



Invested in America

RESEARCH QUARTERLY

Fourth Quarter 2015

RESEARCH REPORT

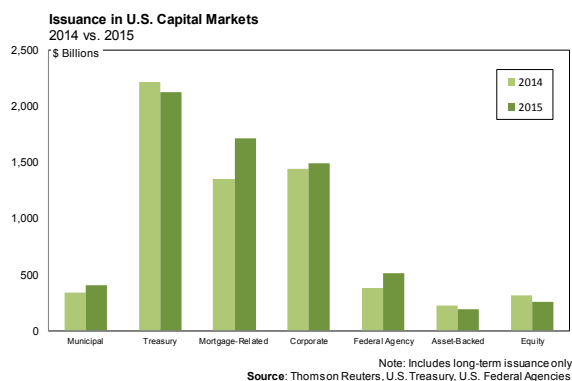
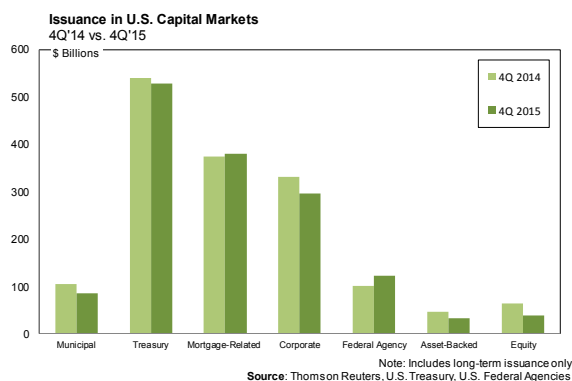
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CAPITAL MARKETS OVERVIEW



Issuance Highlights - Year-Over-Year⁽¹⁾

\$ Billions	2015:Q4	2014:Q4	% Change
Municipal	84.7	105.5	-19.7%
Treasury	527.3	539.1	-2.2%
Mortgage-Related	380.5	373.4	1.9%
Corporate	297.0	331.0	-10.3%
Federal Agency	121.5	100.1	21.3%
Asset-Backed	33.2	45.5	-27.0%
Equity	38.8	64.5	-39.9%

Issuance Highlights - Quarter-Over-Quarter⁽¹⁾

\$ Billions	2015:Q4	2015:Q3	% Change
Municipal	84.7	92.2	-8.1%
Treasury	527.3	536.3	-1.7%
Mortgage-Related	380.5	469.5	-18.9%
Corporate	297.0	310.6	-4.4%
Federal Agency	121.5	127.8	-4.9%
Asset-Backed	33.2	39.7	-16.3%
Equity	38.8	45.4	-14.6%

Issuance Highlights - Annual⁽¹⁾

\$ Billions	2015	2014	% Change
Municipal	403.1	337.5	19.4%
Treasury	2,122.5	2,215.4	-4.2%
Mortgage-Related	1,715.8	1,347.7	27.3%
Corporate	1,493.2	1,440.9	3.6%
Federal Agency	513.5	377.4	36.1%
Asset-Backed	193.2	225.4	-14.3%
Equity	256.0	311.4	-17.8%

⁽¹⁾ Includes long-term issuance only

Total Capital Markets Issuance

Long-term securities issuance totaled \$1.48 trillion in 4Q'15, an 8.5 percent decline from \$1.62 trillion in 3Q'15 and a 4.9 percent decrease year-over-year (y-o-y) from \$1.56 trillion in 4Q'14. Issuance fell quarter-over-quarter (q-o-q) across all asset classes with mortgage-backed, asset-backed and equity recording the largest percentage declines. For full year 2015, long-term issuance totaled \$6.7 trillion, an increase of 7.1 percent from \$6.3 trillion in 2014. The annual increase was driven primarily by increase in mortgage-related and corporate bond issuance.

Long-term public municipal issuance volume, including private placements, totaled \$84.7 billion in the fourth quarter of 2015, a decline of 8.1 percent from the prior quarter (\$92.2 billion) and a decline of 19.7 percent y-o-y (\$105.5 billion). Despite the fourth quarter decline, full year issuance was \$403.1 billion, an increase of 19.4 percent from 2014.

In the fourth quarter, \$527.3 billion in Treasury coupons, Floating Rate Notes (FRNs) and Treasury Inflation Protected Securities (TIPS) were issued, down 1.7 percent from \$536.3 billion issued in the prior quarter and 2.2 percent below the issuance of \$539.1 billion in 4Q'14. In full year 2015, Treasury issued \$2.12 trillion in Treasury coupons, FRNs and TIPS, down 4.2 percent from \$2.22 trillion in 2014.

Federal agency long-term debt issuance was \$121.5 billion in the fourth quarter, a 4.9 percent decrease from \$127.8 billion in 3Q'15 and 21.3 percent above \$100.1 billion issued in 4Q'14. For the full year, long-term agency issuance was \$513.5 billion, an increase of 36.1 percent from 2014.

Issuance of mortgage-related securities, including agency and non-agency passthroughs and collateralized mortgage obligations (CMOs), totaled \$380.5 billion in the fourth quarter, a 18.9 percent decrease from 3Q'15 (\$469.5 billion) but a 1.9 percent increase y-o-y (\$373.4 billion). For full year 2015, \$1.72 trillion of mortgage-related securities were issued, a very slight increase (0.4 percent) from the prior year.

Asset-backed securities issuance totaled \$33.2 billion in the fourth quarter, a decline of 16.3 percent q-o-q and 27.0 percent y-o-y. For the full year, issuance totaled \$193.2 billion, a decline of 14.3 percent from the prior year.

Corporate bond issuance totaled \$297.0 billion in 4Q'15, down 4.4 percent from the \$310.6 billion issued in 3Q'15 and 10.0 percent below 4Q'14's issuance of \$330.3 billion. For full year 2015, corporate bond issuance totaled \$1.49 trillion, up 3.9 percent from \$1.44 trillion in 2014.

Equity underwriting decreased by 14.6 percent to \$38.8 billion in the fourth quarter from \$45.4 billion in 3Q'15 and was 39.9 percent below the \$64.5 billion issued in 4Q'14. For full year 2015, equity underwriting totaled \$256.0 billion on 1,004 deals, down 17.8 percent and 17.9 percent, respectively, in volume and number of deals from 2014. "True" initial public offerings (IPOs) increased to \$7.7 billion in 4Q'15, a 44.3 percent increase from \$5.3 billion in 3Q'15 but a 57.3 percent fall from \$18.0 billion in 4Q'14. In full year 2015, \$24.6 billion was raised through 166 IPOs, down 65.8 percent from the record-breaking \$94.3 billion on 301 deals in 2014.

MUNICIPAL BOND MARKET

Municipal Issuance Overview – Primary Market

Long-term public municipal issuance volume totaled \$76.4 billion in the fourth quarter of 2015, a decline of 11.3 percent from the prior quarter (\$86.1 billion) and a decline of 23.0 percent year-over-year (y-o-y) (\$86.1 billion). Including private placements¹ (\$8.4 billion), long-term municipal issuance for 4Q'15 was \$84.7 billion. Despite the fourth quarter decline, full year issuance, excluding private placements, was \$377.6 billion, an increase of 19.9 percent from 2014 and just slightly above 10-year volume averages.

Tax-exempt issuance totaled \$67.4 billion in 4Q'15, a decline of 11.2 percent q-o-q and 24.9 percent y-o-y. For the full year, tax-exempt issuance was \$338.4 billion, an increase of 19.7 percent from the prior year. Taxable issuance totaled \$5.2 billion in 4Q'15, a decline of 34.1 percent q-o-q and 22.8 percent y-o-y. For the full year, taxable issuance was \$27.8 billion, an increase of 21.2 percent from 2014. AMT issuance was \$3.8 billion, an increase of 60.8 percent q-o-q and 42.3 percent y-o-y. For the full year, issuance was \$11.3 billion, 24.0 percent above 2014 volumes.

By use of proceeds, general purpose led issuance totals in 4Q'15 (\$15.7 billion), followed by primary & secondary education (\$14.7 billion), and water & sewer (\$8.4 billion). For the full year, general purpose led issuance totals (\$91.2 billion), followed by primary & secondary education (\$82.5 billion), and higher education (\$36.6 billion).

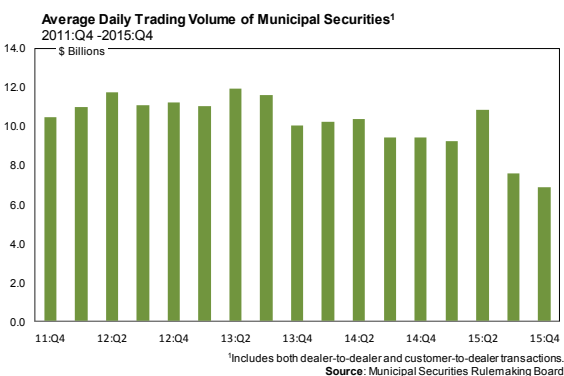
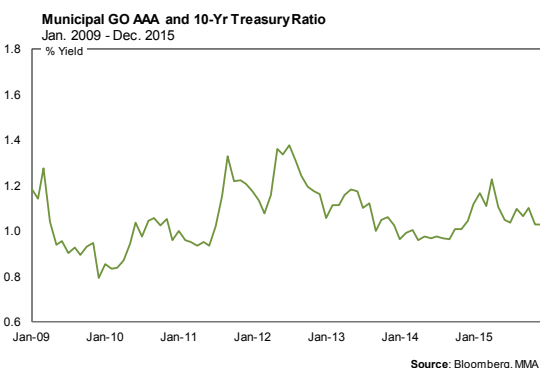
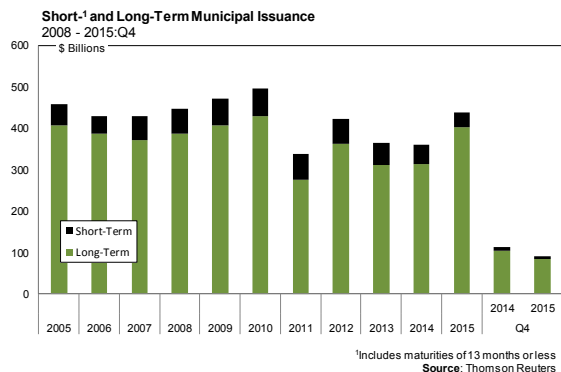
Refunding volumes as a percentage of issuance declined slightly from the prior quarter, with 43.4 percent of issuance attributable to refundings compared to 48.9 percent in 3Q'15 and 53.1 percent in 4Q'14.

Yields, Inflows, and Total Return

Ratios of 10-year tax-exempt AAA GOs and similar-maturity Treasuries fell in the fourth quarter on a q-o-q basis and a y-o-y basis, ending at 88.1 percent end-December 2015 from 102.7 percent end-September 2015 and 96.9 percent end-December 2014.

According to the Investment Company Institute (ICI), fourth quarter net flow into long-term municipal funds was positive, with \$10.8 billion of inflow in 4Q'15 compared to \$2.5 billion of outflow from 3Q'15 and \$9.6 billion of inflow y-o-y. For the full year, approximately \$14.9 billion of inflow was recorded, down from \$28.0 billion of inflow from the prior year.

According to Bank of America-Merrill Lynch indices, municipals returned 1.72 percent in the fourth quarter of 2015 and 3.55 percent in the full year. Build America Bonds (BABs), however, underperformed tax-exempts, returning 0.77 percent in 4Q'15 and 1.04 percent for the entire year; this, however was an improvement from similarly-rated corporates, which lost 0.09 in 4Q'15 and returned 0.67 percent for the full year. Within the municipal asset class, transportation, utilities, and tobacco had the greatest positive returns for the fourth quarter as well as full year 2015.



¹ Private placement figures are excluded in charts and tables.

TREASURY MARKET

Gross Issuance of U.S. Treasury Securities

Total gross issuance of Treasury bills and coupons, including cash management bills (CMBs), Floating Rate Notes (FRNs) and Treasury Inflation-Protected Securities (TIPS), was \$1.81 trillion in 4Q'15, up 4.3 percent from \$1.74 trillion in 3Q'15 and a 2.6 percent increase from 4Q'14's issuance of \$1.77 trillion. U.S. Treasury net issuance, including CMBs, increased significantly to a net \$353.6 billion in the fourth quarter, more than double the \$132.9 billion in previous quarter and a 55.5 percent increase from 4Q'14's net issuance of \$227.3 billion. Third quarter net issuance was 2.8 percent above the Treasury's November net borrowing estimate of \$344.0 billion.² For full year 2015, Treasury gross issuance totaled \$6.99 trillion in bills and coupons (including CMBs, FRNs and TIPS), down 0.6 percent from \$7.03 trillion in 2014 while net issuance increased to \$684.2 billion in 2015, up 8.3 percent from the prior year.

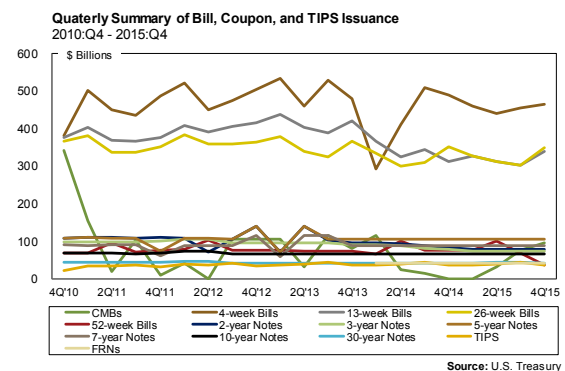
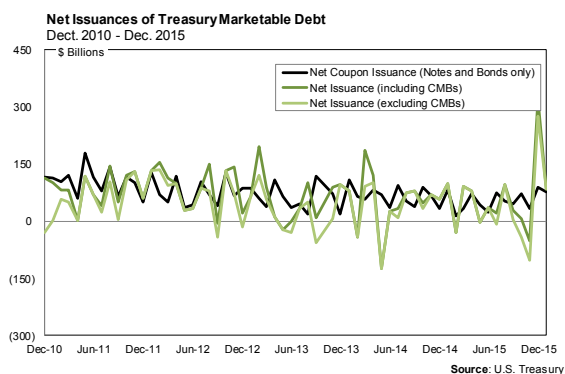
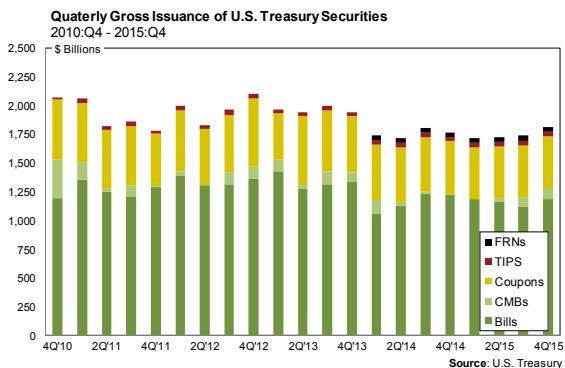
Excluding CMBs, total net issuance of Treasury bills, notes, and bonds in 4Q'15 stood at \$258.6 billion, a large increase from the net issuance of \$57.9 billion in the prior quarter and 13.8 percent above the \$227.3 billion issued on net in 4Q'14. For full year 2015, \$484.2 billion was issued in Treasury bills, notes, and bonds excluding CMBs, 1.5 percent above \$477.0 billion in 2014.

In the fourth quarter, \$95.0 billion of CMBs were issued, up 26.7 percent from \$75 billion issued in 3Q'15 and the highest CMBs issuance since 1Q'14. For full year 2015, \$200 billion of CMBs were issued, an increase of 29 percent from the prior year.

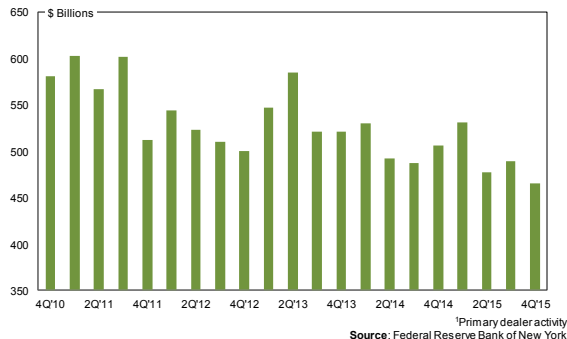
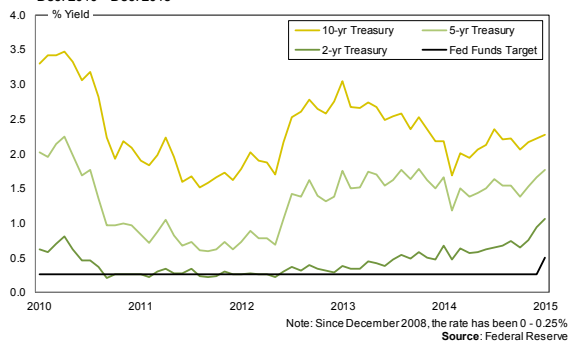
In 4Q'15, \$527.3 billion in Treasury coupons, FRNs and TIPS were issued, down 1.7 percent from \$536.3 billion issued in the prior quarter and 2.2 percent below the issuance of \$539.1 billion in 4Q'14³. In full year 2015, Treasury issued \$2.12 trillion in Treasury coupons, FRNs and TIPS, down 4.2 percent from \$2.22 trillion in 2014.

Excluding TIPS and FRNs, total gross issuance of Treasury marketable coupon securities was \$450.3 billion, unchanged from \$451.3 billion issued in 3Q'15 but 2.5 percent below the \$462.1 billion issued in 4Q'14. Net coupon issuance was \$197.7 billion, a 16.4 percent increase from \$169.8 billion in 3Q'15 and up 9.5 percent y-o-y. For full year 2015, Treasury gross coupon issuance excluding FRNs and TIPS totaled \$1.80 trillion, down 4.9 percent from \$1.90 trillion in 2014 while net coupon issuance decreased by 18.0 percent to \$628.1 billion in 2015 from \$766.1 billion in 2014.

In 4Q'15, \$41.0 billion in FRNs was issued, consistent with the \$41.0 billion in 3Q'15 and each quarter since the inaugural FRN auction in January 2014. The demand for FRNs has been steadily declining since the first auction with the average bid-to-cover ratio of 3.2 in 4Q'15, down from 3.4 in the previous quarter and from 3.5 in 4Q'14.



² Treasury's November borrowing estimates can be found [here](#).
³ Treasury started issuing Floating Rate Notes in January 2014.

Average Daily Trading Volume of Treasury Securities¹
2010:Q4 - 2015:Q4Treasury Yields and Target Fed Fund Rate
Dec. 2010 - Dec. 2015

Trading Activity

Daily trading volume of Treasury securities by primary dealers averaged \$465.4 billion in 4Q'15, a 4.8 percent decrease from \$489.1 billion in the previous quarter and an 8.2 percent decrease from the \$506.7 billion traded daily in 4Q'14. The 5-year average of daily trading volume of Treasuries decreased to \$521.8 billion, down 1.9 percent from \$531.7 billion in the prior quarter. For full year 2015⁴, the average daily trading volume decreased to 488.1 billion, down 3.2 percent from \$504.2 billion in 2014.

Treasury Yield Curve

In 4Q'15, the Treasury yields increased for all maturities with larger increases in short- and medium-term securities. Two-year rates increased to 1.06 percent at the end of December from 0.64 in September, the 5-year yields increased to 1.76 percent in 4Q'15 from 1.37 percent in 3Q'15, the 10-year yields increased to 2.27 percent from 2.06 percent in 3Q'15, and 30-year yields increased to 3.01 percent in December 2015 from 2.87 percent in September.

FOMC Meeting Summary

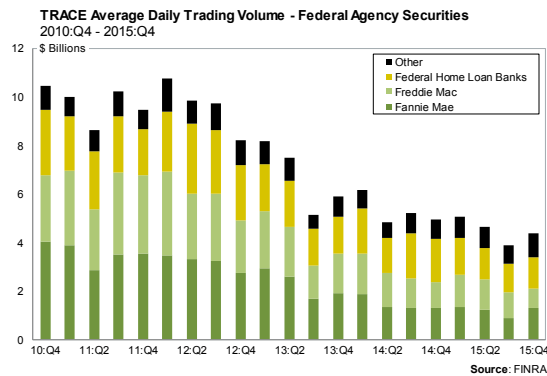
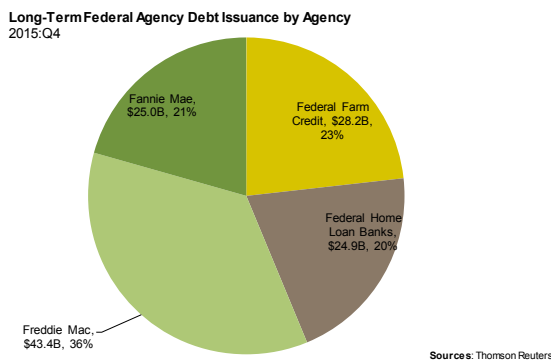
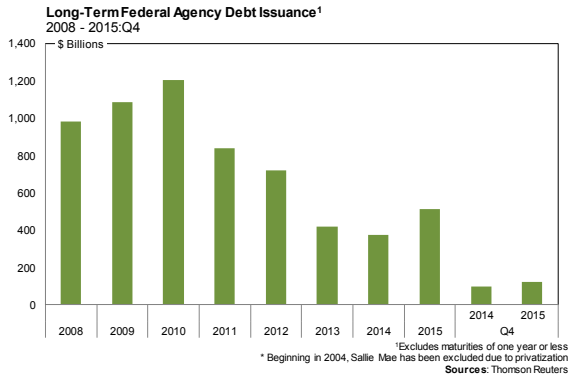
In December 2015, the Federal Reserve's Federal Open Market Committee (FOMC) raised its target federal rate from 0.0-0.25 percent to 0.25-0.50 percent, the first rate hike in 10 years. During its most recent meeting in January 2016, the FOMC announced that it was maintaining its accommodative policy of 0.25-0.50 percent target federal funds rate supporting further improvement in labor market conditions and a return to 2 percent inflation.

The Committee is also maintaining its existing policy of reinvesting principal payments from its holdings of agency debt and agency mortgage-backed securities in agency mortgage-backed securities and of rolling over maturing Treasury securities at auction, and it anticipates doing so until normalization of the level of the federal funds rate is well under way. The FOMC stated that it can be patient in further hikes of the target federal funds rate and signaled that it expects gradual increases with the federal funds rate likely to remain, for some time, below levels that are expected to prevail in the longer run.⁵

⁴ Full year volumes exclude Floating Rate Notes as the FRN trading data is available only starting in January 2015.

⁵ [Statement from the Federal Open Market Committee Meeting](#), January 27, 2016.

FEDERAL AGENCY DEBT MARKET



Federal agency long-term debt (LTD) issuance was \$121.5 billion in the fourth quarter, a 4.9 percent decrease from \$127.8 billion in 3Q'15 and 21.3 percent above \$100.1 billion issued in 4Q'14.

Fannie Mae's 3Q'15 gross debt issuance, both short term debt (STD) and LTD, totaled \$52.0 billion, an increase from \$41.8 billion in 3Q'15. STD issuance decreased to \$23.3 billion compared with \$27.1 billion in the third quarter, while LTD issuance increased to \$28.7 billion in 4Q'15 from \$14.7 billion in the prior quarter. Fannie Mae had \$71.1 billion in STD outstanding at the end of 4Q'15, down from \$95.5 billion as of end 3Q'15, and had \$318.4 billion LTD outstanding, a decrease from \$325.4 billion in 3Q'15.

Freddie Mac's gross debt issuance totaled \$168.6 billion in 4Q'15, a slight increase from \$165.2 billion in 3Q'15. As of quarter-end, Freddie Mac had \$104.1 billion STD and \$314.3 billion LTD outstanding, in comparison with \$104.8 billion STD and \$309.3 billion LTD in the prior quarter.

The 12 Federal Home Loan Banks (FHLB) issued \$26.7 billion in LTD in the fourth quarter, a decrease from \$57.5 billion in 3Q'15. In 4Q'15, \$748.4 billion of short-term debt (STD) was issued, up from \$604.1 trillion issued in 3Q'15. Total FHLB LTD outstanding was \$410.9 billion at quarter-end, down from \$447.0 billion outstanding at the end of third quarter and down from \$484.8 billion y-o-y. Discount notes increased to \$494.3 billion in 4Q'15 from \$409.5 billion in 3Q'15 and increased y-o-y from \$362.4 billion in 4Q'14.

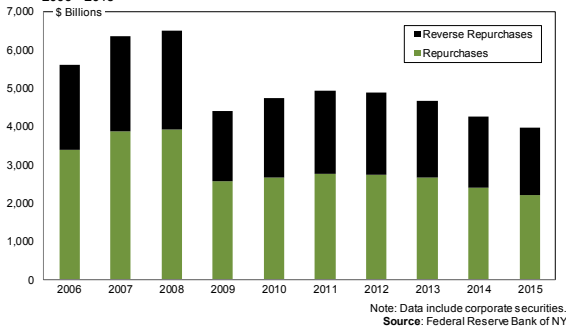
Total Farm Credit System gross debt issuance for 42015 totaled \$298.3 billion. Total debt outstanding at year end was \$243.2 billion, of which \$32.3 billion was short-term and \$210.9 billion was long-term compared to \$26.9 billion short-term and \$198.0 billion long-term in the prior year.

Trading Activity

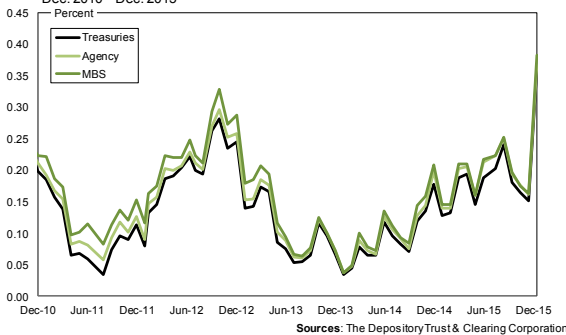
Average daily trading volume of agency securities in the fourth quarter was \$4.4 billion, up 12.6 percent from \$3.9 billion traded in 3Q'15 and down 11.3 percent from \$4.96 billion traded in 4Q'14.

FUNDING AND MONEY MARKET INSTRUMENTS

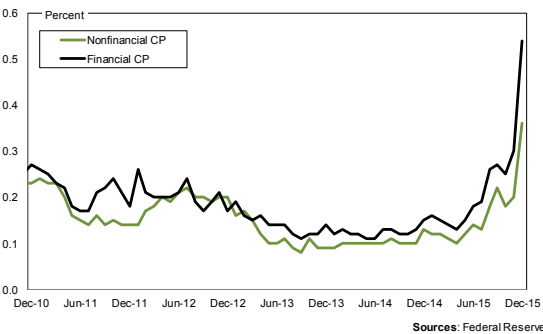
Financing by U.S. Government Securities Dealers
Average Daily Amount Outstanding
2006 - 2015



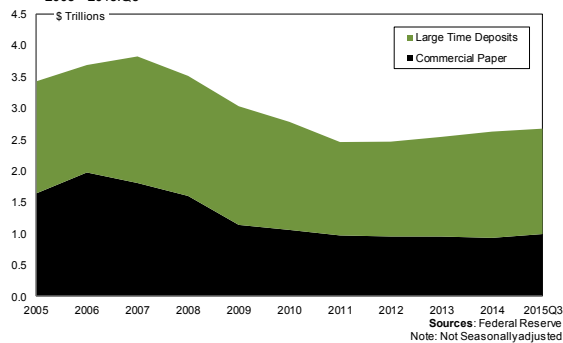
DTCC GCF Repo Index™
Dec. 2010 - Dec. 2015



Financial & Nonfinancial Commercial Paper 3-Month Interest Rates
Dec. 2010 - Dec. 2015



Outstanding Money Market Instruments
2005 - 2015:Q3



Total Repurchase Activity

The average daily amount of total repurchase (repo) and reverse repo agreement contracts outstanding was \$3.96 trillion in 4Q'15, an increase of 2.3 percent from 3Q'15's \$3.87 trillion and a decrease of 5.4 percent y-o-y.

Daily average outstanding repo transactions totaled \$2.18 trillion in 4Q'15, an increase of 1.3 percent from \$2.15 trillion in 3Q'15 but a decline of 8.0 percent from \$2.37 trillion in 4Q'14. Reverse repo transactions in 4Q'15 averaged \$1.78 trillion daily, an increase of 3.5 percent from \$1.72 trillion in 3Q'15 but a decrease of 1.9 percent y-o-y.

GCF Repo Rates

DTCC general collateral finance (GCF) repo rates increased for Treasuries, agency, and MBS in 4Q'15: the average repo rate for Treasuries (30-year and less) rose to 22.5 basis points (bps) from 3Q'15's average rate of 20.8 bps and increased from 14.5 bps in 4Q'14, the average agency repo rate increased to 23.5 bps from 22.3 bps in the previous quarter and from 15.8 bps in 4Q'14 and the average MBS repo rate rose to 24.1 bps from 22.5 bps in 3Q'15 and 17.1 bps in 4Q'14.

Financial and Nonfinancial 3-Month CP Interest Rates

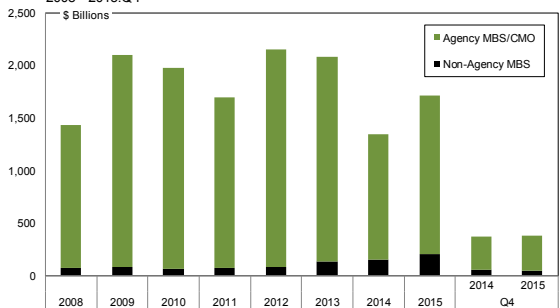
Interest rates for nonfinancial CP rose to 36 bps end-December 2015, up from 22 bps end-September and 13 bps end-December 2014, while financial CP rose to 54 bps end-December, up from 27 bps end-September and 15 bps end-December 2014.

Total Money Market Instruments Outstanding

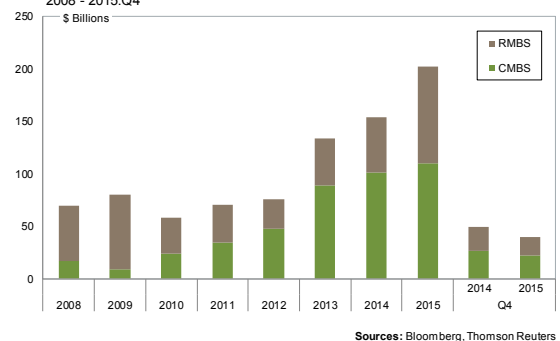
The outstanding volume of total money market instruments (MMI), including commercial paper (CP) and large time deposits, stood at \$2.67 trillion at the end of the third quarter (most recent data available at time of publication), down 0.8 percent from the prior quarter's \$2.69 trillion but up 1.1 percent y-o-y. CP outstanding totaled approximately \$991.3 billion, a 1.3 percent increase from the \$978.8 billion in 2Q'15 but a 0.5 percent decrease y-o-y. Large time deposits outstanding totaled \$1.68 trillion in 3Q'15, a decline of 1.9 percent from 2Q'15 but an increase of 2.1 percent y-o-y.

MORTGAGE-RELATED SECURITIES

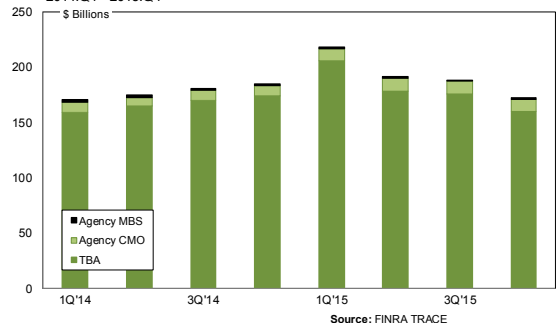
Issuance of Mortgage-Related Securities
2008 - 2015:Q4



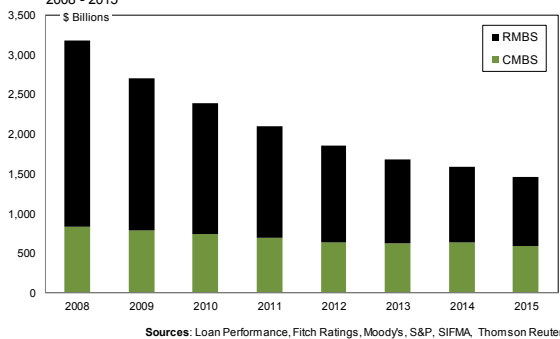
Issuance of Non-Agency Mortgage-Backed Securities
2008 - 2015:Q4



Average Daily Trading Volume - Agency Mortgage-Related Securities
2014:Q1 - 2015:Q4



U.S. Non-Agency Securities Outstanding
2008 - 2015



Mortgage-Related Issuance

Issuance of mortgage-related securities, including agency and non-agency passthroughs and collateralized mortgage obligations (CMOs), totaled \$380.5 billion in the fourth quarter, an 18.9 percent decrease from 3Q'15 (\$469.5 billion) but a 1.9 percent increase y-o-y (\$373.4 billion). The q-o-q decline was in both agency and non-agency issuance, although non-agency volumes fell much further (28.4 percent) q-o-q than agency (17.7 percent). Overall, the agency share of issuance increased slightly to 89.5 percent of total issuance in 4Q'15 from 88.1 percent in the prior quarter and 86.8 percent in 4Q'14.

For full year 2015, \$1.72 trillion of mortgage-related securities were issued, a very slight increase (0.4 percent) from the prior year; however, the composition of issuance differed markedly between 2014 and 2015, with 88.2 percent of issuance from agency mortgage-backed issuance in 2015 compared to 69.7 percent in 2014.

According to Freddie Mac, average rates on conventional 30-year fixed-rate mortgages in the fourth quarter rose 15 bps in the third quarter and by 14 bps y-o-y.

Agency Issuance

Agency mortgage-related issuance totaled \$340.6 billion in 4Q'15, a decrease of 17.7 percent from \$413.8 billion in 3Q'15 and a 5.1 percent crease y-o-y (\$324.0 billion). For the full year, agency issuance was \$1.5 trillion, an increase of 27.0 percent from 2014.

Non-Agency Issuance

Non-agency issuance totaled \$39.9 billion in 4Q'15, a decline of 28.4 percent from 3Q'15 (\$55.7 billion) and 19.1 percent below \$49.4 billion in 4Q'14. For the full year, non-agency issuance was \$202.0 billion, an increase of 31.2 percent from 2013, largely due to the increase in residential mortgage-backed securities (RMBS) issuance. Although the nonprime/subprime market opened in 2014 with the Deephaven deal, no new deals were done since then until the second half of 2015, where a handful of deals were priced: two from Lone Star (COLT), one from Beach Point (RCO), and one from Angel Oak (AOMT).

Trading Activity

Daily trading volumes for mortgage-related securities declined in the fourth quarter, with declines in both agency and non-agency trading. Average daily trading volume of agency mortgage-related securities, including passthroughs, CMOs and TBAs, was \$172.2 billion in 4Q'15, a decline of 8.7 percent from 3Q'15 and a 6.9 percent decline y-o-y. Average daily trading volumes of non-agency securities fell to \$2.4 billion daily in 4Q'15, declining by 1.0 percent and 30.0 percent q-o-q and y-o-y, respectively.

For the full year, mortgage-related securities trading volume was \$195.3 billion, an increase of 7.5 percent from 2014.

ASSET-BACKED SECURITIES

Asset-Backed Market Issuance

Asset-backed securities (ABS) issuance totaled \$33.2 billion in the fourth quarter, a decline of 16.3 percent q-o-q and 27.0 percent y-o-y. The auto sector continued to lead issuance totals with \$16.4 billion (49.5 percent of 4Q'15 total issuance), followed by esoteric ABS (\$6.8 billion, or 7.3 percent).

All sectors except “other” ABS experienced a decline in issuance volume in the fourth quarter. Credit cards and equipment saw the highest drops in issuance volume (46.3 percent and 51.3 percent, respectively). Both esoteric ABS and housing-related ABS volumes saw a marked jump q-o-q (51.3 percent and 19.4 percent, respectively).

For the full year, issuance totaled \$193.2 billion, a decline of 14.3 percent from the prior year. Increases in issuance were only in auto, albeit minor (1.2 percent), while esoteric ABS experienced a slight uptick (14.5 percent) largely due to the pickup of personal loan securitizations by both traditional bank lender(s) (Springleaf/OneMain) and peer to peer/marketplace lenders (51.7 percent y-o-y) and from a pickup in whole business/franchise securitizations (285.2 percent).

More generally, marketplace lending has overall evolved significantly in 2015, with several new entrants in the securitization market (e.g., CommonBond for student loans, Avant & CircleBack Lending for consumer) and prior entrants increasing presence in the securitization marketplace (Prosper for consumer, OnDeck for small business, and Social Finance for student loans).

Declines in full year ABS issuance were marked in credit cards (54.4 percent) on the withdrawal of two large issuers in the marketplace, Citigroup and American Express; volumes held up otherwise by other issuers. Equipment and housing-related ABS fell 24.2 percent and 14.1 percent, respectively and student loans saw the smallest decline y-o-y (4.3 percent).

Outstanding volumes ended the year at \$1.4 trillion, a decline of 1.3 percent q-o-q and increase of 2.6 percent y-o-y. All categories experienced declines in outstanding volumes with the exception of housing-related securitizations driven by increases in both agency risk transfer and rental housing securitizations despite a 7.2 percent q-o-q decline in outstanding mortgage servicing advance volume. Among other subcategories, auto ABS leases (5.0 percent), consumer loans (7.2 percent), franchises (12.8 percent), and small business (3.7 percent) experienced small increases in outstanding.

Trading Activity

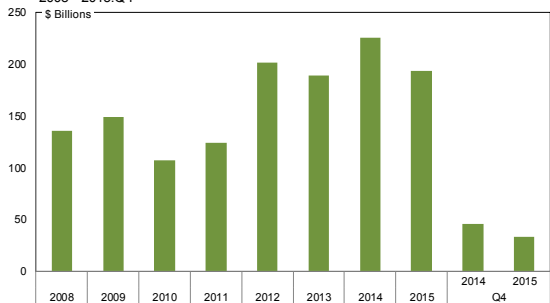
Daily average trading activity in ABS rose in the fourth quarter to \$0.91 billion, an increase of 0.9 percent from \$0.90 billion in 3Q'15 but a 22.9 percent decline from \$1.17 billion in 4Q'14. Including CDOs, daily average trading activity in 4Q'15 was \$1.33 billion, a 12.5 percent increase from \$1.18 billion in 3Q'15 and a 6.5 percent decrease y-o-y. For the full year, daily average ABS trading volume fell 2.5 percent from 2014.

Global CDO Issuance

According to Thomson Reuters, global funded collateralized debt obligation (CDO) issuance totaled \$15.0 billion in 4Q'15, a decline of 19.8 percent q-o-q (\$18.0 billion) and 45.3 percent y-o-y (\$27.5 billion). U.S. CLO issuance drove most of the new global CDO volume in 2015.

Issuance of Asset-Backed Securities

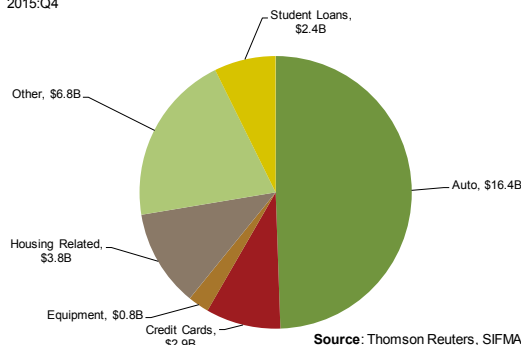
2008 - 2015:Q4



Source: Thomson Reuters, SIFMA

ABS Issuance by Major Types of Credit

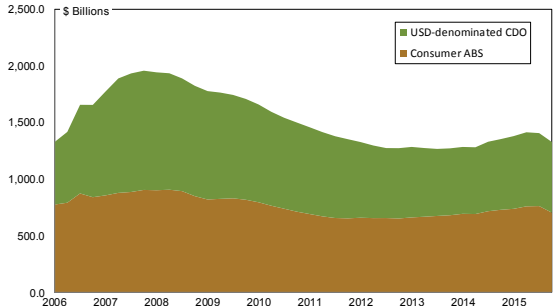
2015:Q4



Source: Thomson Reuters, SIFMA

Asset Backed Securities Outstanding

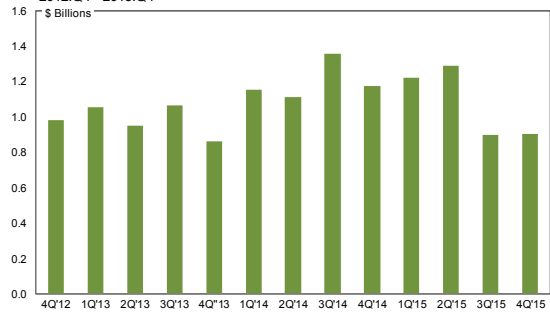
2006:Q1 - 2015:Q4



Source: Bloomberg, Thomson Reuters Eikon, SIFMA

Asset-Backed Securities Average Daily Trading Volume

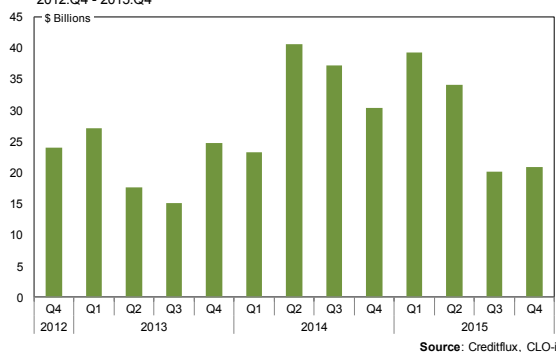
2012:Q4 - 2015:Q4



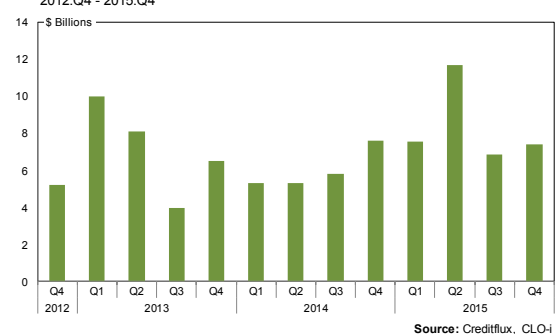
Source: FINRA Trace

U.S. COLLATERALIZED LOAN OBLIGATIONS⁶

Primary U.S. CLO Issuance Volumes
2012:Q4 - 2015:Q4



Secondary U.S. CLO Trading Volumes
2012:Q4 - 2015:Q4



Current			
Rank	Manager	\$ Billion	# Deals
1	Citi	4.39	8
2	Wells Fargo	1.97	4
3	Bank of America Merrill Lynch	1.94	4
4	Credit Suisse	1.84	3
5	Goldman Sachs	1.81	3
6	Morgan Stanley	1.79	4
7	JP Morgan	1.32	4
8	BNP Paribas	0.96	2
9	Deutsche Bank	0.94	2
10	Jefferies	0.81	2

Current			
Rank	Arranger	\$ Billion	# Deals
1	Credit Suisse Asset Management	14.47	23
2	Ares Management	13.48	30
3	Carlyle Group	13.41	30
4	CIFC Asset Management	12.91	29
5	GSO Capital Partners	12.25	24
6	Apollo Global Management	11.63	20
7	Highland Capital Management	10.87	26
8	Octagon Credit Investors	9.45	17
9	MJX Asset Management	9.12	17
10	Prudential Investment Management	8.91	19

The primary CLO market remained quiet in the final three months of the year, as continued commodities stress and broader market volatility kept debt spreads wide. According to Creditflux data, a total of 43 CLOs were priced in the fourth quarter for a total of \$20.9 billion. This marks a slight increase on 3Q's \$20.1 billion, but a 31.3 percent decrease on 4Q'14.

4Q was marked by a retreat of triple-A investors from the market, with sources saying that the top of the capital structure was dominated by two key buyers. Creditflux data on CLO spreads seemed to bear this out, as triple-A discount margins bifurcated sharply. Some managers – believed to be on a Japanese bank's approved list – priced their triple-As at 146 basis points over Libor, while others printed in the high 150s.

4Q's \$20.9 billion of issuance takes the full year total for 2015 to \$99.1 billion, excluding refinancings, which is the second-largest issuance total ever (\$123.8 billion priced in 2014). The 2015 total even edged out the pre-crisis issuance peak of \$97 billion, which was reached in 2007.

Privately, many managers say that the last two years have seen massive over-supply of CLOs and that the expected decline in issuance in 2016 will be good for the market in the long term.

CLO secondary

According to Creditflux data, \$7.4 billion of US CLO tranches appeared on b-wics in 4Q. This represents a 7.2% increase from 3Q's \$6.9 billion in bid lists, and is roughly in line with 4Q 2014's \$7.6 billion in secondary volumes.

A continued sell-off in the leveraged loan market put further pressure on CLO net asset values, which took its toll on the secondary market. By 4Q, several CLO equity tranches had either zero or negative NAVs, with bid-offer spreads on junior mezzanine debt tranches widening significantly as well. As a result, liquidity dried up significantly, with a high proportion of tranches not trading.

In one notable example, rumours of a forced seller in the secondary market resulted in bids on junior debt at least 10 points lower than would be expected. Sources say that the continued liquidity problem has led many market participants to trade directly with one another, rather than using b-wics.

US risk retention rules

CLO market participants continued to look for risk retention solutions, after Zais Group and Triumph Capital led the way in 3Q. Creditflux reported in November that French bank Natixis had closed its first risk retention financing facility – a vertical strip deal with Fifth Street Asset Management.

Other managers opted for mergers with larger buyers. CLO management giant Octagon Credit Investors was acquired by insurance firm Conning, while NewStar Financial bought Boston-based FOC Partners. Boutique west coast manager was acquired by Rothschild, giving the latter a US CLO platform for the first time.

⁶ The author of the CLO section is James Harvey, Creditflux. For any questions, please contact James Harvey at james.harvey@creditflux.com.

CORPORATE BOND MARKET

Corporate Bond Issuance

Corporate bond issuance totaled \$297.0 billion in 4Q'15, down 4.4 percent from the \$310.6 billion issued in 3Q'15 and 10.0 percent below 4Q'14's issuance of \$330.3 billion. Both the investment grade (IG) sector and high yield (HY) issuance recorded quarterly declines with HY bonds issuance decreasing at a slightly faster pace. The vast majority of bonds issued in the fourth quarter were for general corporate purposes (96.2 percent of total issuance), followed by reducing indebtedness (3.6 percent), and future acquisitions (3.3 percent). For full year 2015, corporate bond issuance totaled \$1.49 trillion, up 3.9 percent from \$1.44 trillion in 2014.

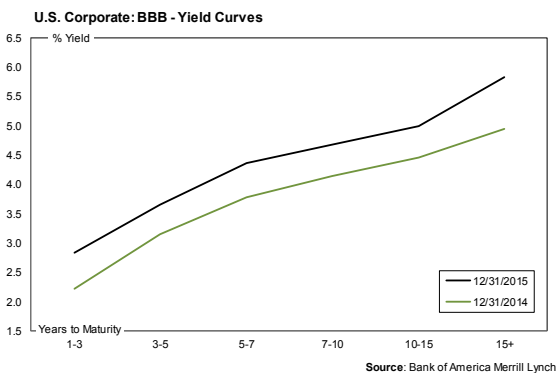
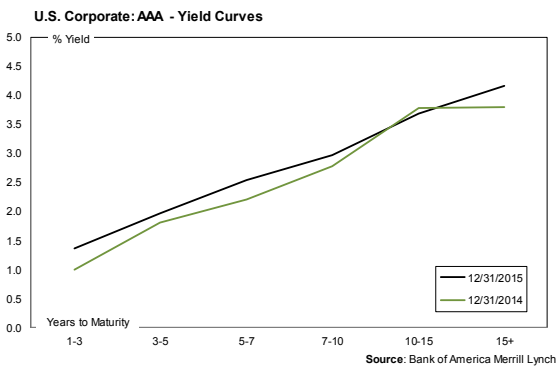
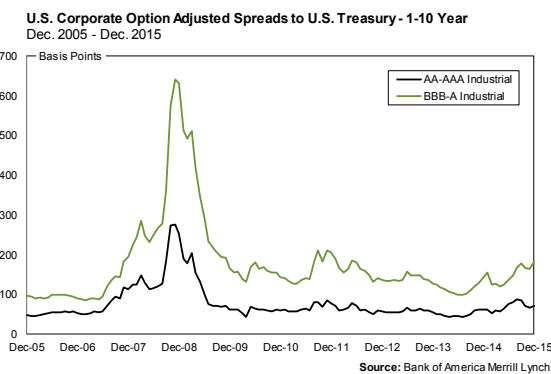
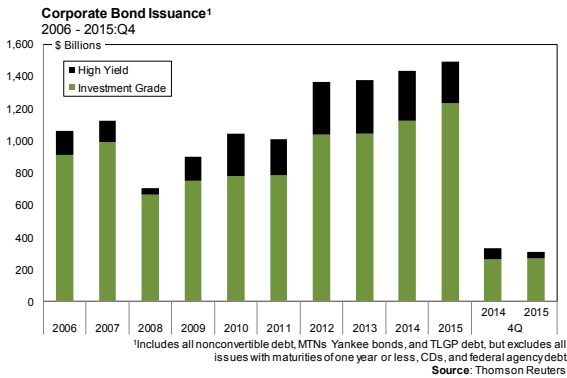
IG bond issuance decreased to \$261.4 billion in 4Q'15, down 2.4 percent from \$267.8 billion in the previous quarter and down 1.3 percent y-o-y. The top four industries accounted for almost 75 percent of 3Q'15 IG issuance. Financial companies remained the leading IG debt issuance sector, accounting for roughly half (\$124.5 billion) of all IG issuance followed by energy and power sector with 17.6 percent (\$45.9 billion) of 4Q'15's issuance, industrials with 6.5 percent (\$16.9 billion) and high technology with 6.1 percent (\$16.0 billion). For full year 2015, the IG bonds issuance increased to \$1.23 trillion, up 9.6 percent from \$1.13 trillion in 2014 and the highest annual issuance on record.

Issuance of HY bonds decreased to \$35.6 billion in 4Q'15, 17.0 percent below the 3Q'15's total of \$42.8 billion and down 45.4 percent from \$65.2 billion issued in 4Q'14. Three sectors made up over half of total HY issuance in the fourth quarter: financials (35.3 percent, \$12.6 billion), healthcare (10.8 percent, \$3.9 billion) and industrials (10.0 percent, \$3.5 billion). For full year 2015, HY bond issuance totaled \$260.5 billion, a decrease of 16.3 percent from \$311.4 billion in 2014 and the lowest annual HY issuance since 2011.

Bond Spreads and U.S. Default Rate

According to Bank of America-Merrill Lynch, the option adjusted spread for AA-AAA industrial bonds tightened in the fourth quarter of 2015 while the spread for BBB-A industrial bonds slightly widened. Spreads of IG bond finished the quarter at 71 bps, down 13 bps from 84 bps at the end of September but up 10 bps from 61 bps at the end of 4Q'14. HY bond spreads slightly widened q-o-q and y-o-y, ending 4Q'15 at 183 bps, 5 bps above 178 bps in 3Q'15 and up 41 bps from 142 bps at the end of 4Q'14.

S&P's Global Fixed Income Research reported number of U.S. defaulted issuers increased to 16 in the fourth quarter from 16 in 3Q'15 but up from only 8 in 4Q'14. For full year 2015, the number of defaults more than doubled to 66, compared to 32 in full year 2014. The U.S. trailing 12-month speculative-grade corporate default rate increased to 2.8 percent in December 2015, up from 2.5 percent in September 2015 and is expected to increase to 3.3 percent by September 2016.⁷



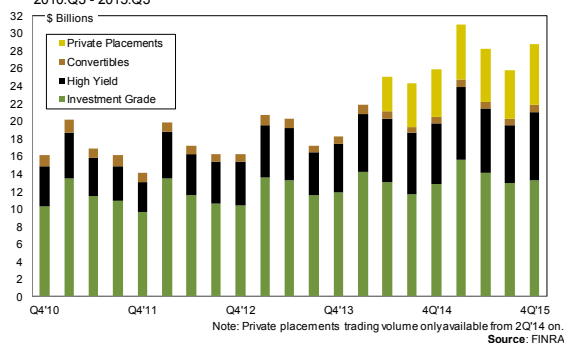
⁷ Standard & Poor's Rating Services, [The U.S. Speculative-Grade Corporate Default Rate](#), January 14, 2016.

S&P US Corporate Rating Actions

	2015:Q4	2015:Q3	2014:Q4	Q-o-Q	Y-o-Y
Upgrades	38	57	83	-33.3%	-54.2%
Downgrades	165	85	69	94.1%	139.1%

	2015	2014	Y-o-Y
Upgrades	38	57	-33.3%
Downgrades	165	85	94.1%

Source: S&P Fixed Income Research

TRACE Average Daily Trading Volume - Corporate Bonds
2010:Q3 - 2015:Q3

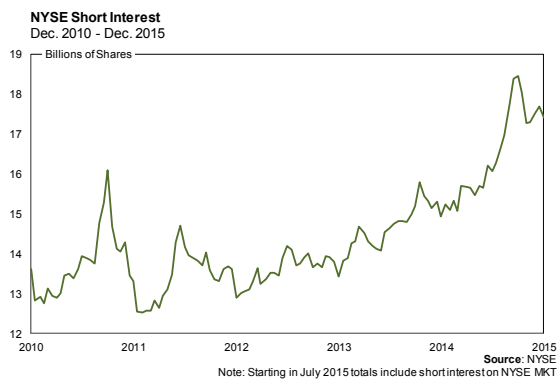
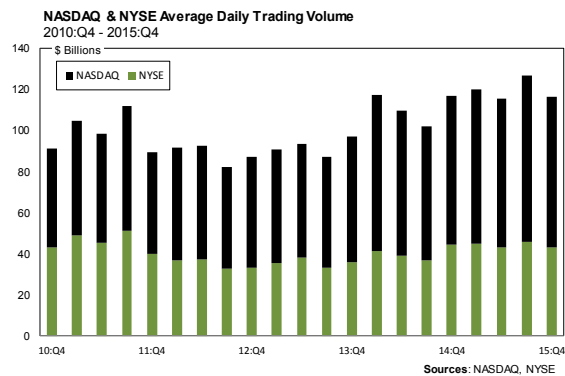
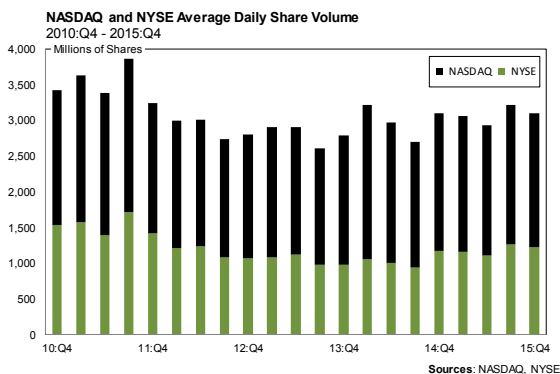
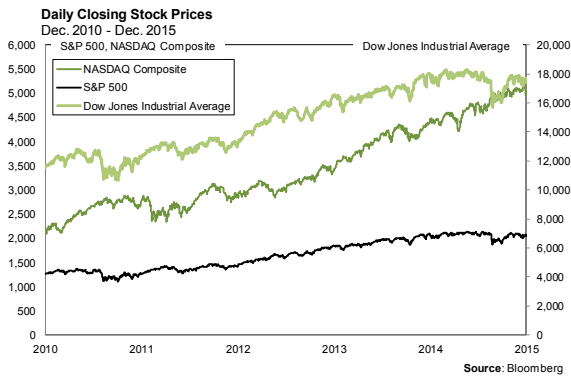
In 4Q'15, S&P Ratings Services downgraded 165 and upgraded only 38 U.S. issuers, a much worse ratio of downgrades to upgrades than in the previous quarter, when there were 85 downgrades versus 57 upgrades. The ratio of downgrades to upgrades increased to 4.3 in 4Q'15 from 1.5 in 3Q'15 and was the highest quarterly downgrade to upgrade ratio since 2Q'09. For full year 2015, S&P Ratings Services downgraded 461 and upgraded 210 U.S. issuers, compared to 271 downgrades and 276 upgrades in 2014.

Trading Activity

According to the FINRA TRACE data, average daily trading volumes increased for all types of corporate bonds in 4Q'15. IG bonds average daily trading volume increased to \$13.3 billion, up 3.0 percent from \$12.9 billion in 3Q'15 and up 4.1 percent from \$12.8 billion y-o-y. HY bonds average daily trading volume was \$7.8 billion in 4Q'15, a 17.8 percent increase from \$6.6 billion in the third quarter and an 11.0 percent increase from \$7.0 billion in the same year-earlier period. The average daily trading volume of convertible bonds (CVs) rose to \$0.78 billion in 4Q'15, 5.3 percent above 3Q'15's \$0.74 and 8.0 percent above \$0.72 billion a year ago. Private placements trading volume increased by 24.2 percent to \$6.9 billion in 4Q'15 and was up 28.7 percent from \$5.4 billion in 4Q'14.

For full year 2015, average daily trading volumes increased across all types of corporate bonds from 2014: IG bond trading volumes increased by 9.3 percent to \$14.1 billion, HY bonds trading volumes increased by 6.7 percent to \$7.8 billion, CV bonds trading volumes rose by 1.5 percent to \$806.1 million and private placement trading volumes increased by 16.4 percent to \$6.0 billion in 2015.

EQUITY AND OTHER MARKETS



The U.S. equity market posted approximately 7 percent gains in the fourth quarter of 2015. The S&P 500 closed the fourth quarter at 2,043.94, a 6.5 percent increase from the prior quarter but down 0.7 percent y-o-y. The NASDAQ Composite Index finished 4Q'15 at 5,007.41, an 8.4 percent gain from 3Q'15 and a 5.7 percent increase y-o-y. The Dow Jones Industrial Average (DJIA) recorded a quarterly increase as well finishing 4Q'15 at 17,425.03, a 7.0 percent gain q-o-q but a 2.2 percent loss y-o-y.

NYSE and NASDAQ's Daily Share and Dollar Volume

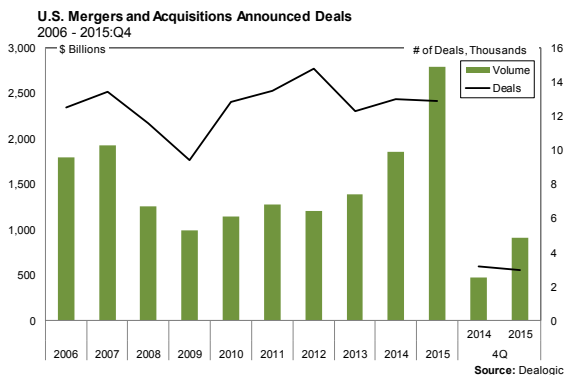
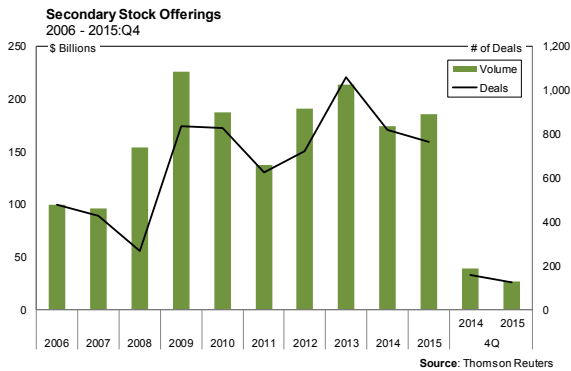
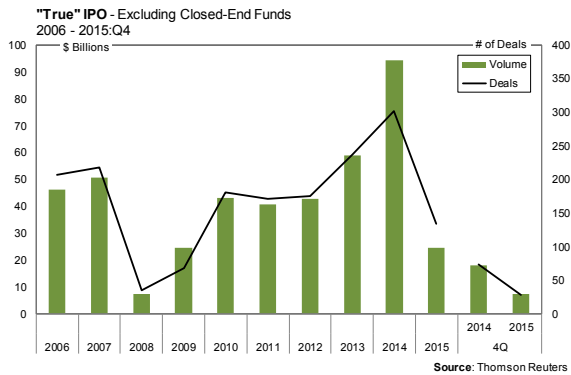
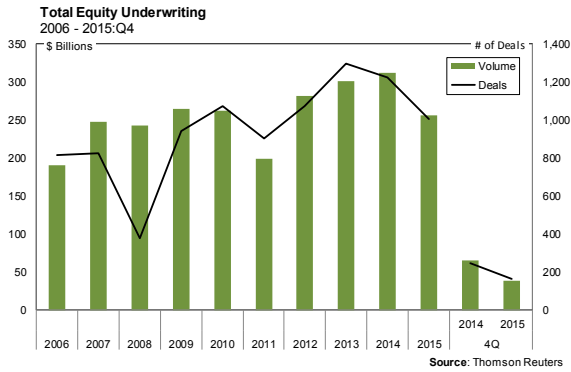
The New York Stock Exchange's (NYSE) 4Q'15 average daily share volume decreased by 2.6 percent to 1.22 billion shares from the previous quarter's 1.25 billion but increased by 4.0 percent from 1.17 million y-o-y. The NYSE's average daily trading dollar volume decreased by 6.1 percent to \$42.9 billion in 4Q'15 from the previous quarter's \$45.7 billion and was 3.8 percent lower than 4Q'14's average of \$44.6 billion.

NASDAQ's average daily share volume decreased by 4.3 percent to 1.88 billion shares in 4Q'15 from 1.97 billion in the previous quarter and by 2.3 percent y-o-y. The daily trading dollar volume decreased to \$73.5 billion in 4Q'15, down 9.4 percent from \$81.2 billion in 3Q'15 but up 1.8 percent from \$72.2 billion in 4Q'14.

NYSE Short Interest

The number of shares sold short on the NYSE averaged 17.5 billion in 4Q'15, up 0.7 percent from 17.4 billion during the previous quarter and up 14.4 percent from 15.3 billion in 4Q'14. The NYSE short interest was 21.6 percent above the five-year average of 14.4 billion and the highest since 3Q'08. Out of approximately 6,100 issues, a short position was shown in 5,156 issues with 4,129 issues with short position of 5,000 shares or more.⁸

⁸ NYSE, NYSE Arca and NYSE MKT Short Interest Reports, January 12, 2016.



Equity Underwriting Volume

Equity underwriting decreased by 14.6 percent to \$38.8 billion in the fourth quarter from \$45.4 billion in 3Q'15 and was 39.9 percent below the \$64.5 billion issued in 4Q'14. Equity underwriting volume in 4Q'15 decreased 32.6 percent below the five-year average of \$67.4 billion. The number of equity underwriting deals fell to 165, down 22.2 percent q-o-q and 33.2 percent y-o-y. For full year 2015, equity underwriting totaled \$256.0 billion on 1,004 deals, down 17.8 percent and 17.9 percent, respectively, in volume and number of deals from 2014.

IPO Volume

After falling to a three-year low last quarter, the IPO volume rebounded slightly in the fourth quarter. "True" initial public offerings (IPOs), which exclude closed-end mutual funds, increased to \$7.7 billion on 32 deals in 4Q'15, a 44.3 percent increase from \$5.3 billion on 33 deals in 3Q'15 but a 57.3 percent fall from \$18.0 billion on 73 deals in 4Q'14. The leading sector in IPOs in 4Q'15 was financial services with \$3.0 billion raised on 5 deals, followed by high technology (\$2.1 billion on 8 deals), and industrials (\$1.0 billion on 1 deal). In full year 2015, \$24.6 billion was raised through 166 IPOs, down 65.8 percent from the record-breaking \$94.3 billion on 301 deals in 2014.

Secondary Offerings

Secondary market issuance fell to \$27.1 billion on 124 deals in 4Q'15, down from \$31.7 billion on 157 deals in 3Q'15 (down 14.7 percent in volume and 21.0 percent in number of deals) and down from \$39.1 billion on 156 deals in 4Q'14 (down 30.7 percent in volume and 20.5 percent in number of deals). In full year 2015, \$185.3 billion was issued through 765 deals, up 6.7 percent from \$173.7 billion on 820 deals in 2014.

Announced M&A Volume

Announced U.S. mergers and acquisitions (M&A) volume stood at \$910.1 billion in 4Q'15, an 18.5 percent increase from the previous quarter's \$768.1 billion and a 93.5 percent increase y-o-y. M&A volume was well above the 5-year quarterly average of \$426.1 billion. The number of deals decreased by 13.5 percent to 2,936 in 4Q'15 from 3,393 in 3Q'15, while the average deal size increased by 36.9 percent to \$310.0 million from \$226.4 million in the previous quarter. In full year 2015, announced M&A volume reached \$2.8 trillion, up 50.3 percent from \$1.9 trillion in 2014 and the highest announced volume on record.

According to data from Dealogic, the amount of "U.S. Inbound" M&A (money invested in U.S. companies by those outside the U.S. through M&A) decreased to \$134.4 billion in 4Q'15 from \$189.8 billion in the previous quarter but up 178.1 percent up from \$48.3 billion in 4Q'14. Similarly, the dollar amount U.S. companies invested in other countries through M&A ("US Outbound") decreased in 4Q'15; American firms invested \$66.8 billion in deals outside of the U.S., a 12.4 percent decrease from \$76.3 billion in 3Q'15 but up 38.6 percent from \$48.2 billion in 4Q'14.

S&P P/E Ratio

The S&P 500's P/E ratio averaged 18.3 in 4Q'15, up 2.3 percent from the previous quarter's 17.9 and up 3.4 percent from 17.8 in 4Q'14. The S&P P/E ratio stood 13.1 percent above the 5-year average of 16.2 in 4Q'15 but 35.3 percent below the high of 28.4 in 1Q'00.⁹

CBOE VIX Index

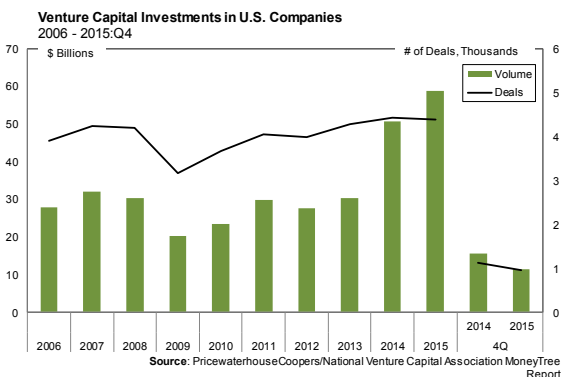
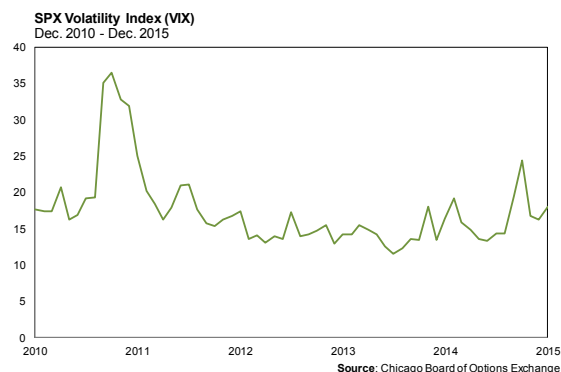
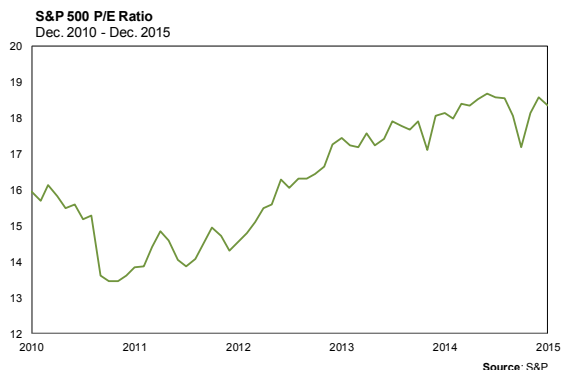
The Chicago Board Options Exchange Volatility Index (VIX) fell to an average of 17.0 in the fourth quarter from an average of 19.3 in 3Q'15. The index decreased to a low of 14.2 on November and then spiked in the middle of December to a high of 24.4, right before the Federal Bank's announcement about the federal funds rate. The spread between high and low values for the VIX was much narrower in 4Q'15 than in the previous quarter.

Venture Capital Volume

Venture capitalists invested \$11.3 billion in 962 deals in the fourth quarter of 2015, according to the MoneyTree™ Report from PricewaterhouseCoopers LLP (PwC) and the National Venture Capital Association (NVCA), based on data provided by Thomson Reuters. Quarterly venture capital (VC) investment activity decreased by 31.7 percent in dollars terms and by 16.3 percent in the number of deals compared to the third quarter of 2015 when \$16.6 billion was invested in 1,149 deals. Despite the decline, 4Q'15 is the eighth consecutive quarter of more than \$10 billion of venture capital invested in a single quarter.

The software industry continued to receive the highest level of funding of all industries with \$4.5 billion in 4Q'15, down 24.3 percent from 3Q'15. The biotechnology industry received second most funding with \$1.5 billion followed by media and entertainment industry with \$880.8 million.¹⁰

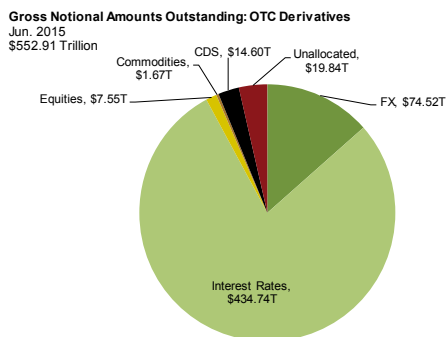
In full year 2015, \$58.8 billion was invested in 4,380 deals, and increase of 15.7 percent from \$50.8 billion in 4,441 deals in 2014. The industry that received the most funding by far in 2015 was the software industry with \$23.6 billion (up 7.9 percent from \$21.9 billion in 2014), followed by biotechnology with \$7.4 billion (up 16.8 percent from \$6.3 billion) and consumer products and services with \$4.8 billion (up 56.5 percent from \$3.1 billion).



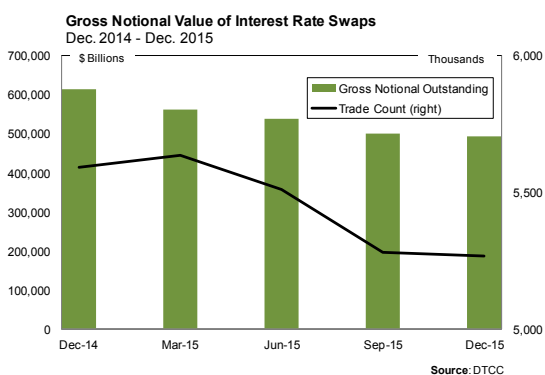
⁹ SIFMA records start in January 2000.

¹⁰ [Q4 2015 Press Release](#), January 16, 2016.

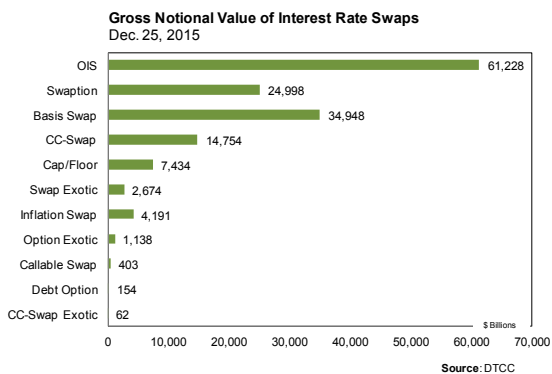
DERIVATIVES



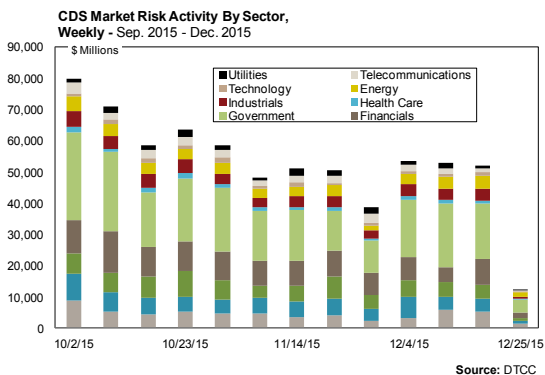
Source: BIS Semiannual OTC Derivatives Statistics (end June 2015)



Source: DTCC



Source: DTCC



Source: DTCC

According to the most recent Bank of International Settlements (BIS) Semi-annual Over-the-Counter (OTC) Derivatives Markets Statistics Report¹¹, the gross notional amount outstanding of OTC derivatives totaled \$552.9 trillion as of end-June 2015 (down 12.1 percent from end-December 2014). Credit default swaps (CDS) (down 11.0 percent to \$14.6 trillion), commodity swaps (down 10.6 percent to \$1.7 trillion), interest rate swaps (IRS) (down 14.0 percent to \$434.7 trillion), foreign exchange contracts (down 1.8 percent to \$74.5 trillion) and unallocated contracts (down 12.1 percent to \$19.8 trillion) all decreased from end-December 2014. Only equities (up 8.3 percent to \$7.5 trillion) saw increases from end-June 2014. The gross credit exposure of outstanding OTC derivatives decreased 14.5 percent to \$2.9 trillion during the same period.

Interest Rate Swaps

According to DTCC data, the gross notional value outstanding of IRS at end-December 2015 was \$491.8 trillion, down 1.6 percent from end-September 2015's \$500.0 trillion. While q-o-q increases were found in debt options (up 14.1 percent), basis swaps (up 8.8 percent) and inflation swaps (up 5.3 percent), these were offset by decreases in cross-currency exotic swaps (down 42.0 percent), swaps exotic (down 9.0 percent), forward rate agreements (down 6.0 percent), options exotic (down 5.3 percent) and swaptions (down 4.3 percent).

The number of contracts remained flat q-o-q at 5.3 million. Increases in basis swaps (up 7.7 percent) and inflation swaps (up 7.0 percent) were offset by decreases in swaps exotic (down 6.2 percent), swaptions (down 3.4 percent), overnight index swaps (down 2.8 percent), cross-currency exotic swaps (down 2.6 percent) and forward rate agreements (down 2.5 percent).

Credit Default Swaps

According to DTCC data, the gross notional value outstanding of CDS, including single names, tranches and indices, declined 10.0 percent to \$12.3 trillion at end-December 2015 from end-September, and fell 23.0 percent y-o-y. Single name CDS gross notional outstanding decreased 7.7 percent q-o-q to \$6.7 trillion at end-December 2015. The most oft-referenced entities outstanding by gross notional exposure in the fourth quarter were concentrated in sovereigns, led by Italy (\$336.0 billion), Brazil (\$123.5 billion), Turkey (\$116.9 billion), Russia (\$113.6 billion), Spain (\$108.4 billion), France (\$90.5 billion) and China (\$84.1 billion).

¹¹ Based on data from most recent report released, available at: <http://www.bis.org/statistics/derstats.htm>.

Kyle Brandon
Managing Director, Director of Research

SIFMA RESEARCH

Sharon Sung – Assistant Vice President, Research
Justyna Podziemska – Senior Associate, Research
Sheeba Ogirala – Intern, Research

General Research Contact: research@sifma.org

SIFMA CAPITAL MARKETS

Joseph Cox – Assistant Vice President, Capital Markets
Craig Griffith – Assistant Vice President, Capital Markets