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RESEARCH QUARTERLY

Second Quarter 2017

RESEARCH REPORT

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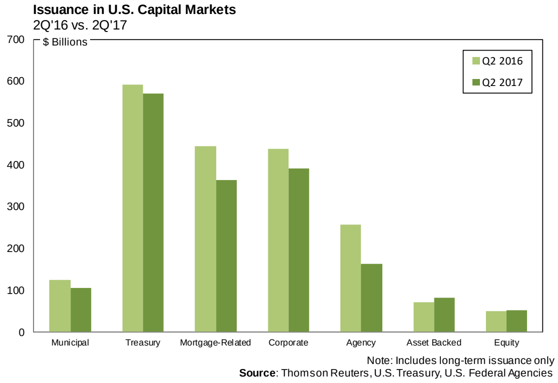
CAPITAL MARKETS OVERVIEW



Issuance Highlights - Year-Over-Year(1)

$ Billions	2017:Q2	2016:Q2	% Change
Municipal	105.1	125.6	-16.4%
Treasury	570.8	591.6	-3.5%
Mortgage-Related	364.4	445.5	-18.2%
Corporate	390.7	437.5	-10.7%
Federal Agency	164.4	258.0	-36.3%
Asset-Backed	81.5	72.7	12.1%
Equity	51.7	51.4	0.6%

Issuance Highlights - Quarter-Over-Quarter(1)

$ Billions	2017:Q2	2017:Q1	% Change
Municipal	105.1	91.2	15.2%
Treasury	570.8	654.1	-12.7%
Mortgage-Related	364.4	406.8	-10.4%
Corporate	390.7	477.4	-18.2%
Federal Agency	164.4	151.2	8.7%
Asset-Backed	81.5	76.4	6.6%
Equity	51.7	59.2	-12.7%

(1) Includes long-term issuance only

Total Capital Markets Issuance

Long-term securities issuance totaled $1.73 trillion in 2Q'17, a 9.8 percent decrease from $1.92 trillion in 1Q'17 and a 12.8 percent decrease year-over-year (y-o-y) from $1.98 trillion. Issuance decreased quarter-over-quarter (q-o-q) across all asset classes but municipal, agency and asset-backed securities; y-o-y, growth was negative in all asset classes except asset-backed securities and equity underwriting.

Long-term public municipal issuance volume including private placements for 2Q'17 was $105.1 billion, up 15.4 percent from $91.2 billion in 1Q'17 but down 16.2 percent from 2Q'16.

The U.S. Treasury issued $570.8 billion in coupons, FRNs and TIPS in 2Q'17, down 12.7 percent from $654.1 billion in the prior quarter and 3.5 percent below $591.6 billion issued in 2Q'16.

Issuance of mortgage-related securities, including agency and non-agency passthroughs and collateralized mortgage obligations, totaled $364.4 billion in the second quarter, a 10.4 percent decline from 1Q'17 ($406.8 billion) and an 18.2 percent decrease y-o-y ($445.5 billion).

Corporate bond issuance totaled $390.7 billion in 2Q'17, down 18.2 percent from $477.4 billion issued in 1Q'17 and down 10.7 percent from 2Q'16's issuance of $437.5 billion. Of 2Q'17 corporate bond issuance, investment grade issuance was $325.6 billion (83.3 percent of total) while high yield issuance was $65.1 billion (16.7 percent).

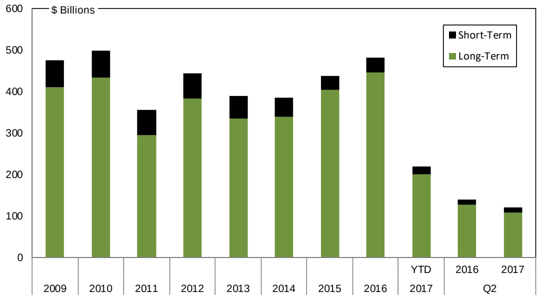
Long-term federal agency debt issuance was $164.4 billion in the second quarter, an 8.7% percent increase from $151.2 billion in 1Q'17 and a 36.3 percent decrease from $258.0 billion issued in 2Q'16.

Asset-backed securities issuance totaled $81.5 billion in the second quarter, an increase of 6.6 percent q-o-q and a 12.1 percent increase y-o-y.

Equity underwriting decreased by 12.7 percent to $51.7 billion in the second quarter from $59.2 billion in 1Q'17 and up 0.6 percent from $51.4 billion issued in 2Q'16. Of the total, "true" initial public accounted for $8.6 billion, down 19.8 percent from $10.8 billion in 1Q'17 and up 41.3 percent from $6.1 billion in 2Q'16.

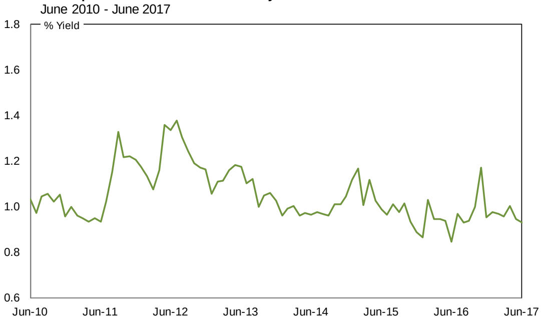
MUNICIPAL BOND MARKET

Short-[1] and Long-Term Municipal Issuance
2009 - 2017:Q2



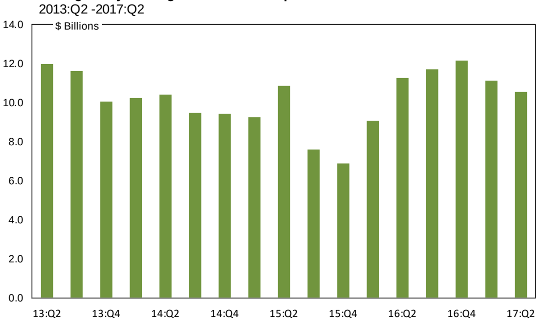
[1]Includes maturities of 13 months or less
Source: Thomson Reuters

Municipal GO AAA and 10-Yr Treasury Ratio
June 2010 - June 2017



Source: Bloomberg, MMA

Average Daily Trading Volume of Municipal Securities[1]
2013:Q2 -2017:Q2



[1]Includes both dealer-to-dealer and customer-to-dealer transactions.
Source: Municipal Securities Rulemaking Board

Long-term public municipal issuance volume totaled $100.7 billion in the second quarter of 2017, an increase of 16.3 percent from the prior quarter ($86.6 billion) but a decline of 15.8 percent year-over-year ($119.5 billion). Year to date end June, municipal issuance totaled $187.2 billion and were generally in line with the 10-year average of $185.7 billion. Including private placements[1] ($4.6 billion), long-term municipal issuance for 2Q'17 was $105.1 billion.

Tax-exempt issuance totaled $87.6 billion in 2Q'17, an increase of 14.4 percent q-o-q but a decline of 16.9 percent y-o-y; year to date, tax-exempt issuance was $164.2 billion. Taxable issuance totaled $9.3 billion in 2Q'17, an increase of 29.0 percent q-o-q and an increase of 36.4 percent y-o-y; year to date, taxable issuance totaled $16.6 billion. AMT issuance was $3.7 billion in 2Q'17, an increase of 35.3 percent q-o-q but a decline of 48.3 percent y-o-y; year to date, AMT volumes were $6.5 billion.

By use of proceeds, general purpose led issuance totals in 2Q'17 ($22.0 billion), followed by primary & secondary education ($20.6 billion) and water & sewer facilities ($10.4 billion). Refunding volumes rose slightly to comprise 40.8 percent of issuance in 2Q'17 from 34.2 percent in the prior quarter but were a decline from 51.5 percent year-over-year.[2]

Yields, Inflows, and Total Return

Ratios of 10-year tax-exempt AAA GOs and similar-maturity Treasuries fell in the first quarter on a q-o-q basis, averaging 89.6 percent in 2Q'17 from 95.6 percent in 1Q'17.

According to the Investment Company Institute (ICI), first quarter net flow into long-term tax-exempt funds was positive, with $7.9 billion of net inflow in 2Q'17 compared to $7.1 billion of inflow from 1Q'17 and $19.2 billion of inflow y-o-y.

According to Bank of America-Merrill Lynch indices, municipals gained 2.9 percent in the second quarter of 2017. The utilities, tobacco, and health sectors had the strongest performance within the individual sectors (2.4 percent, 2.3 percent and 2.3 percent respectively) had the strongest performance within the individual municipal sectors in 2Q'17 while general obligation (GO), tax, and toll/turnpike underperformed relative to other municipal sectors (1.4 percent, 1.4 percent and 1.7 percent total return, respectively). Build America Bonds (BABs) gained 2.9 percent, outperforming both tax exempts bonds (2.2 percent) and similarly-rated corporate bonds (2.0 percent) in 2Q'17.

Year to date ending June, tax-exempt municipals returned 3.4 percent, Build America Bonds returned 4.2 percent, and investment grade corporates returned 3.3 percent.

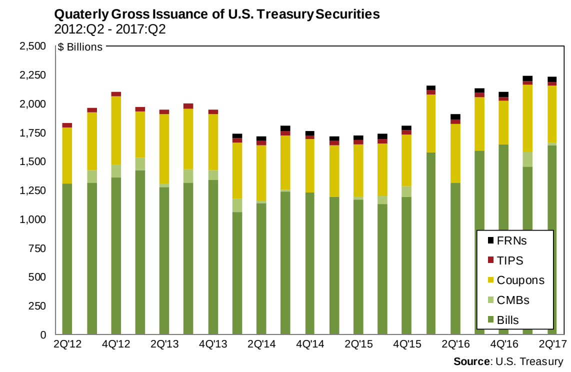
Trading Activity and Bank Holdings

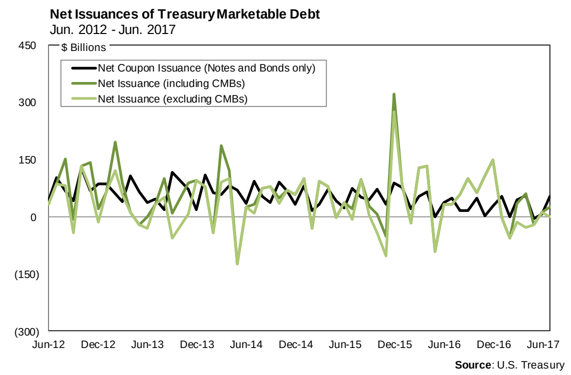
Trading activity fell q-o-q to $10.6 billion daily in 2Q'17, a 5.1 percent decrease from 1Q'17 ($11.1 billion) and a 6.2 percent decline from 2Q'16 ($11.3 billion). By number of trades, trading activity also fell 5.6 percent on a q-o-q basis but rose 9.7 percent on a y-o-y basis.

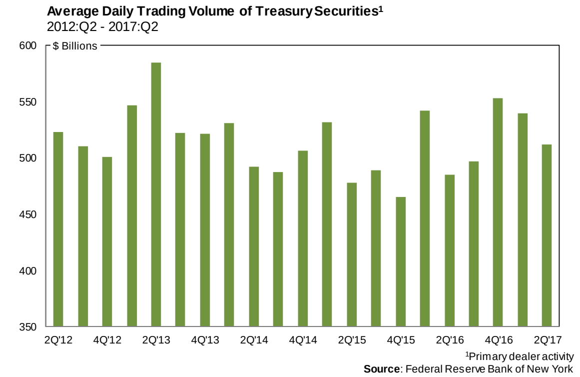
Bank holdings of both municipal loans and bonds rose in 1Q'17 from the prior quarter to $176.0 billion (from $173.7 billion) and $378.2 billion (from $375.4 billion), respectively.

[1] Private placement figures are excluded in charts and tables.
[2] Percentages represent both full refundings and the half the dollar amount of deals that contain both refundings and new financing.

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 and Treasury Inflation-Protected Securities, was $2.23 trillion in 2Q'17, down 0.5 percent from $2.24 trillion in 1Q'17 but a 17.0 percent increase from $1.91 trillion in 2Q'16. Treasury net issuance, including CMBs, decreased to $17.1 billion in the second quarter, down 56.9 percent from $39.7 billion in the previous quarter but up from net redemption of $24.6 billion in 2Q'16. Second quarter net issuance was 34.2 percent below the Treasury's net issuance estimate of $26.0 billion.[3]

In 2Q'17, $25.0 billion in CMBs was issued, an 81.9 percent decrease from $138.0 billion issued in 1Q'17 but an increase from no issuance of CMBs in 2Q'16.

The U.S. Treasury issued $570.8 billion in coupons, FRNs and TIPS in 2Q'17, down 12.7 percent from $654.1 billion in the prior quarter and 3.5 percent below $591.6 billion issued in 2Q'16.

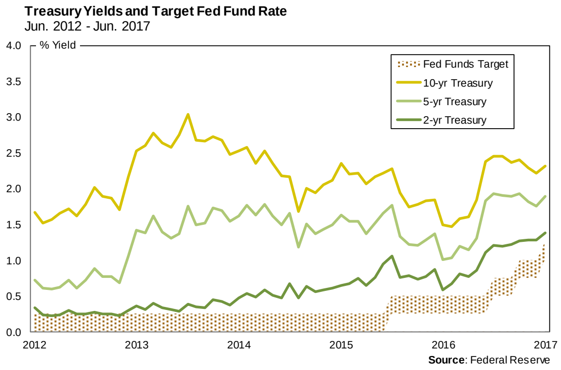
Excluding TIPS and FRNs, total gross issuance of Treasury marketable coupon securities was $492.2 billion, down 14.6 percent from $576.4 billion issued in 1Q'17 and 3.7 percent below the $511.1 billion issued in 2Q'16. Net coupon issuance was $56.1 billion in 2Q'17, a 44.3 percent decrease from $100.7 billion in 1Q'17 and down 34.3 percent y-o-y.

In 2Q'17, $44.6 billion in FRNs was issued, up 2.5 percent from $43.5 billion in 1Q'17 but down 0.8 percent from $45.0 billion in 2Q'16.

Trading Activity

The daily trading volume of Treasury securities by primary dealers averaged $512.0 billion in 2Q'17, a 5.1 percent decrease from $539.7 billion in the previous quarter but a 5.6 percent increase from the $485.0 billion traded daily in 2Q'16.

[3] Treasury's May borrowing estimates can be found here.



Treasury Yield Curve

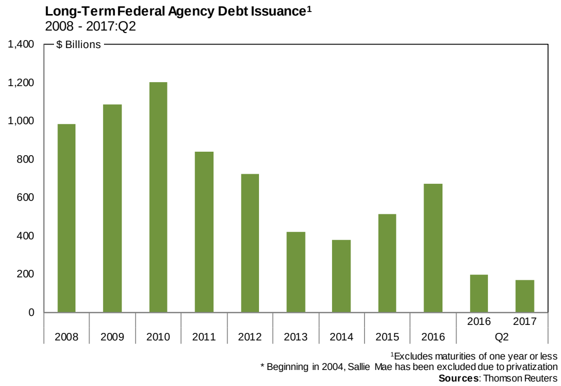
In 2Q'17 yields on short-term securities continued to increase, while yields from medium-term and long-term securities decreased. Two-year rates increased to 1.38 percent in 2Q'17, up from 1.27 percent end-March and from 0.58 percent end-June 2016. Five-year yields increased to 1.89 percent end-June, down from 1.93 percent in 1Q'17 but up from 1.01 percent in 2Q'16. Ten-year yields decreased to 2.31 percent end-June, down from 2.40 percent end-March but up from 1.49 percent in 2Q'16. 30-year yields ended 2Q'17 at 2.84 percent, down from 3.02 percent end-March but up from 2.30 percent end-June 2016.

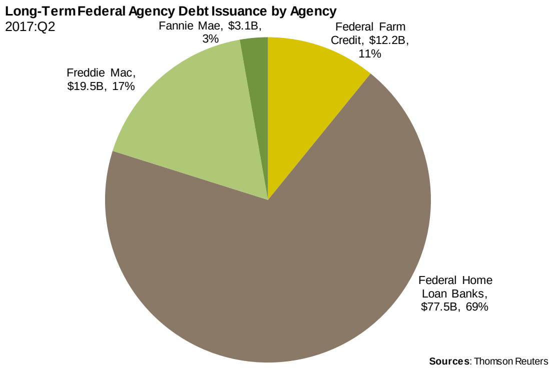
FOMC Meeting Summary

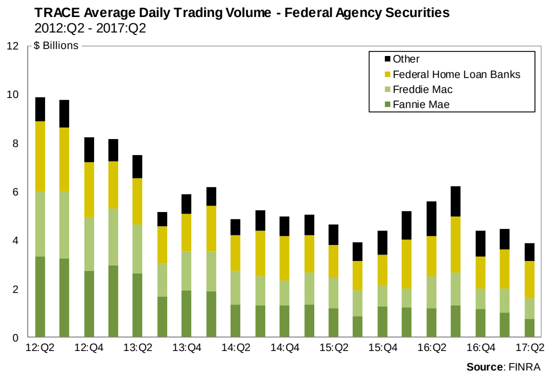
During its June 13-14, 2017 meeting, the Federal Reserve's Federal Open Market Committee raised its target federal rate range from 0.75-1.00 percent to 1.00-1.25 percent, the fourth rate hike since the financial crisis.[4] The FOMC also confirmed that its stance of monetary policy remains accommodative, thereby supporting some further strengthening in labor market conditions and a return to 2 percent inflation. The Committee also announced that it is maintaining its existing policy of rolling over maturing Treasury securities at auction and continuing to reinvest principal payments on all agency debt and agency mortgage-backed securities in agency mortgage-backed securities.[5]

[4] Statement from the FOMC Meeting, June 14, 2017.
[5] Ibid.

FEDERAL AGENCY DEBT MARKET







Federal agency long-term debt (LTD) issuance was $151.1 billion in the second quarter, a 9.9 percent increase from $151.2 billion in 1Q'17 and 14.7 percent decrease from $194.8 billion issued in 2Q'16.

Fannie Mae's 2Q'17 gross debt issuance, both short term debt (STD) and LTD, totaled $155.0 billion, a slight increase from $154.0 billion in 1Q'17. STD issuance decreased to $140.9 billion compared with $149.23 billion in 1Q'17 while LTD issuance decreased to $5.9 billion in 2Q'17 from $13.1 billion in 1Q'17. Fannie Mae had $30.5 billion in STD outstanding and $273.5.0 billion LTD outstanding at the end of 2Q'17.

Freddie Mac's gross debt issuance totaled $131.5 billion in 2Q'17, an increase of 1 percent from $130.1 billion in 1Q'17. As of quarter-end, Freddie Mac had $52.4 billion STD and $291.5 billion LTD outstanding, in comparison with $61.1 billion STD and $291.5 billion LTD in the prior quarter.

The 12 Federal Home Loan Banks (FHLB) issued $44.2 billion in LTD in the second quarter, an increase of 15.0 percent from $38.3 billion in 1Q'17. In 2Q'17, $1.8 billion of short-term debt (STD) was issued, up from $1,328.8 billion issued in 1Q'17, driven primarily by discount note issuance. Total FHLB LTD outstanding was $368.8 billion at quarter-end, up from $368.1 billion outstanding at the end of first quarter. Discount notes increased to $429.25 billion in 2Q'17 from $377.3 billion in 1Q'17.

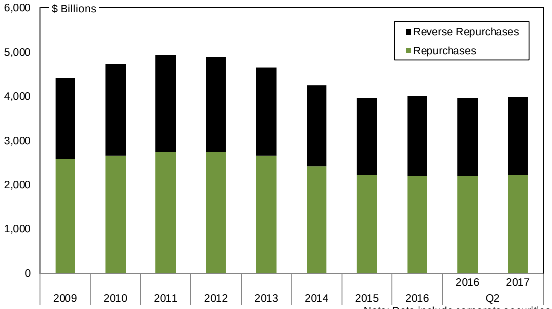
Total Farm Credit System gross debt issuance for 2Q'17 totaled $ 65.42 billion. Total debt outstanding at the end of the second quarter was $258.6 billion, of which $27.3 billion was short-term and $232.9 billion was long-term compared to $25.67 billion short-term and $259 billion long-term in the prior quarter.

Trading Activity

Average daily trading volume of agency securities in the second quarter was $3.89 billion, down 12.7 percent from $4.46 billion traded in 1Q'17 and down 30.5 percent from $5.6 billion traded in 2Q'16.

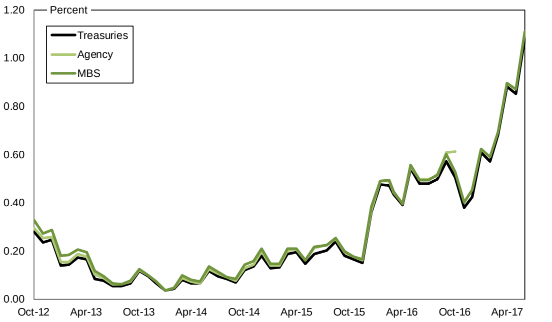
FUNDING AND MONEY MARKET INSTRUMENTS

Financing by U.S. Government Securities Dealers
Average Daily Amount Outstanding
2009 - 2017:Q2



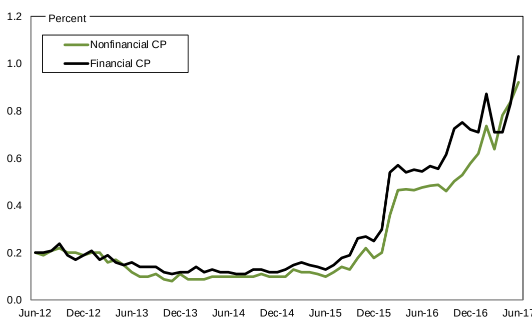
Note: Data include corporate securities.
Source: Federal Reserve Bank of NY

DTCC GCF Repo Index™
Oct. 2012 - June 2017



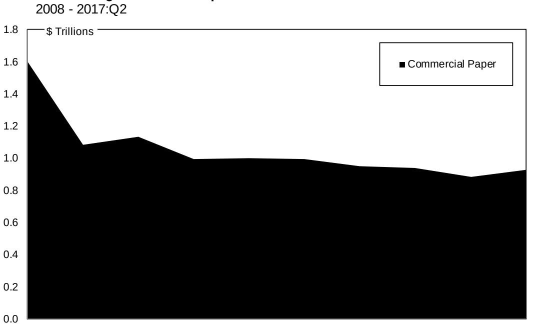
Sources: The Depository Trust & Clearing Corporation
Note: Agency rates were discontinued in October 2016.

Financial & Nonfinancial Commercial Paper 3-Month Interest Rates
June 2012 - June 2017



Sources: Federal Reserve

Outstanding Commercial Paper
2008 - 2017:Q2



Sources: Federal Reserve
Note: Not Seasonally adjusted

Total Repurchase Activity

The average daily amount of total repurchase (repo) and reverse repo agreement contracts outstanding was $3.98 trillion in 2Q'17, an increase of 1.5 percent from 1Q'17's $3.92 trillion and a decline of 0.3 percent y-o-y.

Average daily outstanding repo transactions totaled $2.22 trillion in 2Q'17, an increase of 1.7 percent q-o-q and an increase of 1.4 percent y-o-y. Reverse repo transactions in 2Q'17 averaged $1.76 trillion daily outstanding, an increase of 1.3 percent and a decline of 1.0 percent q-o-q and y-o-y, respectively.

GCF Repo Rates

DTCC general collateral finance (GCF) repo rates increased for Treasuries and MBS in 2Q'17 on a q-o-q basis and y-o-y basis: the average repo rate for Treasuries (30-year and less) rose to 94.2 basis points (bps) from 1Q'17's average rate of 62.5 bps and 2Q'16's average of 45.2 bps. The average MBS repo rate rose to 96.2 bps from 64.0 bps in the previous quarter and 46.0 bps in 2Q'16.

Financial and Nonfinancial 3-Month Commercial Paper Interest Rates

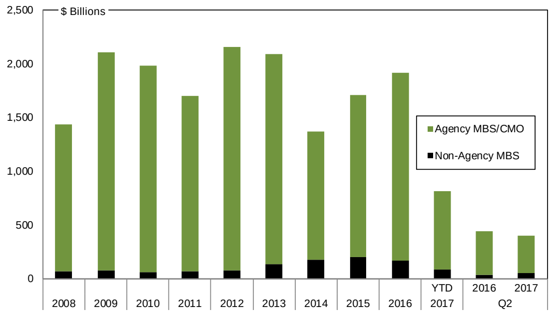
Interest rates for nonfinancial commercial paper (CP) rose to 110 bps end-June 2017 from 84 bps end-March 2017 and from 49 bps end-June 2016, and financial CP increased to 116 bps end-June from 83 bps end-March 2017 and also rose from 55 bps end-June 2016.

Total Money Market Instruments Outstanding

Preliminary outstanding volume of commercial paper, stood at $925.70 billion at the end of the second quarter, down 1.2 percent from the prior quarter's $937.20 billion and a decline of 8.9 percent y-o-y.

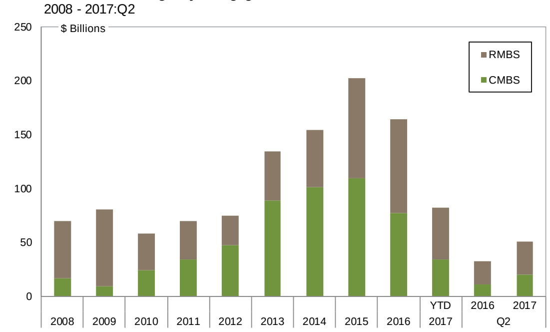
MORTGAGE-RELATED SECURITIES

Issuance of Mortgage-Related Securities
2008 - 2017:Q2



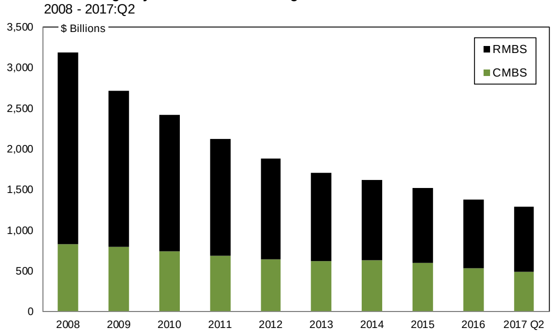
Sources: Federal Agencies, Thomson Reuters

Issuance of Non-Agency Mortgage-Backed Securities
2008 - 2017:Q2



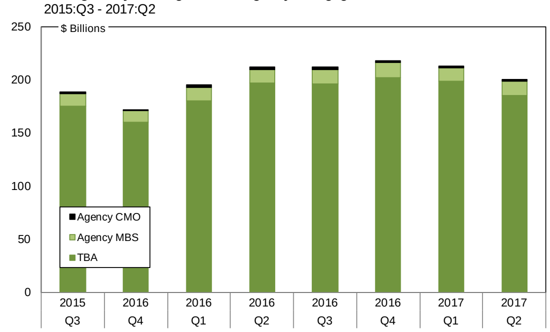
Sources: Bloomberg, Thomson Reuters

U.S. Non-Agency Securities Outstanding
2008 - 2017:Q2



Sources: Bloomberg, Thomson Reuters, SIFMA

Average Daily Trading Volume - Agency Mortgage-Related Securities
2015:Q3 - 2017:Q2



Source: FINRA TRACE

Mortgage-Related Issuance

Issuance of mortgage-related securities, including agency and non-agency passthroughs and collateralized mortgage obligations (CMOs), totaled $400.7 billion in the second quarter, a 2.6 percent decline from 1Q'17 ($411.5 billion) and a 10.1 percent decline y-o-y ($445.5 billion). Declines stemmed from primarily agency issuance; non-agency issuance rose by 60.9 percent q-o-q from the prior quarter, leading to a decline to the agency share of issuance to 87.3 percent.

Agency Issuance

Agency mortgage-related issuance totaled $349.7 billion in 2Q'17, a decline of 7.9 percent and 15.2 percent, respectively, from 1Q'17 ($379.8 billion) and 2Q'16 ($412.6 billion).

According to Freddie Mac, average conventional 30-year mortgage rates fell in the second quarter to 3.98 percent, down from 4.17 percent in the prior quarter.

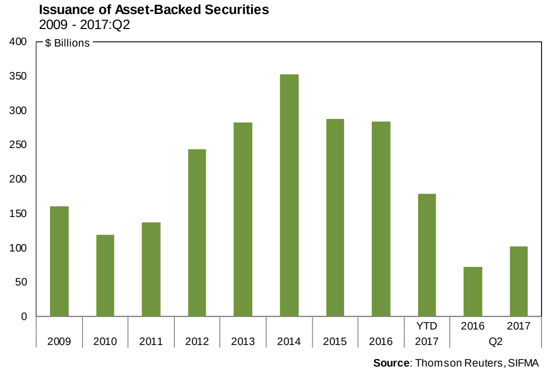
Non-Agency Issuance

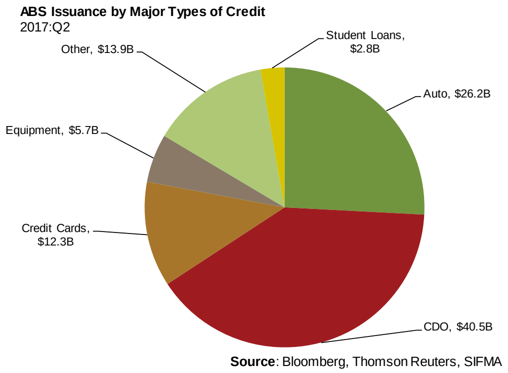
Non-agency issuance totaled $51.0 billion in 2Q'17, an increase of 60.9 percent from 1Q'17 ($31.7 billion) and an increase of 54.9 percent y-o-y ($32.9 billion). Non-agency residential mortgage-backed securities (RMBS) issuance was $30.8 billion (up 73.6 percent q-o-q and 42.3 percent y-o-y), while commercial mortgage backed securities (CMBS) issuance was $20.2 billion (up 44.8 percent q-o-q and 79.0 percent y-o-y).

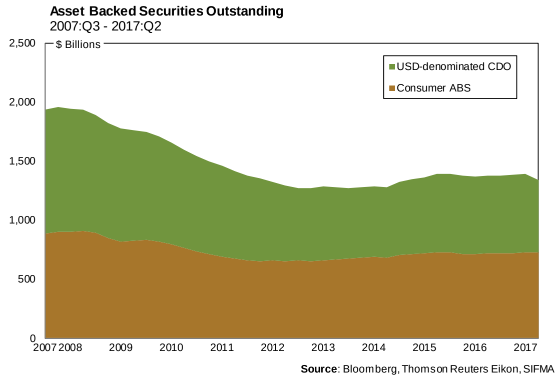
Trading Activity

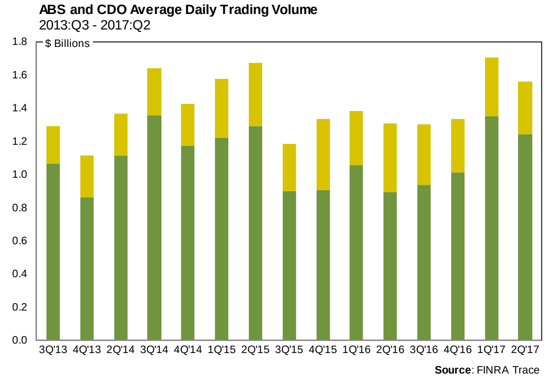
Daily trading volumes for mortgage-related securities fell in the second quarter, with declines in both agency trading and non-agency trading volumes. Average daily trading volume of agency mortgage-related securities, including passthroughs, CMOs and TBAs, was $200.5 billion in 2Q'17, a decline of 6.0 percent from 1Q'17 an a decline of 5.5 percent y-o-y. Average daily trading volumes of non-agency securities fell to $2.1 billion daily in 2Q'17, a decline of 26.2 percent q-o-q and a decline of 28.5 percent y-o-y.

ASSET-BACKED SECURITIES









Asset-Backed Market Issuance

Asset-backed securities (ABS) issuance totaled $101.4 billion in the second quarter, an increase of 32.1 percent q-o-q and an increase of 39.4 percent y-o-y. Both the CDO and auto sectors led issuance totals with $40.5 billion (40.0 percent of 2Q'17 total issuance) and $26.2 billion (25.8 percent of second quarter issuance) issued, respectively. CLO refinancings drove most of the issuance volume increase.

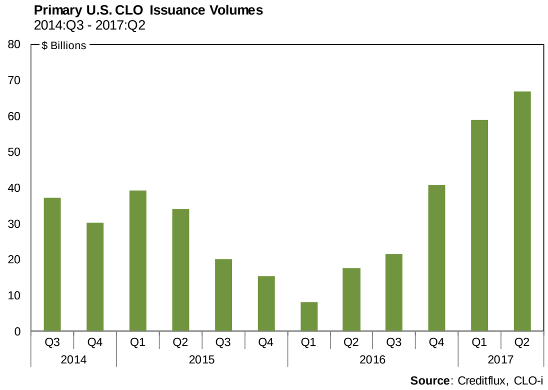
On a q-o-q basis, only USD-denominated CDOs, equipment, and esoteric ABS experienced increases in issuance volumes in the second quarter: CDOs rose 106.2 percent, equipment rose 35.8 percent, and esoteric ABS rose 71.8 percent. Autos, credit cards, and student loans experienced q-o-q declines of 4.5 percent, 8.4 percent, and 29.8 percent, respectively. The increase in USD-denominated CDO issuance is due to refinancings of earlier vintage CDOs, a trend that began in 2015 but picked up steam in late 2016. Of the CLO refinancings in the second quarter, the majority were from the 2014 vintage (67.8 percent of deals), followed by 2013 (22.6 percent).

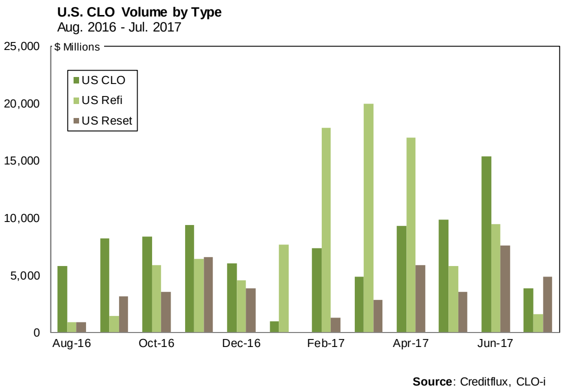
Outstanding volumes ended the second quarter at $1.3 trillion, a decline of 4.0 percent q-o-q and a decline of 8.9 percent y-o-y. Auto, credit card, and esoteric ABS experienced increases in outstanding volume by 0.3 percent, 1.7 percent, and 3.5 percent respectively. Equipment, student loans, and USD-denominated CDOs declined by 1.4 percent, 2.5 percent and 8.9 percent respectively. Notable subcategories to see q-o-q growth were: solar ABS (22.5 percent growth), PACE (12.5 percent), franchise (9.2 percent), consumer loans (11.7 percent), equipment leases (18.9 percent), auto fleet lease (14.4 percent), and auto leases (10.9 percent).

Trading Activity

Daily average trading activity in ABS and CDOs declined in the second quarter to $1.56 billion, a decline of 8.4 percent from $1.71 billion in 1Q'17 but a 19.3 percent increase from $1.31 billion in 2Q'16. Trading activity declines were in both ABS and CDO trading volumes, which declined 8.3 percent and 8.9 percent q-o-q respectively.

U.S. COLLATERALIZED LOAN OBLIGATIONS[6]





CLO boom encourages new ideas

CLO managers have firmly got to grips with US risk retention rules and, as a result, a massive $102.7 billion of CLOs priced globally during the second quarter of the year.

In a turnaround from the first quarter, true new issue deals accounted for most of the business, with $42.9 billion pricing across Europe and the US. When factoring in $21.1 billion of resets (which are also subject to 5 percent risk retention), this means that managers committed at least $3.2 billion towards CLO risk retention during the second quarter.

In the opening quarter of 2017, new issue volumes hit $19.5 billion. This contributed 25.8 percent to total CLO volumes for the quarter, whereas in the second quarter new issuance accounts for 41 percent of total volumes.

"We expected a shift towards refis and resets this year and while this has materialized, we have been somewhat surprised at new issue volumes," says Credit Suisse's global head of CLO origination Brad Larson.

A refinancing of a pre-2015 CLO is not subject to risk retention rules, and so these transactions remain popular. But Larson says that there has been a sea-change in the way refis and resets are conducted today versus when the reset market first opened up two years ago.

"In its early days, the refi and reset market resulted in a fresh batch of investors coming into a given transaction, but we are now increasingly seeing existing investors roll over."

CLO spreads reached their tightest levels since the financial crisis, thanks to some of these refis. Notably, Credit Suisse Asset Management, CVC Credit Partners, GSO Capital Partners and Sound Point Capital Management all priced refi triple As at less than 100 bps. For new issues, top tier CLO managers were able to price triple-A CLOs at Libor plus 118 bps, while in Europe the benchmark spread for CLO seniors was 83 bps.

With spreads tight, CLO arrangers clearly felt the time was right to innovate. RBC perhaps claims the honors for the most eye-catching deals. The bank priced a pair of CLOs in April in which vertical strip financing was securitized and sold to third-party investors. Before these transactions, CLO risk retention financing had been done in the form of a bilateral agreement between a CLO manager and a financier.

The deals, MJX's Venture XXVII and HPS Loan Management 11-2017, which is managed by HPS Investment Partners, were widely praised. Effectively RBC has issued bonds that mirror tranches on an underlying CLO. However, investors in the securitized vertical strip benefit from additional credit enhancement in the form of 50% of the management fee stream and 100% of incentive management fees.

Later in the quarter the CLO market witnessed another first as applicable margin reset (AMR) language was embedded into Crescent Capital's Atlas Senior Loan Fund VIII. The driving force behind AMR has been CLO equity investor Sancus Capital Management and law firm Dechert.

Under the AMR framework, Atlas VIII can be refinanced on any payment date after the two-and-a-half year non-call period expires if certain conditions are met. AMR uses a reverse Dutch auction and one requirement for a refi to go ahead is that the spread on a given tranche has to be lowered by at least 10 percent.

[6] The author of the CLO section is Sayed Kadiri, Creditflux. For any questions, please contact Sayed Kadiri at sayed.kadiri@creditflux.com.

In Europe, where risk retention has been the norm for CLO managers since the 2.0 market opened in February 2013, progress during the second quarter was steady as 16 new deals priced for a total of €6.4 billion. There was also an example of firms going into uncharted territory here, as Morgan Stanley and CSAM combined to reset Cadogan Square CLO V – the first European 2.0 to come with a five-year reinvestment period.

With so much focus this year on refis and resets, the top five in our ranking of the largest CLO managers globally are unchanged. GSO sits on top with $21.4 billion of CLOs to its name.

Our data shows that seven of the top 10 managers today were also in the top 10 five years ago. CVC Credit Partners, Octagon Credit Investors and Investcorp Credit Management have squeezed their way into this band of CLO heavyweights, while Alcentra, Barings and Highland Capital left.

In the latest standings, one firm has emerged from nowhere to land in 70th spot. Antares Capital, now owned by Canada Pension Plan Investment Board, priced its debut US mid-market CLO – a $2.1 billion deal that goes into the record books as the largest post-crisis CLO.

The largest CLO managers have been repeat issuers into the primary market this year. These firms have addressed their need for CLO risk retention. CVC Credit has its long-term CLO programme in place after holding the final close on a $600 million global risk retention vehicle in June.

CVC Credit Partners Global CLO Management will employ a capitalized manager vehicle (CMV) to retain majority equity in dual-compliant CVC Credit CLOs. Gretchen Bergstresser, head of US performing credit at the firm, told Creditflux that CVC Credit intends to continue printing three to four US CLOs and two to three European CLOs each year.

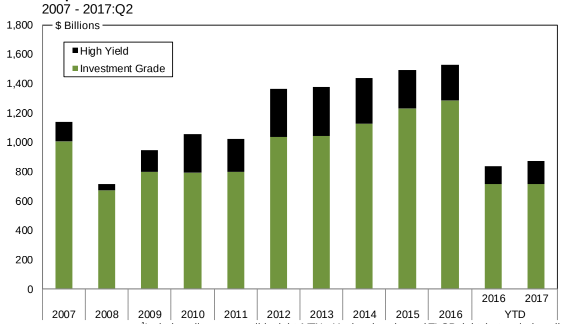
With many managers committing to holding control equity stakes in their CLOs in order to satisfy regulations, traditional control equity buyers could find their choices somewhat limited.

"There has been tremendous demand for CLO equity over the second quarter," says John Popp, global head and chief investment officer for Credit Suisse Asset Management's credit investments group. "Many managers have committed to taking between 51 percent and 100 percent of the equity in their deals."

At the top of the CLO capital stack there has been no shortage of demand. Tokyo's Norinchukin Bank is known to have been the key investor in many US CLOs where senior notes priced inside 120 bps.

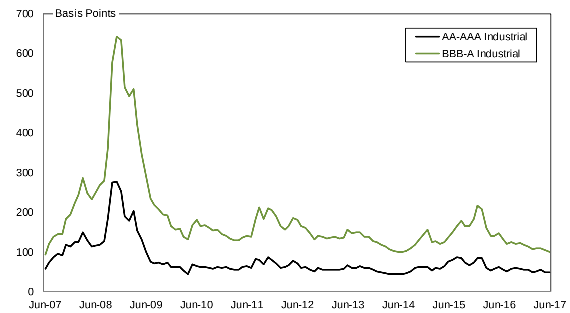
CORPORATE BOND MARKET

Corporate Bond Issuance[1]
2007 - 2017:Q2



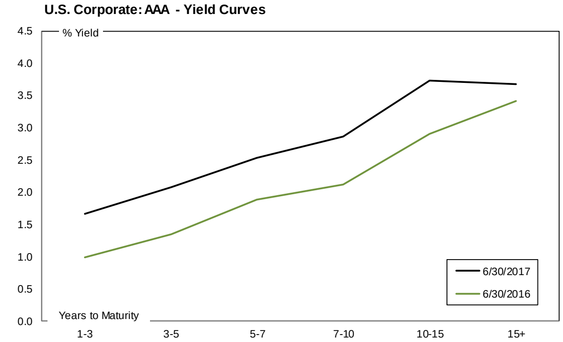
[1]Includes all nonconvertible debt, MTNs Yankee bonds, and TLGP debt, but excludes all issues with maturities of one year or less, CDs, and federal agency debt
Source: Thomson Reuters

U.S. Corporate Option Adjusted Spreads to U.S. Treasury - 1-10 Year
Jun. 2007 - Jun. 2017



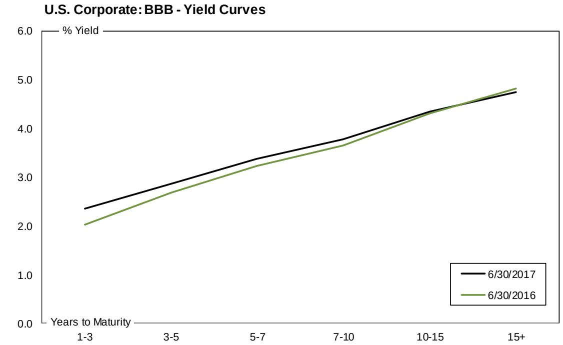
Source: Bank of America Merrill Lynch

U.S. Corporate: AAA - Yield Curves



Source: Bank of America Merrill Lynch

U.S. Corporate: BBB - Yield Curves



Source: Bank of America Merrill Lynch

Corporate Bond Issuance

Corporate bond issuance totaled $390.7 billion in 2Q'17, down 18.2 percent from $477.4 billion issued in 1Q'17 and down 10.7 percent from 2Q'16's issuance of $437.5 billion. Almost a third of the bonds issued in the second quarter were for general corporate purposes (31.2 percent of total issuance), followed by indebtedness reduction (25.5 percent), and future acquisitions (13.0 percent).

Investment grade (IG) bond issuance decreased to $325.6 billion in 2Q'17, down 16.2 percent from $388.5 billion in the previous quarter and down 7.8 percent y-o-y. The top three industries accounted for almost two thirds of 2Q'17 IG issuance: financial companies remained the leading IG debt issuance sector accounting for almost half ($152.2 billion) of all IG issuance, followed by the energy and power sector with 11.1 percent ($36.1 billion) and the healthcare sector with 8.5 percent ($27.6 billion).

Issuance of high yield (HY) bonds decreased to $65.1 billion in 2Q'17, 26.8 percent below the 1Q'17's total of $88.9 billion and down 22.8 percent from $84.3 billion issued in 2Q'16. The following three sectors made up almost half of total HY issuance in the second quarter: financials (17.2 percent, $11.2 billion energy and power (15.5 percent, $10.1 billion), and materials (13.2 percent, $8.6 billion).

Bond Spreads and U.S. Default Rate

According to Bank of America-Merrill Lynch, option adjusted spreads for both AA-AAA industrial bonds and BBB-A industrial bonds tightened in the second quarter of 2017. Spreads of IG bond stood at 47 bps at the end of 2Q'17, down 2 bps from 49 bps at end-March 2017 and down 14 bps from 61 bps at the end of June 2016. HY bond spreads tightened even more q-o-q, ending 2Q'17 at 99 bps, 9 bps below 108 bps in 1Q'17 and down 46 bps from 145 bps at the end of June 2016.

S&P's Global Fixed Income Research reported the number of U.S. defaulted issuers increased to 21 issuers in the second quarter of 2017 from 17 defaults in 1Q'17 but down from 32 in 2Q'16. The U.S. trailing 12-month speculative-grade corporate default rate decreased to 3.8 percent in June 2017, down from 4.1 percent in March 2016 and from 4.3 percent in June 2016. The U.S. speculative-grade corporate default rate is expected to fall further to 3.3 percent by March 2018.[7]

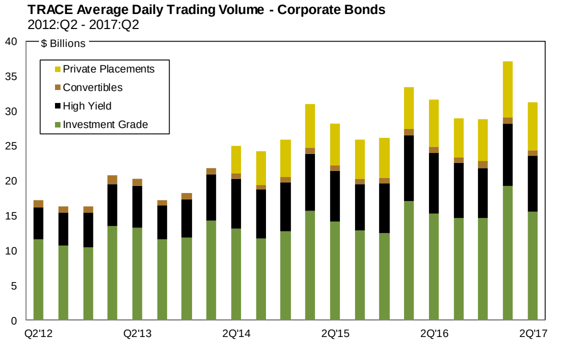
In 2Q'17, S&P Ratings Services downgraded 104 and upgraded only 73 U.S. issuers, a ratio of downgrades to upgrades of 1.4. This was a decrease from the previous quarter when there were 94 downgrades versus 57 upgrades with a downgrade/upgrade ratio of 1.6.

S&P US Corporate Rating Actions

	2017:Q2	2017:Q1	2016:Q2	Q-o-Q	Y-o-Y
Upgrades	73	57	67	28.1%	9.0%
Downgrades	104	94	162	10.6%	-35.8%

Source: S&P Fixed Income Research

[7] Standard & Poor's Rating Services, The U.S. Speculative-Grade Corporate Default Rate, August 1, 2017.



Note: Private placements trading volume only available from 2Q'14 on.
Source: FINRA

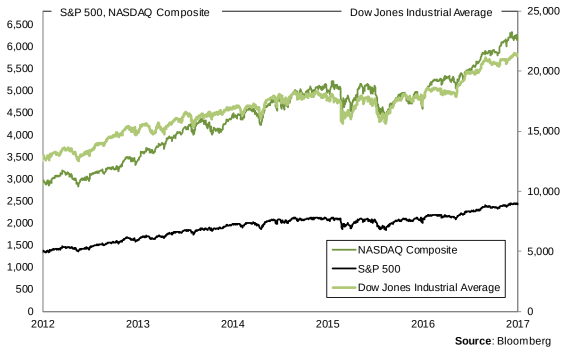
Trading Activity

According to the FINRA TRACE data, average daily trading volumes decreased across all segments. Investment grade (IG) corporate bonds average daily trading volume decreased to $15.6 billion in 2Q'17, down 19.0 percent from $19.3 billion q-o-q but up 1.9 percent from $15.3 in 2Q'16. High yield (HY) corporate bonds average daily trading volume was $8.0 billion in 2Q'17, a 10.7 percent decrease from $8.9 billion in the previous quarter and an 8.2 percent decrease from $8.7 billion in 2Q'16. Convertible bonds (CV) average daily trading volume decreased to $0.85 billion in 2Q'17, a 3.5 percent decrease from $0.88 billion in 1Q'17 and 5.4 percent down from $0.90 billion in 2Q'16. Private placements trading volume decreased by 14.7 percent to $6.8 billion in 2Q'17 but was up 1.9 percent from $6.7 billion in 2Q'16.

EQUITY AND OTHER MARKETS

The U.S. equity market posted a strong second quarter for 2017. The S&P 500 closed 2Q'17 at 2,423.41, a 2.6 percent increase from the prior quarter and 15.5 percent increase y-o-y. The NASDAQ Composite Index finished 2Q'17 at 6,140.42, a 3.9 percent increase q-o-q and a 26.8 percent increase y-o-y. The Dow Jones Industrial Average (DJIA) also posted gains ending 2Q'17 at 21,349.63, a 3.3 percent gain q-o-q and a 19.1 percent gain y-o-y. The DJIA closed at an all time high of 21,528.99 on June 19, 2017.

Daily Closing Stock Prices
June 2012 - June 2017

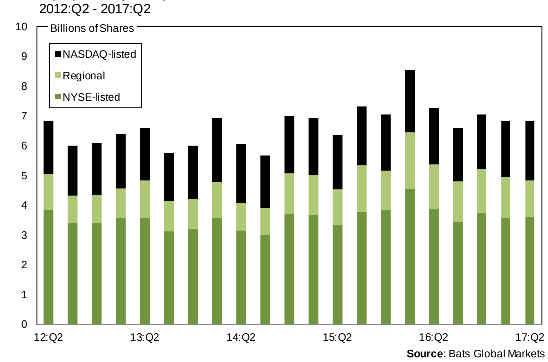


Equity Average Daily Share and Dollar Volume

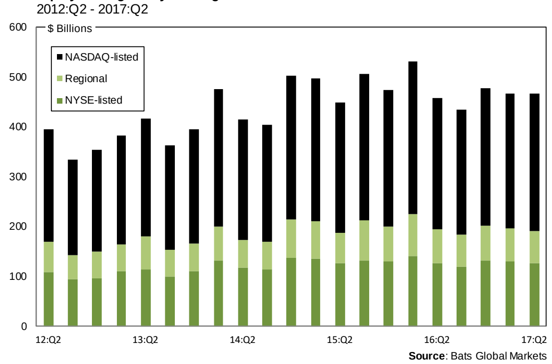
Equity average daily share volume increased by 0.1 percent to 6.9 billion shares in 2Q'17 from 6.8 billion shares in 1Q'17 and down 5.5 percent from 7.3 billion in 2Q'16. The largest quarterly decrease was observed in stocks listed on regional exchanges, which average daily share volume dropped by 9.4 percent in 2Q'17 while NYSE-listed stock volume increased by 0.5 percent and NASDAQ-listed stock volume increased by 6.5 percent.

Equity average daily dollar volume increased by 2.2 percent to $275.6 billion in 2Q'17 from $269.7 billion in 1Q'17 and down 4.5 percent from $263.7 billion in 2Q'16. Similarly to share trade volume, the largest quarterly decrease in dollar volume was observed in regional-listed stocks (down 4.4 percent), while NYSE-listed decreased by 2.1 percent and NASDAQ-listed increased by 15.6 percent from 1Q'17.

Equity Average Daily Share Volume
2012:Q2 - 2017:Q2



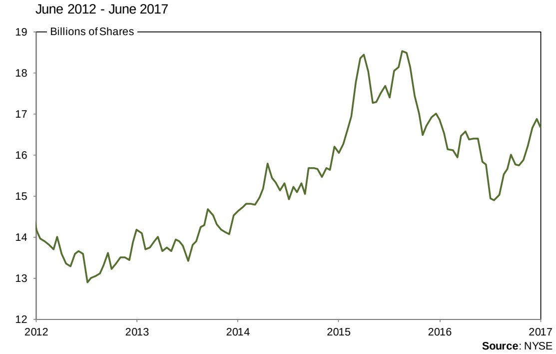
Equity Average Daily Trading Volume
2012:Q2 - 2017:Q2



NYSE Short Interest

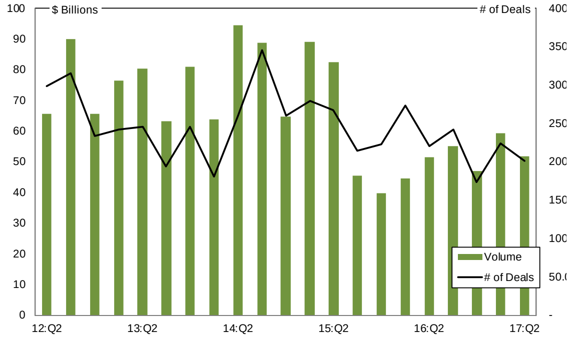
The number of shares sold short on the NYSE averaged 16.3 billion in 2Q'17, up 5.6 percent from 15.5 billion during the previous quarter and down 2.9 percent from 16.8 billion in 2Q'16. NYSE short interest was 6.8 percent above the five-year average of 15.3 billion. Out of approximately 6,100 issues, a short position was shown in 4,962 issues at the end of 2Q'17, of which 3,995 issues showed a short position of 5,000 shares or more.[8]

NYSE Short Interest
June 2012 - June 2017



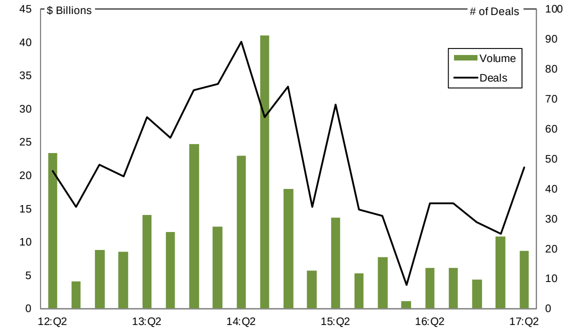
[8] NYSE, NYSE Arca and NYSE MKT Short Interest Reports, July 12, 2017.

Total Equity Underwriting
2012:Q2 - 2017:Q2



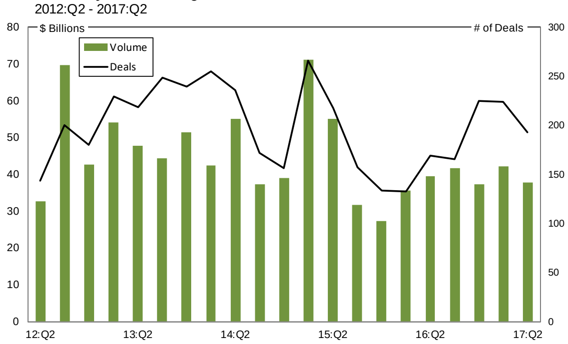
Source: Thomson Reuters

"True" IPO - Excluding Closed-End Funds
2012:Q2 - 2017:Q2



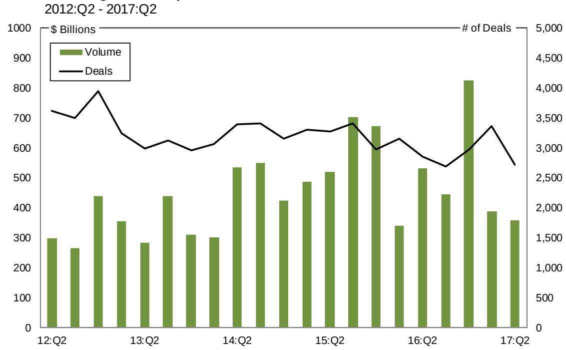
Source: Thomson Reuters

Secondary Stock Offerings
2012:Q2 - 2017:Q2



Source: Thomson Reuters

U.S. Mergers and Acquisitions - Announced Deals
2012:Q2 - 2017:Q2



Source: Dealogic

Equity Underwriting Volume

Equity underwriting decreased by 12.7 percent to $51.7 billion in the second quarter from $59.2 billion in 1Q'17 and up 0.6 percent from $51.4 billion issued in 2Q'16. Equity underwriting volume in 2Q'17 was 22.45 percent below the five-year average of $66.65 billion.

IPO Volume

"True" initial public offerings (IPOs), which exclude closed-end mutual funds, decreased to $8.6 billion on 47 deals in 2Q'17. The IPO volume decreased by 19.8 percent from $10.8 billion on 25 deals in 1Q'17 and was up 41.3 percent from $6.1 billion on 35 deals in 2Q'16.

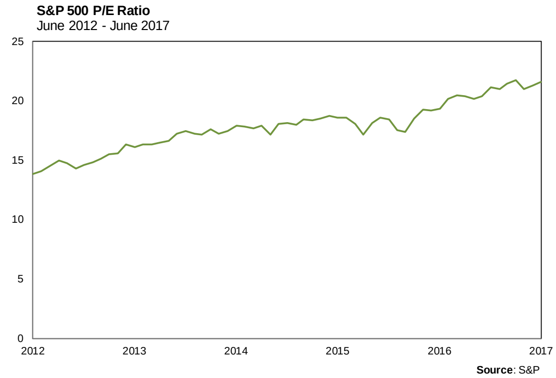
Secondary Offerings

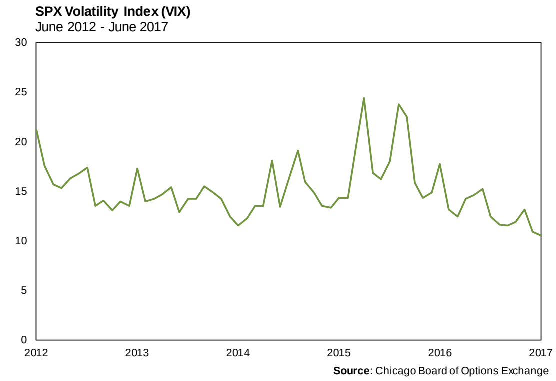
Secondary market issuance decreased to $37.7 billion on 193 deals in 2Q'17, down 10.4 percent from $42.1 billion on 224 deals in 1Q'17 and down 4.2 percent from $39.4 billion on 169 deals in 2Q'16.

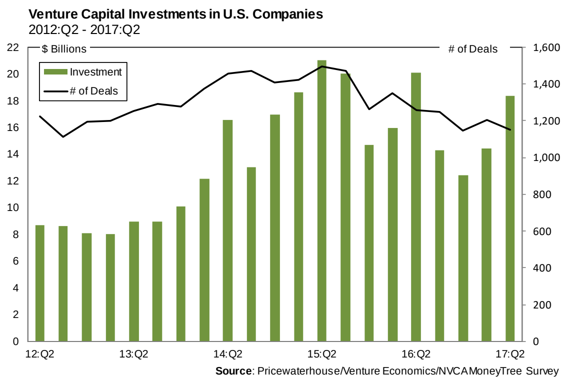
Announced M&A Volume

Announced U.S. mergers and acquisitions (M&A) volume stood at $356.8 billion in 2Q'17, an 8.3 percent decrease from the previous quarter's $389.1 billion and a 32.9 percent decrease y-o-y. M&A volume was 22.2 percent below the 5-year quarterly average of $458.8 billion.

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 $61.8 billion in 2Q'17, down 25.9.6 percent from $83.5 billion in the previous quarter and down 50.6 percent from $125.2 billion in 2Q'16. The dollar amount U.S. companies invested in other countries through M&A ("US Outbound") also decreased in 2Q'17; American firms invested $27.6 billion in deals outside of the U.S., a 62.5 percent decrease from $73.8 billion in 1Q'17 and down 22.9 percent from $35.9 billion invested in 2Q'16.







S&P P/E Ratio

The S&P 500's P/E ratio averaged 21.3 in 2Q'17, down 0.4 percent from the previous quarter's 21.4 and up 10.7 percent from 19.2 in 2Q'16. The S&P P/E ratio stood 19.0 percent above the 5-year average of 17.9 in 2Q'17 but 24.9 percent below the high of 28.4 in 1Q'00.[9]

CBOE VIX Index

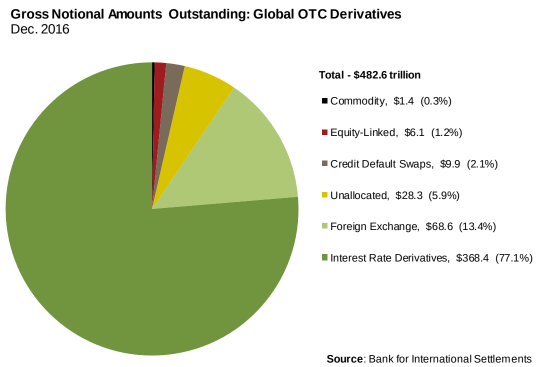
The Chicago Board Options Exchange Volatility Index (VIX) decreased to an average of 11.4 in the second quarter from an average of 11.7 in 1Q'17 and down 27.1 percent from 15.7 in 1Q'16. The quarter started with an index increasing to a high of 15.96 in the middle of April but then gradually decreased to a low of 9.75 at the beginning of June. The spread between high and low values for the VIX was 6.21 in 2Q'17, wider than 2.54 in 1Q'17 but narrower than 12.66 in 2Q'16.

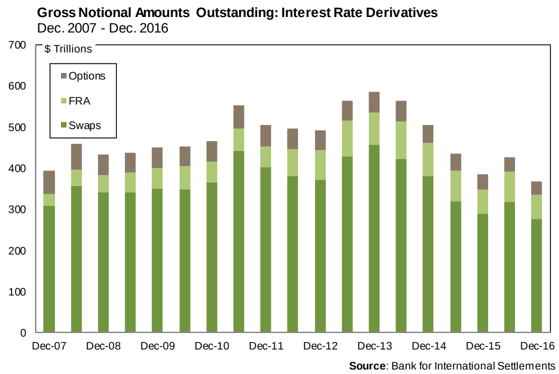
Venture Capital Volume

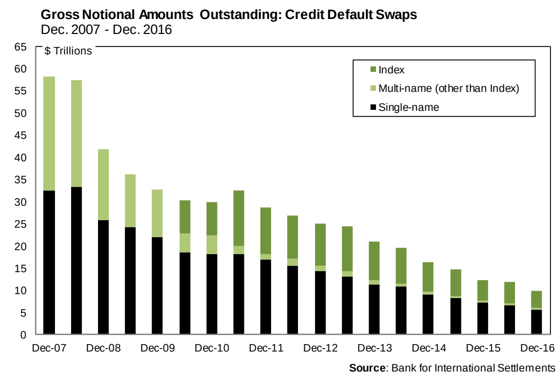
Venture capitalists invested $18.4 billion in 1,152 deals in the second quarter of 2017, according to the MoneyTree™ Report from PricewaterhouseCoopers LLP (PwC) and the National Venture Capital Association (NVCA), based on data provided by Thomson Reuters. Quarterly venture capital (VC) investment activity increased by 27.1 percent in dollar terms but decreased by 4.5 percent in the number of deals compared to 1Q'17 when $14.4 billion was invested in 1,206 deals. The internet sector continued to receive the highest level of funding of all industries with $8.7 billion in 1Q'17, up 64.7 percent from $5.3 billion in 1Q'17 and up 55.2 percent y-o-y. The healthcare sector received second largest amount of funding with $3.0 billion (down 24 percent q-o-q) followed by the mobile and telecommunications sector with $2.4 billion (up 17.7 percent q-o-q).[10]

[9] SIFMA records start in January 2000.
[10] US MoneyTree Report Press Release, 2Q 2017.

GLOBAL OTC DERIVATIVES[11]







Global OTC Derivatives Market

According to the most recent Bank of International Settlements Semi-annual Over-the-Counter (OTC) Derivatives Markets Statistics Report ("BIS Report")[12], the gross notional amount outstanding of OTC derivatives totaled $482.9 trillion as of end-December 2016 (down 13.0 percent from end-June 2016). All product classes saw decreases from end-June 2016, with the most significant drops found in credit default swaps (CDS) (down 16.2 percent to $9.9 trillion), interest rate derivatives (IRD) (down 14 percent to $368 trillion) and unallocated transactions (down 12.7 percent to $28.4 trillion). Foreign exchange and equity-linked derivatives meanwhile dropped 7.5 percent (to $68.6 trillion) and 7.4 percent (to $6.1 trillion), respectively, from end-June 2016. Commodity derivatives experienced the smallest decrease from the end-June 2016, down 4 percent to $1.4 trillion.

The gross market value of OTC derivatives was $15.0 trillion as of end-December 2016, down 29.2 percent – a reversal of the sizable increases from end-December 2015 to end-June 2016.[13] Gross credit exposure of outstanding OTC derivatives decreased 10.5 percent to $3.3 trillion during the same period.

Interest Rate Derivatives

IRD accounted for the majority of the OTC derivatives market gross notional amount outstanding at $368.4 trillion as of end-December 2016, representing 77.1 percent of the global market (a slight increase from the end-June 2016 76.8 percent). Interest rate swaps (IRS) (accounting for 75.0 percent of the total IRD market) totaled $275.2 trillion, down 13.5 percent from end-June 2016 (and down 4.7 percent y-o-y). Forward Rate Agreements (FRAs) gross notional outstanding fell 18.0 percent from end-June 2016, but rose 4.0 percent y-o-y, while Options declined 7.2 percent from end-June 2016 and 13.1 percent y-o-y.

Credit Default Swaps

CDS accounted for 2.1 percent of the gross notional amount outstanding of the global OTC derivatives market, at $9.9 trillion as of end-December 2016. Single-name CDS totaled $5.6 trillion as of end-December 2016 (down 15.2 percent from end-June 2016 and 22.3 percent y-o-y). Multi-name CDS totaled $4.3 trillion as of end-Decmber 2016 (down 17.5 percent from end-June 2016 and 16.3 percent y-o-y), of which Index CDS totaled $3.8 trillion as of end-December 2016 (down 21.0 percent from end-June 2016 and 19.0 percent y-o-y).

[11] Updated semiannually based on data from Bank for International Settlements.
[12] Based on data from most recent report released, available at: http://www.bis.org/statistics/derstats.htm.
[13] Available at: http://www.bis.org/publ/otc_hy1705.pdf.

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