have been sending decidedly mixed signals, leading to increased uncertainty over the timing of any move by the Federal Reserve to abandon its zero-rate policy. Externally, the general strength of the US dollar, the start of massive quantitative easing by the European Central Bank and slowing growth in China are three factors complicating both the Fed rate decision and the outlook for US Treasuries.

The dissonance within the US economy can be confusing. Labor markets are relatively healthy, jobs are being created at a good pace, and the unemployment rate is below 6% and trending lower. By contrast, first quarter 2015 real GDP is likely to be weak and disappointing, when it is released later in the spring. The culprits are (1) the impact of the West Coast dock disruptions, and (2) lower gas prices at the pump. The dock disruptions are easy to ignore by East Coast analysts, but the protracted dispute probably cost the US economy as much as 0.5% on annualized real GDP for the first quarter – albeit a temporary impact. And, while oil prices were collapsing in late 2014, many analysts took the view that lower gasoline prices at the pump would work like a tax cut, raising consumer confidence and then real GDP in 2015. This view needs rethinking. Real GDP is two-thirds driven by retail sales. Despite lower gas prices, retail sales fell because consumers have largely saved the money – not spent it on other discretionary items. Thus, total retail sales – what matters for real GDP – have been weak. We do expect stronger retail sales, in total, as the year progresses, but Q1 real GDP may be disappointing.

The dissonance in US retail sales and GDP extends into corporate profits. On average across the economy, US company corporate profits are decelerating. There is the possibility in equity markets for more volatility during earnings reporting season, including heightened risk for future profit warnings even from companies where Q1 earnings are solid. Equity volatility can lead risk managers to favor bonds.

The international impacts on US markets are large, too. The stronger dollar results in a lagged influence on general inflation, keeping it lower, longer. It also heightens competitive pressure from exports, making it harder for US companies to raise prices or to raise hourly wages. And, because China’s currency has more or less maintained its value vis a vis the US dollar, China’s exports are growing more slowly and Chinese real GDP growth may also disappoint in 2015, suggesting slower global growth.

The European Central Bank’s (ECB) asset purchase program (QE) has depressed yields and volatility in European sovereign debt markets. This has made US Treasuries a relatively “high yield” bond, with yields higher than Spain and Italy. One of the unintended consequences of ECB’s QE may be to drive bond trading away from European sovereign debt and into US bonds, with or without FX hedging.

Finally, we note that the economic confusion and the downward pressure on US Treasury yields from international factors suggest that any Fed rate-rise decision in 2015 would more likely lead to a flatter yield curve rather than a parallel shift upward across the maturity spectrum.

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

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PRODUCT OVERVIEW

INTEREST RATE PRODUCT TOTALS

Interest Rate Volume Continues to Reach New Highs

- Total Interest Rate Average Daily Volume (ADV) continued to increase in Q1 2015, reaching more than 7.5M contracts.
- Options continue to be the biggest driver of growth, up 7% from the prior quarter, reaching 1.6M contracts daily. Futures volume held steady at 6M contracts daily.

EURODOLLAR FUTURES AND OPTIONS

Eurodollar Futures Front Eight Contracts Volume Surges

- Eurodollar futures growth has been driven by the short-end contracts, with the front 8 contracts representing 69% of volume, the highest percentage since 2011.
- Open Interest (OI) grew 4% from the end of 2014 to nearly 11M contracts.

Options Focus on the Near Term

- Pre-2008, Eurodollar options were traded primarily on the front eight quarterlies. A shift to the two, three and four year mid-curves began in 2010.
- In 2015, momentum is building for the options on the front eight again, with volumes more than doubling from where they were in Q1 2014.
- Mid-curves and deferred contracts continue to trade, offering deep liquidity and significant open interest.
PRODUCT OVERVIEW

TREASURY FUTURES AND OPTIONS

Futures ADV Grows to 3.1 million contracts

- 2Y Note Futures hit a quarterly volume record as participants shift attention to the short-end of the curve.
- The T-Bond Future “jumped the 5-year gap” and the Cheapest to Deliver (CTD) is now the longer maturity which has caused the DV01 of the T-bond future to increase by 50%.
- Two-thirds of the historic Mar-Jun 2015 T-bond roll, that jumped the once in a lifetime five year gap, traded using CME’s innovative 3:2 ratio calendar roll.
- Futures OI ended Q1-2015 at a record high of over 7.1M contracts, up 5% and driven by growth in the 2Yr, 10Yr and Ultra.

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 62% of total volume in Q1 2015, up from 58% in Q1-2014.

Weekly Treasury Options (WTOs): Picking up the Pace

- WTOs allow investors to target specific economic events and data releases.
- Weekly Treasury options averaged 78,000 contracts per day in Q1 2015, growing 58% from Q1 2014. This now represents 13% of overall Treasury option volume.
PRODUCT OVERVIEW

FED FUNDS

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

- Q1 2015 ADV was over 61k contracts, up from less than 20k a year ago.
- Fed Fund options averaged 1,983 contracts per day, more than 18x as much as Q1 2014.

Fed Funds 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 114 in 2015.
- Anticipation of Fed activity has led to a return of market participants in Fed Funds complex and an increase in the number of LOIHs, the largest since 2011.

OTC PRODUCTS

Market Share Continues to Grow

- CME continues to hold the majority of market share in USD products, increasing to 60%.
- MXN IRS volume surges with 2015 surpassing all of the volume cleared in 2014, with over 36 market participants now clearing this product.
- CME is unique in our portfolio margining offering, with total risk reductions now accounting for over $5 billion in margin efficiencies.
- More savings are expected in 2015 with the anticipated launch of cleared USD swaptions.
Treasury Futures Volumes vs. US Cash Treasury Market

- CME Group regularly monitors the daily volume traded in cash Treasury markets relative to the notional volume traded in our Treasury markets.

- In February 2015, futures volume as % of cash reached an all-time high 75%, as market participants leverage the liquidity available in CME’s electronic order books as well as the capital efficiencies available.

**Note:** Cash Treasury volumes are as reported by the NY FED and reflect statistics reported by primary dealers on all couponed Treasury securities.
CME Group’s Portfolio Margining Solution

With over 10 Clearing Members now live with IRS Portfolio Margining there are now more than 39 firms benefitting from **CME Group’s Portfolio Margining Solution**.

Since May 2012, our portfolio margining service for interest rate swaps and futures has given clients unparalleled capital efficiencies across the broadest range of IRS products. Today, Total Risk Reductions account for over $5 billion in initial margin savings as customers achieve capital savings across an increasingly diverse portfolio of:

- 18 cleared OTC IRS currencies
- CBOT Treasury Futures, now including the Ultra Bond
- CME Eurodollar Futures
- USD Deliverable Swap Futures

**Example: Clearing IRS with CBOT Treasury Futures**

Below are examples of 5 invoice spread strategies with $1 million DV01 in each strategy. Portfolio margining IRS with CBOT Treasury Futures results in **indicative margin savings of 54% - 80%**.

<table>
<thead>
<tr>
<th>Invoice Spread Strategy</th>
<th>Margin if Cleared</th>
<th>CME Portfolio Margin</th>
<th>Margin Savings</th>
<th>Savings Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>2YR (TU) Treasury vs IRS</td>
<td>33,210,422</td>
<td>15,131,357</td>
<td>18,079,065</td>
<td>54%</td>
</tr>
<tr>
<td>5YR (FV) Treasury vs IRS</td>
<td>46,791,849</td>
<td>9,233,353</td>
<td>37,558,496</td>
<td>80%</td>
</tr>
<tr>
<td>10YR (TY) Treasury vs IRS</td>
<td>47,230,122</td>
<td>13,312,933</td>
<td>33,917,189</td>
<td>72%</td>
</tr>
<tr>
<td>Treasury Bond (US) vs IRS</td>
<td>48,109,925</td>
<td>20,109,738</td>
<td>28,000,187</td>
<td>58%</td>
</tr>
<tr>
<td>Ultra Treasury (WN) vs IRS</td>
<td>49,705,884</td>
<td>17,079,356</td>
<td>32,626,528</td>
<td>66%</td>
</tr>
</tbody>
</table>
IR TRENDS & EVENTS

Mexican Peso IRS Clearing Surges at CME Group

2015 Volume Surpasses All Volume Cleared in 2014

- Record volume in Q1-2015 with $2.6 billion cleared per day (MXN 760 billion), and $242 billion cleared since launch.

- Open Interest has grown to over $164 billion (MXN 2.5 trillion) – doubling since the start of 2015.

- 36 market participants have voluntarily cleared MXN IRS at CME Group, in order to reduce counterparty credit risk, capitalize on margining efficiencies with the broadest global OTC product scope of 18 currencies and streamline operational processes.

MXN IRS Volume Surges in Q1-2015

Monthly Notional in USD Equiv.
Now Available: rapidRV, a real-time fixed income market data and analytics tool, jointly developed by CME Group, ICAP, and The Beast Apps.

rapidRV provides a range of different analytics that allow you to explore relative value and comparative pricing of swaps, cash markets and CME Group interest rate futures. This real-time web-based analytics tool, powered by The Beast Apps technology, combines CME Group and ICAP market data and enables side-by-side pricing analysis and opportunity assessment between related fixed income products and markets.

Features include:
- A customizable interface: adjust contract amount and month, term and more to create the scenario that meets your needs.
- Enhanced collaboration: use the “Share” button to send strategies and analytics to your colleague’s rapidRV accounts.

Analytics Available:
rapidRV provides over 15 different interactive analytics for you to explore, including:
- GovPX/ICAP Cheapest to Deliver Treasury Table
- OTC IRS vs. Treasury Features Hedge
- DSF vs US Treasury Hedge
- CME Eurodollar Futures
- CME Treasury Futures
- CME DSF vs. CME Eurodollar Futures Hedge

Example Analytic: OTC IRS vs. Treasury Futures

Start your free trial today. Visit www.rapidrv.com for more information.
IR RESOURCES

New Options Analytic Tools to Help You Trade Smarter

CME Group is excited to offer three new interactive options analytic tools, which are powered by QuikStrike, and now available on cmegroup.com. These tools provide an in-depth view into CME’s robust options marketplace and provide customers with a greater ability to discern which instruments are most active and what type of positions are being put on.

The (Daily) Weekly Options Report

A daily overview of CME Group’s Weekly options complex, including volume, open interest and open interest change.

Most Active Strikes

View the most active strikes by calls, puts and combined calls and puts. Report displays the Top 20 in rank order, including all expirations available for the currently selected product.

Open Interest Profile

Analyze open interest and open interest change patterns by product group and individual expirations.

Sample: Open Interest Summary

For more information, visit cmegroup.com/tools-information/quikstrike.html.

Part Three of the Curvature Trading Application series by Joseph Choi

Curvature trading is one of the least-discussed tools in a trader’s arsenal. It has valuable applications in: (1) directional trading, (2) range trading, (3) options trading, and (4) market-making.

Over the four issues in this series, Mr. Choi highlights how an understanding of curvature in Eurodollar futures can be used to improve returns in each of these areas. In the third of this four part series, Mr. Choi discusses how to use Eurodollar options to enhance returns and more effectively manage an interest rate portfolio. This paper focuses on using curve trading strategies to:

- **Optimize premiums** to improve returns by using Eurodollar options to create curve strategies with defined risk parameters
- **Create a useful analytical platform** to integrate options into a Eurodollar portfolio
- **Value** Eurodollar options as a function of probability

For more information about the applications of Curve Trading, Part 1: Directional Trading and Part 2: Range Trading of Joseph Choi’s series are available.
Futures trading is not suitable for all investors, and involves the risk of loss. Futures 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 futures 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.

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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