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RESEARCH QUARTERLY

First Quarter 2017

RESEARCH REPORT

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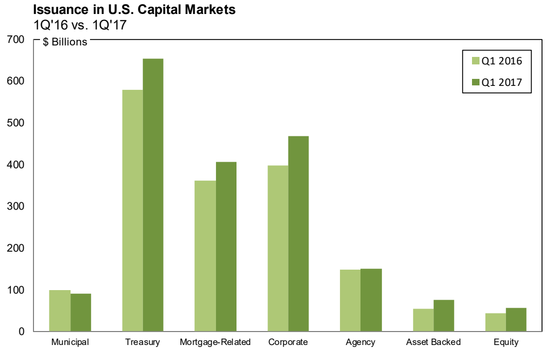
CAPITAL MARKETS OVERVIEW



Note: Includes long-term issuance only
Source: Thomson Reuters, U.S. Treasury, U.S. Federal Agencies

Issuance Highlights - Year-Over-Year[(1)]

$ Billions	2017:Q1	2016:Q1	% Change
Municipal	90.5	99.9	-9.4%
Treasury	654.1	578.2	13.1%
Mortgage-Related	406.5	361.9	12.3%
Corporate	468.7	397.4	17.9%
Federal Agency	151.2	147.4	2.5%
Asset-Backed	75.8	55.1	37.5%
Equity	57.7	44.6	29.4%

Issuance Highlights - Quarter-Over-Quarter[(1)]

$ Billions	2017:Q1	2016:Q4	% Change
Municipal	90.5	104.9	-13.7%
Treasury	654.1	451.6	44.8%
Mortgage-Related	406.5	558.9	-27.3%
Corporate	468.7	261.8	79.0%
Federal Agency	151.2	101.4	49.1%
Asset-Backed	75.8	78.6	-3.5%
Equity	57.7	46.8	23.4%

[(1)] Includes long-term issuance only

Total Capital Markets Issuance

Long-term securities issuance totaled $1.90 trillion in 1Q'17, a 18.7 percent increase from $1.60 trillion in 4Q'16 and a 13.1 percent increase year-over-year (y-o-y) from $1.68 trillion. Issuance increased quarter-over-quarter (q-o-q) across all asset classes but municipal, mortgage-related and asset-backed securities; y-o-y, growth was positive in all asset classes except municipal debt.

Long-term public municipal issuance volume including private placements for 1Q'17 was $90.5 billion, down 13.7 percent from $104.9 billion in 4Q'16 and down 9.4 percent from 1Q'16.

The U.S. Treasury issued $654.1 billion in coupons, FRNs and TIPS in 1Q'17, up 44.8 percent from $451.6 billion in the prior quarter and 13.1 percent above $578.2 billion issued in 1Q'16.

Issuance of mortgage-related securities, including agency and non-agency passthroughs and collateralized mortgage obligations, totaled $406.5 billion in the first quarter, a 27.3 percent decline from 4Q'16 ($558.9 billion) but a 12.3 percent increase y-o-y ($361.9 billion).

Corporate bond issuance totaled $468.7 billion in 1Q'17, up 79.0 percent from $261.8 billion issued in 4Q'16 and up 17.9 percent from 1Q'16's issuance of $397.4 billion. Of all 1Q'17 corporate bond issuance, investment grade issuance was $381.0 billion (81.3 percent of total) while high yield issuance was $87.7 billion (18.7 percent).

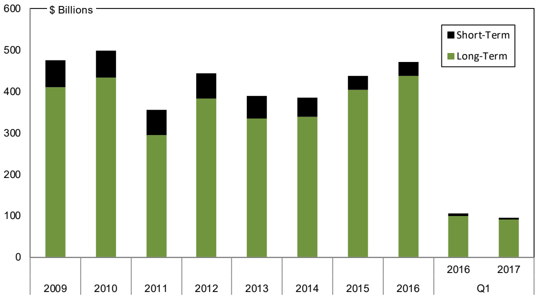
Long-term federal agency debt issuance was $151.2 billion in the first quarter, a 49.1 percent increase from $101.4 billion in 4Q'16 and a 2.5 percent increase from $147.4 billion issued in 1Q'16.

Asset-backed securities issuance totaled $75.8 billion in the first quarter, a decline of 3.5 percent q-o-q but an 37.5 percent increase y-o-y.

Equity underwriting increased by 23.4 percent to $57.7 billion in the first quarter from $46.8 billion in 4Q'16 and up 29.4 percent from $44.6 billion issued in 1Q'16. Of the total, "true" initial public accounted for $10.7 billion, up 144.8 percent from $4.4 billion in 4Q'16 and up tenfold from $1.2 billion in 1Q'16.

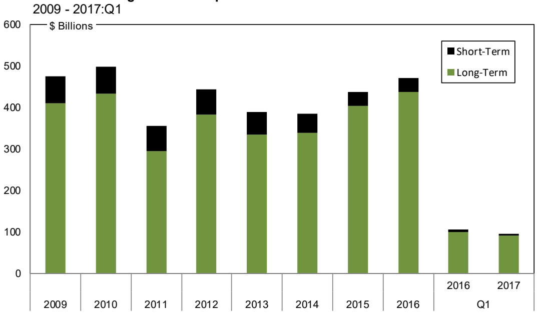
MUNICIPAL BOND MARKET

Short-[1] and Long-Term Municipal Issuance
2009 - 2017:Q1



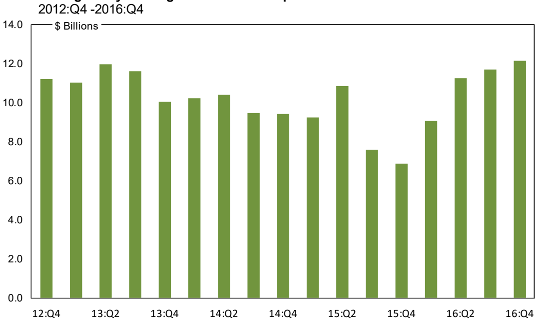
[1]Includes maturities of 13 months or less
Source: Thomson Reuters

Short-[1] and Long-Term Municipal Issuance
2009 - 2017:Q1



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

Average Daily Trading Volume of Municipal Securities[1]
2012:Q4 -2016:Q4



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

Long-term public municipal issuance volume totaled $86.5 billion in the first quarter of 2017, a decline of 13.4 percent from the prior quarter ($99.9 billion) and a decline of 9.5 percent y-o-y ($95.5 billion). Volumes were generally in line with the 10-year average of $82.6 billion. Including private placements ($3.0 billion), long-term municipal issuance for 1Q'17 was $89.4 billion. Refunding volumes dropped sharply in the first quarter to $33.5 billion, representing 38.7 percent of issuance.

Tax-exempt issuance totaled $76.8 billion in 1Q'17, a decline of 15.4 percent q-o-q and a decline 12.9 percent y-o-y. Taxable issuance totaled $6.9 billion in 1Q'17, a decline of 4.6 percent q-o-q but an increase of 5.0 percent y-o-y. AMT issuance was $2.8 billion in 1Q'17, a sharp increase of 51.6 percent q-o-q and nearly triple volumes y-o-y.

By use of proceeds, general purpose led issuance totals in 1Q'17 ($22.3 billion), followed by primary & secondary education ($18.4 billion), and higher education ($9.2 billion). Refunding volumes dipped sharply to comprise 38.7 percent of issuance in 1Q'17 from 47.7 percent in the prior quarter and 52.7 percent year-over-year.[1]

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 95.6 percent in 1Q'17 from 97.2 percent in 4Q'16.

According to the Investment Company Institute (ICI), first quarter net flow into long-term tax-exempt funds was positive, with $7.4 billion of net inflow in 1Q'17 compared to $27.1 billion of outflow from 4Q'16 and $14.4 billion of inflow y-o-y.

According to Bank of America-Merrill Lynch indices, municipals gained 1.4 percent in the first quarter of 2017. The tobacco sector, airport, and single-family (1.9 percent, 1.8 percent and 1.8 percent respectively) had the strongest performance within the individual municipal sectors in 1Q'17 while power, hospitals, and utilities underperformed (1.24 percent, 1.25 percent and 1.25 percent total return, respectively). Build America Bonds (BABs) gained 1.3 percent, underperforming tax exempts bonds but outperforming similarly-rated corporate bonds in 1Q'17 (which had a total return of 1.1 percent).

Trading Activity and Bank Holdings

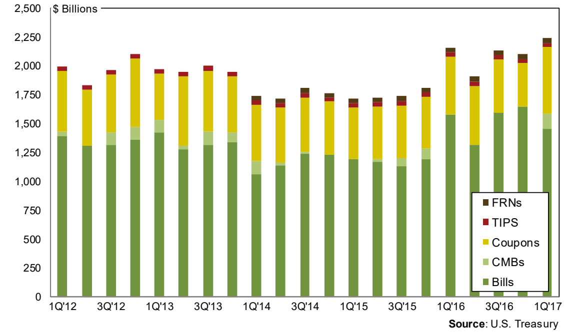
Trading activity fell q-o-q to $11.1 billion daily in 1Q'17, an 8.3 percent decrease from 4Q'16 ($12.1 billion) but a 21.9 percent increase from 1Q'16 ($9.1 billion). By number of trades, however, trading activity rose on a q-o-q and y-o-y basis, rising 2.9 percent and 14.4 percent y-o-y.

Bank holdings of both municipal loans and bonds rose in 4Q'16 from the prior quarter, to $173.7 billion (from $168.7 billion) and $375.4 billion (from $366.9 billion), respectively.

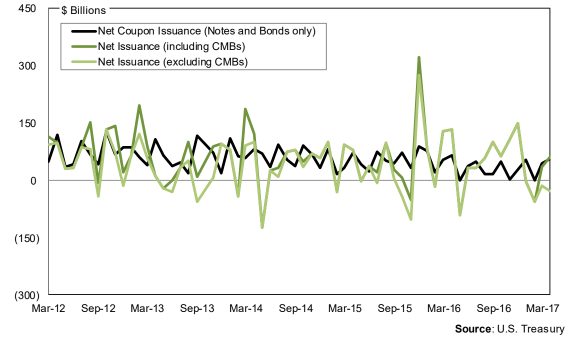
[1] Percentages represent both full refundings and the half the dollar amount of deals that contain both refundings and new financing.

TREASURY MARKET

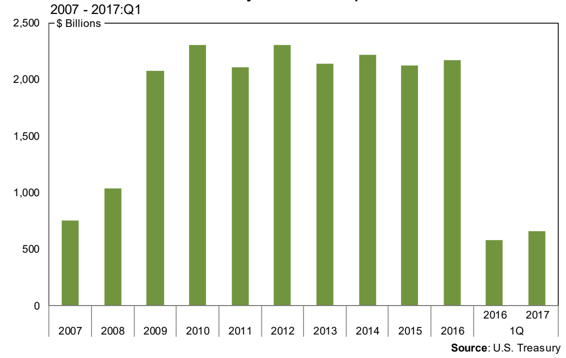
Quaterly Gross Issuance of U.S. Treasury Securities
2012:Q1 - 2017:Q1



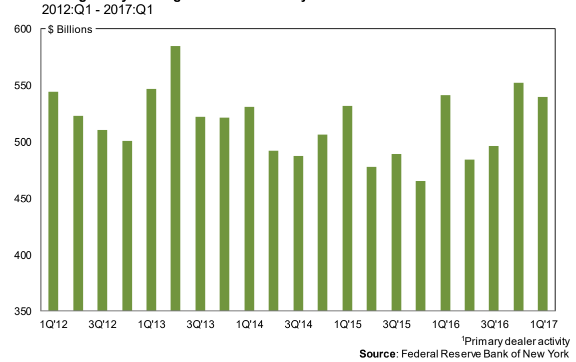
Net Issuances of Treasury Marketable Debt
Mar. 2012 - Mar. 2017



Gross Issuance of U.S. Treasury Marketable Coupon Securities
2007 - 2017:Q1



Average Daily Trading Volume of Treasury Securities[1]
2012:Q1 - 2017:Q1



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 $2.24 trillion in 1Q'17, up 6.8 percent from $2.10 trillion in 4Q'16 and a 3.9 percent increase from $2.16 trillion in 1Q'16. Treasury net issuance, including CMBs, decreased to $39.7 billion in the first quarter, down 84.4 percent from $254.9 billion in the previous quarter and down 83.7 percent from $244.0 billion in 1Q'16. Fourth quarter net issuance was 30.3 percent below the Treasury's net issuance estimate of $57.0 billion.[2]

After only $25 million in CMBs was issued in 2016, the first quarter of 2017 saw a large increase in CMBs issuance with $138.0 billion. No CMBs were issued in 4Q'16 or 1Q'16.

The Treasury issued $654.1 billion in coupons, FRNs and TIPS in 1Q'17, up 44.8 percent from $451.6 billion in the prior quarter and 13.1 percent above $578.2 billion issued in 1Q'16.

Excluding TIPS and FRNs, total gross issuance of Treasury marketable coupon securities was $576.4 billion, up 52.4 percent from $378.3 billion issued in 4Q'16 and 15.5 percent above the $499.0 billion issued in 4Q'16. Net coupon issuance was $100.7 billion in 1Q'17, a 20.1 percent increase from $83.9 billion in 4Q'16 but down 28.0 percent y-o-y.

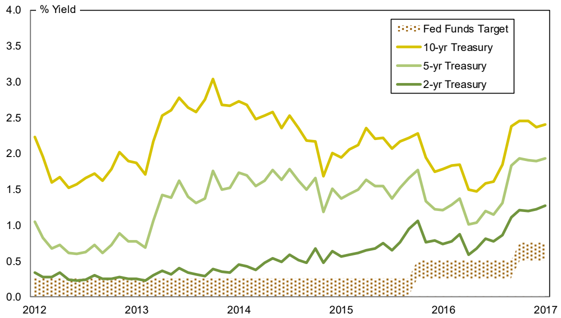
In 1Q'17, $43.5 billion in FRNs was issued, up 3.9 percent from $41.9 billion in 4Q'16 and up 5.5 percent from $41.3 billion in 1Q'16. The demand for FRNs stayed high with an average bid-to-cover ratio of 3.2, down from 3.5 in both the previous quarter and 1Q'16.

Trading Activity

The daily trading volume of Treasury securities by primary dealers averaged $539.7 billion in 1Q'17, a 2.4 percent decrease from $552.9 billion in the previous quarter and a 0.4 percent decrease from the $542.0 billion traded daily in 1Q'16.

[2] Treasury's January borrowing estimates can be found here.

Treasury Yields and Target Fed Fund Rate
Mar. 2012 - Mar. 2017



Source: Federal Reserve

Treasury Yield Curve

After the federal funds rate increase in December 2016, the Treasury yields increased immediately after the hike. In 1Q'17 yields on short-term securities continued to increase, yields from medium-term securities stayed unchanged while yields on long-term securities decreased. Two-year rates increased to end 1Q'17 at 1.27 percent, up from 1.20 percent end-December and from 0.73 percent end-March 2016. Five-year yields stayed at 1.93 percent end-March, unchanged y-o-y but up from 1.21 percent in 1Q'16. Ten-year yields decreased to 2.40 percent end-March from 2.45 percent end-December 2016 but were up from 1.78 percent in 1Q'16; and 30-year yields ended 1Q'17 at 3.02 percent, down from 3.06 percent end-December but up from 2.61 percent end-March 2016.

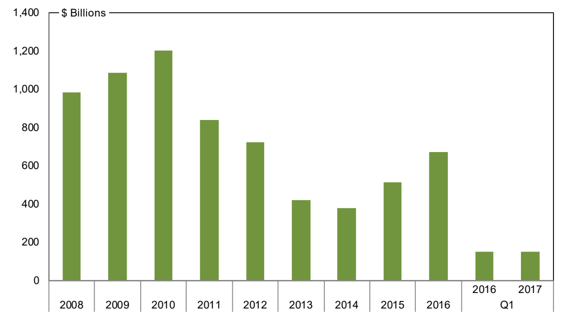
FOMC Meeting Summary

During its March 14-15, 2017 meeting, the Federal Reserve's Federal Open Market Committee raised its target federal rate range from 0.50-0.75 percent to 0.75-1.00 percent, the third rate hike since the financial crisis.[3] In its most recent meeting (May 2-3, 2017), the FOMC decided to maintain the target range for the federal funds rate at 0.75 to 1.00 percent and 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 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 until normalization of the level of the federal funds rate is well under way.[4]

[3] Statement from the FOMC Meeting, March 15, 2017.
[4] Statement from the FOMC Meeting, May 3, 2017.

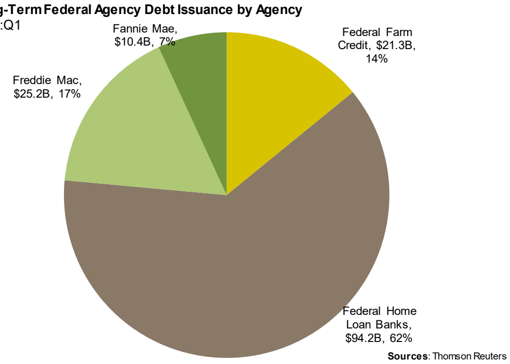
FEDERAL AGENCY DEBT MARKET

Long-Term Federal Agency Debt Issuance[1]
2008 - 2017:Q1



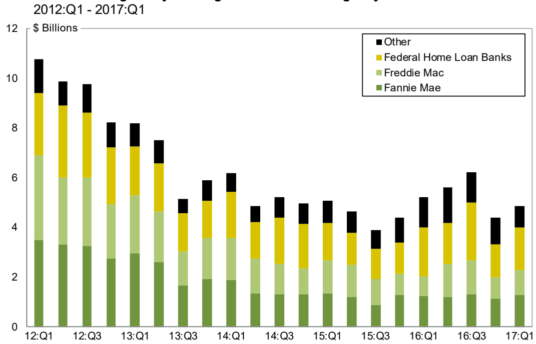
[1]Excludes maturities of one year or less
* Beginning in 2004, Sallie Mae has been excluded due to privatization
Sources: Thomson Reuters

Long-Term Federal Agency Debt Issuance by Agency
2017:Q1



Sources: Thomson Reuters

TRACE Average Daily Trading Volume - Federal Agency Securities
2012:Q1 - 2017:Q1



Source: FINRA

Federal agency long-term debt (LTD) issuance was $151.1 billion in the first quarter, a 49.1 percent increase from $101.4 billion in 4Q'16 and 2.5 percent increase from $147.4 billion issued in 1Q'16.

Fannie Mae's 1Q'17 gross debt issuance, both short term debt (STD) and LTD, totaled $154.0 billion, a slight increase from $150.8 billion in 4Q'16. STD issuance increased to $140.9 billion compared with $132.8 billion in 4Q'16 while LTD issuance decreased to $13.1 billion in 1Q'17 from $18.0 billion in 4Q'16. Fannie Mae had $37.5 billion in STD outstanding and $291.0 billion LTD outstanding at the end of 1Q'17.

Freddie Mac's gross debt issuance totaled $130.1 billion in 1Q'17, a decrease of 1.8 percent from $127.7 billion in 4Q'16. As of quarter-end, Freddie Mac had $61.2 billion STD and $291.5 billion LTD outstanding, in comparison with $61.1 billion STD and $373.3 billion LTD in the prior quarter.

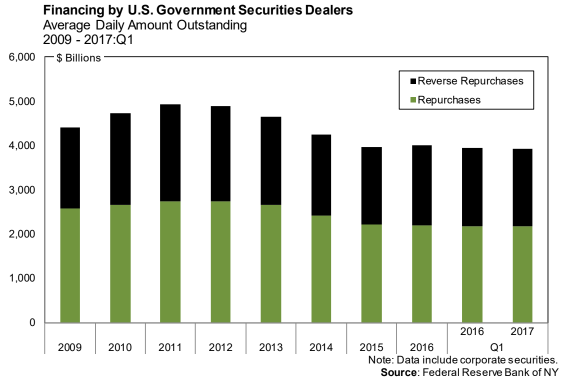
The 12 Federal Home Loan Banks (FHLB) issued $92.5 billion in LTD in the first quarter, an decrease of 51.1 percent from $45.2 billion in 4Q'16. In 1Q'17, $1,328.8 billion of short-term debt (STD) was issued, up from $1,173.1 billion issued in 4Q'16, driven primarily by discount note issuance. Total FHLB LTD outstanding was $368.1 billion at quarter-end, down from $579.2 billion outstanding at the end of fourth quarter. Discount notes decreased to $377.3 billion in 1Q'17 from $410.1 billion in 4Q'16.

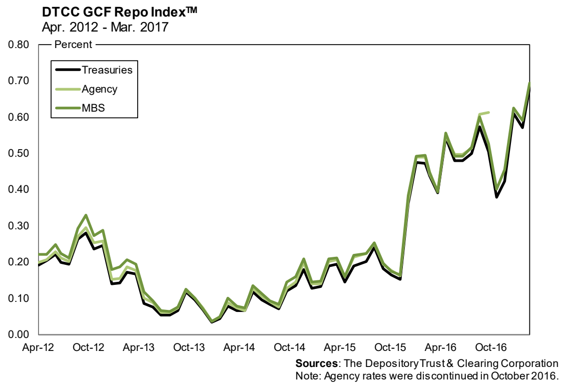
Total Farm Credit System gross debt issuance for 1Q'17 totaled $ 26.1 billion. Total debt outstanding at year end was $259.1 billion, of which $27.3 billion was short-term and $231.7 billion was long-term compared to $29.6 billion short-term and $228.3 billion long-term in the prior quarter.

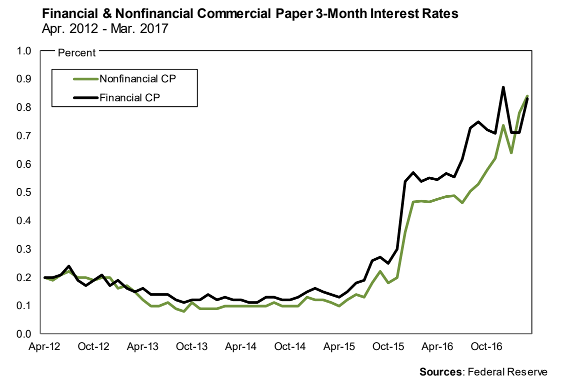
Trading Activity

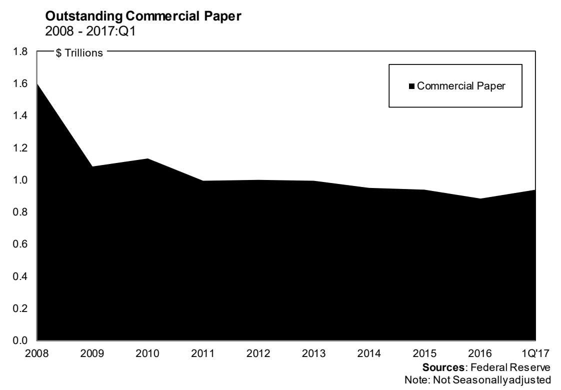
Average daily trading volume of agency securities in the first quarter was $4.84 billion, up 10.5 percent from $4.38 billion traded in 4Q'16 and down 6.9 percent from $5.2 billion traded in 1Q'16.

FUNDING AND MONEY MARKET INSTRUMENTS









Total Repurchase Activity

The average daily amount of total repurchase (repo) and reverse repo agreement contracts outstanding was $3.92 trillion in 1Q'17, a decline of 3.9 percent from 4Q'16's $4.09 trillion and a decline of 0.4 percent y-o-y.

Average daily outstanding repo transactions totaled $2.18 trillion in 1Q'17, a decline of 2.9 percent q-o-q but a increase of 0.8 percent, respectively, q-o-q and y-o-y. Reverse repo transactions in 1Q'17 averaged $1.74 trillion daily outstanding, a decline of 5.2 percent and 1.9 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 1Q'17 on a q-o-q basis and y-o-y basis: the average repo rate for Treasuries (30-year and less) rose to 62.5 basis points (bps) from 4Q'16's average rate of 43.5 bps and 1Q'16's average of 46.0 bps. The average MBS repo rate rose to 64.0 bps from 46.0 bps in the previous quarter and 47.6 bps in 1Q'16.

Financial and Nonfinancial 3-Month Commercial Paper Interest Rates

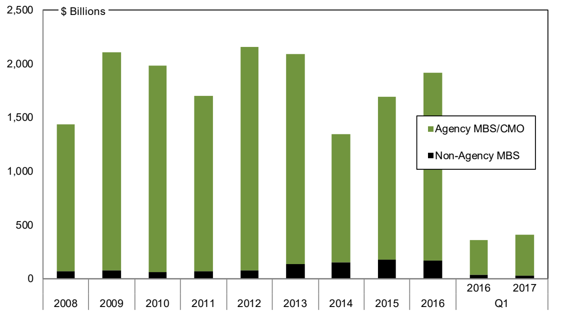
Interest rates for nonfinancial commercial paper (CP) rose to 84 bps end-March 2017 from 74.0 bps end-December 2016 and from 47 bps end-March 2016, while financial CP declined to 83 bps end-March from 87 bps end-December 2016 but rose from 55 bps end-March 2016.

Total Money Market Instruments Outstanding

Preliminary outstanding volume of commercial paper, stood at $937.2 billion at the end of the first quarter, up 5.9 percent from the prior quarter's $884.9 billion but a decline of 8.2 percent y-o-y.

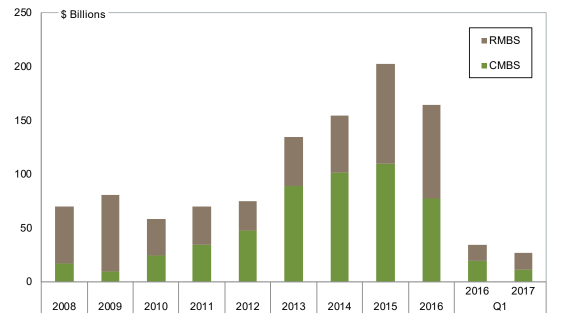
MORTGAGE-RELATED SECURITIES

Issuance of Mortgage-Related Securities
2008 - 2017:Q1



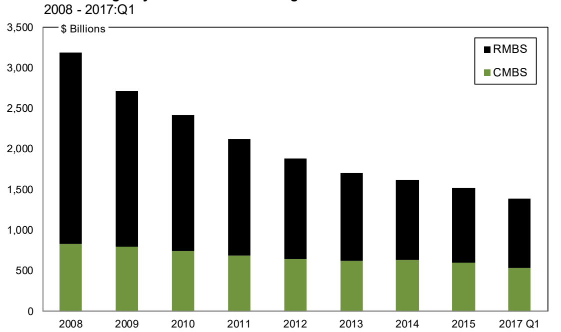
Sources: Federal Agencies, Thomson Reuters

Issuance of Non-Agency Mortgage-Backed Securities
2008 - 2017:Q1



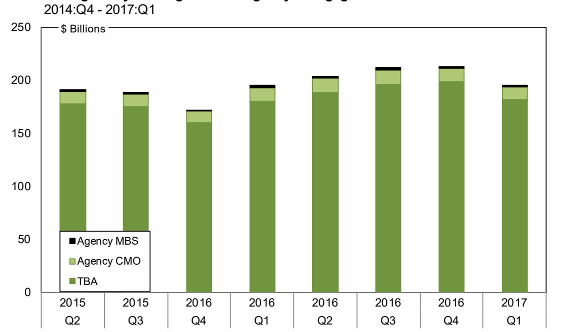
Sources: Bloomberg, Thomson Reuters

U.S. Non-Agency Securities Outstanding
2008 - 2017:Q1



Sources: Bloomberg, Thomson Reuters, SIFMA

Average Daily Trading Volume - Agency Mortgage-Related Securities
2014:Q4 - 2017:Q1



Source: FINRA TRACE

Mortgage-Related Issuance

Issuance of mortgage-related securities, including agency and non-agency passthroughs and collateralized mortgage obligations (CMOs), totaled $406.5 billion in the first quarter, a 27.3 percent decline from 4Q'16 ($558.9 billion) but a 12.3 increase y-o-y ($361.9 billion). Both agency and non-agency volumes declined q-o-q, falling 25.5 percent and 45.2 percent, respectively. The agency share of issuance rose to represent 93.4 percent of total issuance in 1Q'17 from 91.2 percent in the prior quarter.

Agency Issuance

Agency mortgage-related issuance totaled $379.5 billion in 1Q'17, a decline of 45.2 percent and 21.6 percent, respectively, from 4Q'16 ($558.9 billion) and 1Q'16 ($361.9 billion).

According to Freddie Mac, average conventional 30-year mortgage rates rose sharply in the first quarter to 4.17 percent, up from 3.84 percent in the prior quarter, as the Federal Reserve raised the federal funds target rate range in March to 0.75 to 1 percent; average rates for the month of March were 4.2 percent.

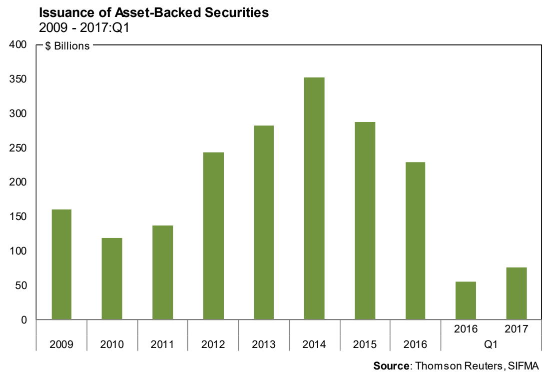
Non-Agency Issuance

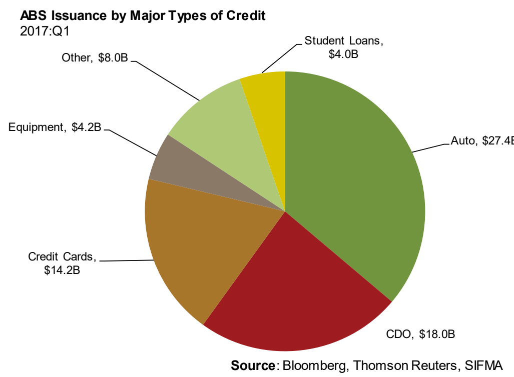
Non-agency issuance totaled $27.0 billion in 1Q'17, a decline of 45.2 percent from 4Q'16 ($49.1 billion) and a decline 21.6 percent y-o-y ($34.4 billion). Non-agency residential mortgage-backed securities (RMBS) issuance was $15.7 billion (down 29.6 percent q-o-q and up 4.6 percent y-o-y), while commercial mortgage backed securities (CMBS) issuance was $11.3 billion (down 58.1 percent q-o-q and 41.9 percent y-o-y).

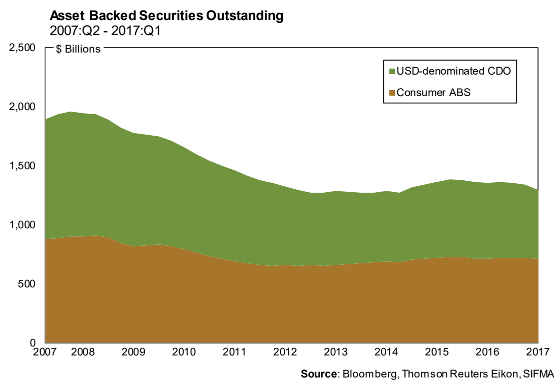
Trading Activity

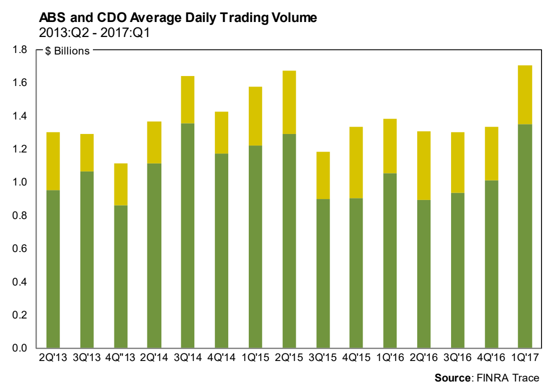
Daily trading volumes for mortgage-related securities fell in the first quarter, with declines in both agency trading and non-agency trading volumes. Average daily trading volume of agency mortgage-related securities, including passthroughs, CMOs and TBAs, was $195.7 billion in 1Q'17, a decline of 8.3 percent from 4Q'16 but an increase of 0.3 percent y-o-y. Average daily trading volumes of non-agency securities fell to $2.3 billion daily in 1Q'17, a decline of 19.2 percent q-o-q and 23.7 percent y-o-y.

ASSET-BACKED SECURITIES









Asset-Backed Market Issuance

Asset-backed securities (ABS) issuance totaled $75.8 billion in the first quarter, a decline of 3.5 percent q-o-q but an increase of 37.5 percent y-o-y. Both the auto and CDO sectors led issuance totals with $27.4 billion (36.2 percent of 1Q'17 total issuance) and $18.0 billion (23.8 percent of first quarter issuance) issued, respectively.

On a q-o-q basis, auto, credit cards, and equipment experienced q-o-q increases in issuance volumes in the first quarter: auto rose 65.6 percent, credit cards rose 181.3 percent, and equipment rose 19.9 percent. USD-denominated CDOs, esoteric ABS, and student loans experienced q-o-q declines of 38.8 percent, 54.4 percent, and 39.6 percent, respectively. USD-denomianted CDO issuance largely consisted of refinancings of earlier vintage CDOs, a trend that began in 2015 but picked up steam in late 2016; refinancings in the first quarter 2017 were largely from the 2015 vintage.

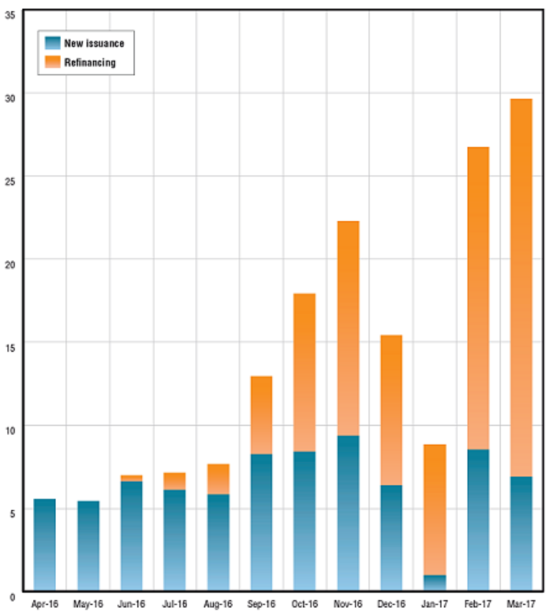
Outstanding volumes ended the first quarter at $1.29 trillion, a decline of 3.4 percent q-o-q and a decline of 4.7 percent y-o-y. All ABS asset categories except esoteric ABS declined q-o-q in outstanding volumes: auto, credit cards, equipment, student loans and CDOs declined by 1.6 percent, 3.5 percent, 0.9 percent, 1.5 percent and 6.1 percent, respectively, while esoteric ABS grew 2.2 percent. Notable subcategories to see q-o-q growth were: solar ABS (32.6 percent growth), small business (19.3 percent), structured settlement (7.9 percent), subprime auto (3.3 percent) and consumer loans (3.3 percent).

Trading Activity

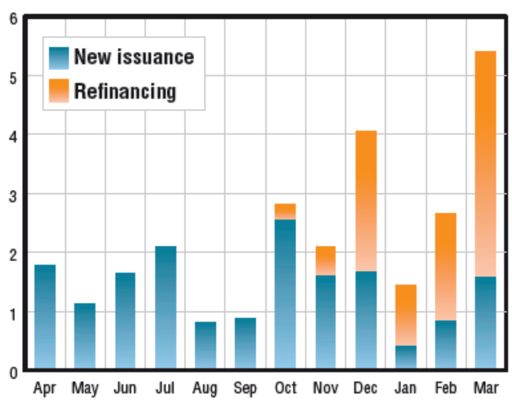
Daily average trading activity in ABS and CDOs grew in the first quarter to $1.71 billion, an increase of 27.7 percent from $1.34 billion in 4Q'16 and a 23.6 percent increase from $1.38 billion in 1Q'16. Trading activity increases were driven largely by ABS trading volumes, which averaged $1.35 billion daily in 1Q'17, an increase of 33.5 percent and 28.3 percent, respectively, q-o-q and y-o-y. CDO trading volumes were $0.35 billion, an increase of 9.4 percent and 8.5 percent, respectively, q-o-q and y-o-y.

U.S. COLLATERALIZED LOAN OBLIGATIONS[5]

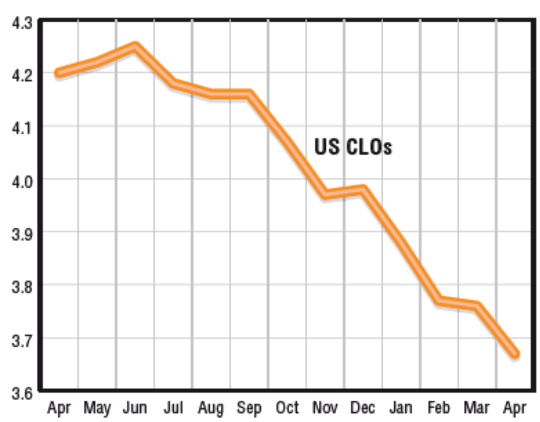
US CLO issuance volumes Apr 2016 to Mar 2017 ($bn)



Euro CLO issuance 2016/2017 (€bn)



US CLO weighted average spread (%)



Who cares about risk retention?

If the fourth quarter of 2016 was a busy one for the CLO market, the first three months of 2017 saw the primary market go into overdrive. According to Creditflux data, a total of $75.3 billion priced in the global CLO market in the first quarter, from 168 deals. This is 50 percent more than the previous quarter, and a massive sevenfold increase on the first quarter of 2016, when just $11.3 billion priced worldwide.

Following the Federal Reserve's decision to raise interest rates in December, demand for floating rate assets skyrocketed, with leveraged loan funds receiving record inflows in the early weeks of the year. CLOs benefited from this general demand for floating-rate products: investors from Europe, the US and Asia all piled into the asset class, exerting downward pressure on spreads.

While 1Q'17 saw a substantial amount of true new issuance – 38 new CLOs priced worldwide, for a total of $19.45 billion – this was dwarfed by a frenzy of refinancing activity. In total, $55.9 billion of CLOs were refinanced or reset in Q1 – $22 billion more than for the whole of 2016.

The bulk of issuance came in the form of "Crescent refinancings" of CLOs that priced before new US risk retention rules were finalized in December 2014. Under the terms of a no-action letter from the SEC, these deals can be refinanced without triggering the risk retention requirement, allowing managers to take advantage of spread tightening without having to put up significant amounts of capital.

Credit Suisse Asset Management led the way with five of these deals, for a total of $3.6 billion. Overall, $48.75 billion of US deals were refinanced in Q1. On the arranger side, Morgan Stanley was the leading bank for CLO refinancings, pricing $9.53 billion globally, while Citi was close behind, with $9.49 billion in refinancing volumes.

This CLO refinancing wave shows no signs of stopping soon. Refinanced triple-A tranches priced at an average of 118 basis points over Libor in 1Q'17, down from Libor plus 131 bps in 4Q'16. As a result, the number of CLOs that are refinancing candidates has increased. According to Nomura, at least another $60 billion of outstanding CLOs are now potential candidates for refinancing.

Funding costs also fell sharply for new issue CLOs during the quarter. After MJX Asset Management opened the US market on January 9 with a triple-A print of 145 bps over Libor – already tighter than the Q4 average of 148 bps – triple-A spreads kept getting squeezed tighter.

By March, top-tier managers were printing new deals in the 120 bps area over Libor, with GoldenTree Asset Management securing the tightest print since 2013 – 122 bps – on March 9. The weighted average triple-A spread for 1Q'17 US CLOs was 132 bps over Libor – the tightest quarterly average for four years.

The spread-tightening effect was also noticeable in Europe. After a dramatic fall in funding costs in 4Q'16, European triple As continued to grind tighter, ending the quarter in the mid-80s. Spire Partners became the first manager to break the 90 bps barrier for a new issue CLO, pricing Aurium III's triple As at 88 bps on

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

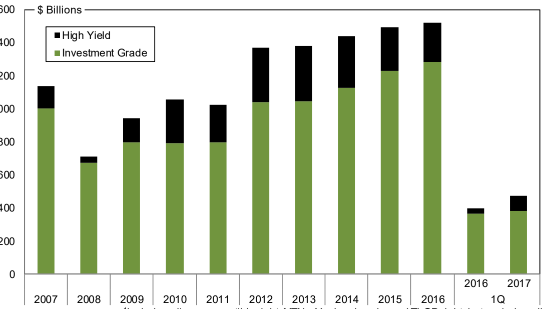
March 17. A week later, Investcorp Credit Management (formerly 3i Debt Management) secured an 87 bps triple-A spread for Harvest CLO XVII.

As CLO spreads tightened on both sides of the Atlantic, some equity investors seized the opportunity to lock in lower funding costs for as long as possible. Four managers priced US CLOs with five-year reinvestment periods, and Carlyle Group priced the first 2.0 CLO with a six-year reinvestment period on March 8. In Europe, Credit Suisse Asset Management priced the European 2.0 market's first five-year reinvestment deal shortly after quarter end, resetting Cadogan Square V on April 3.

However, it was not all good news for CLO market participants. While CLO spreads tightened, loan spreads fell even further. More than $200 billion of outstanding leveraged loans were refinanced or repriced in 1Q'17, putting significant pressure on CLO arbitrage. According to CLO-i data, the median CLO 2.0 weighted average spread (WAS) dipped 22 bps in 1Q'17 to 3.76 percent. Nomura predicts further spread compression to come.

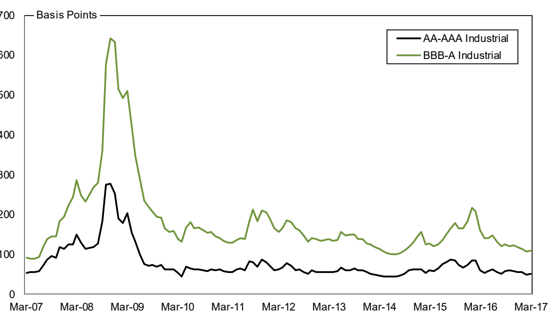
CORPORATE BOND MARKET

Corporate Bond Issuance[1]
2007 - 2017:Q1



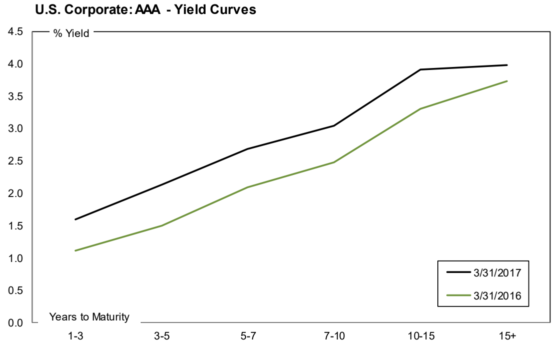
[1]Includes all nonconvertible debt, MTNs Yankee bonds, and TLGP debt, but excludes all issues with maturities of one year or less, CDs, and federal agency debt
Source: Thomson Reuters

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



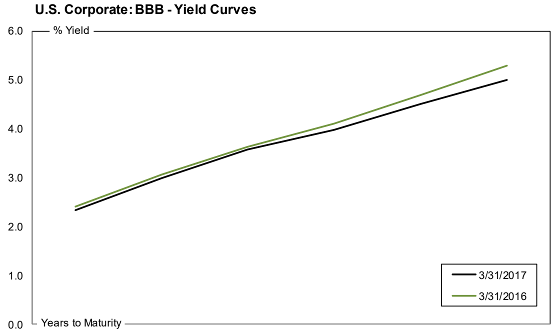
Source: Bank of America Merrill Lynch

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 $468.7 billion in 1Q'17, up 79.0 percent from $261.8 billion issued in 4Q'16 and up 17.9 percent from 1Q'16's issuance of $397.4 billion. Almost half of the bonds issued in the first quarter were for general corporate purposes (43.2 percent of total issuance), followed by indebtedness reduction (24.2 percent), and working capital (8.3 percent).

Investment grade (IG) bond issuance increased to $381.0 billion in 1Q'17, up 78.9 percent from $213.0 billion in the previous quarter and up 5.4 percent y-o-y. The top three industries accounted for almost three quarters of 1Q'17 IG issuance: financial companies remained the leading IG debt issuance sector accounting for half ($188.3 billion) of all IG issuance, followed by the high technology sector with 15.1 percent ($57.6 billion) and the energy and power sector with 8.3 percent ($31.5 billion).

Issuance of high yield (HY) bonds increased to $87.7 billion in 1Q'17, 79.6 percent above the 4Q'16's total of $48.9 billion and up 144.2 percent from $35.9 billion issued in 1Q'16. Three sectors made up almost half of total HY issuance in the first quarter: materials (19.4 percent, $17.0 billion), industrials (13.8 percent, $12.1 billion), and financials (13.2 percent, $11.6 billion).

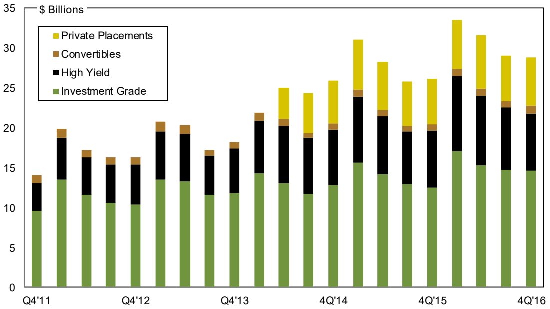
Bond Spreads and U.S. Default Rate

According to Bank of America-Merrill Lynch, option adjusted spreads for both AA-AAA industrial bonds and BBB-A industrial bonds tightened in the first quarter of 2017. Spreads of IG bond finished the quarter at 49 bps, down 5 bps from 54 bps at end-December 2016 and down 9 bps from 58 bps at the end of March 2016. HY bond spreads tightened even more q-o-q, ending 1Q'17 at 108 bps, 8 bps below 116 bps in 4Q'16 and down 52 bps from 160 bps at the end of March 2016.

S&P's Global Fixed Income Research reported the number of U.S. defaulted issuers decreased to 14 issuers in the first quarter of 2017 from 19 in 4Q'16 and down from 30 in 1Q'16. The U.S. trailing 12-month speculative-grade corporate default rate decreased to 4.1 percent in March 2017, down from 5.1 percent in December 2016 but up from 3.8 percent in March 2016. The U.S. speculative-grade corporate default rate is expected to fall further to 3.9 percent through December 2017.[6]

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

TRACE Average Daily Trading Volume - Corporate Bonds
2011:Q4 - 2016:Q4



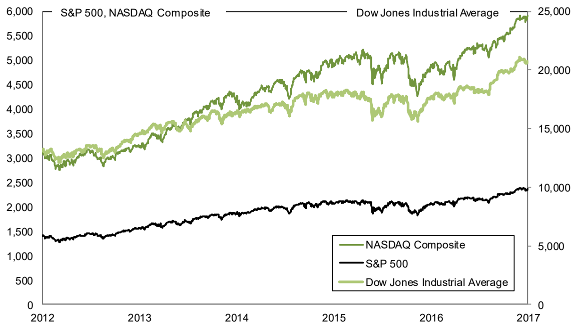
Note: Private placements trading volume only available from 2Q'14 on.
Source: FINRA

Trading Activity

According to the FINRA TRACE data, average daily trading volumes increased for investment grade (IG) and high yield (HY) corporate bonds and private placements but decreased for convertible bonds (CV) in 1Q'17. IG bonds average daily trading volume increased to $19.3 billion in 1Q'17, up 31.9 percent from $14.6 billion q-o-q and up 13.0 percent from $17.0 in 1Q'16. HY bonds average daily trading volume was $8.9 billion in 1Q'17, a 24.3 percent increase from $7.2 billion in the previous quarter but a 5.9 percent decrease from $7.2 billion in 1Q'16. Private placements trading volume increased by 33.0 percent to $8.0 billion in 1Q'17 and was up 32.1 percent from $6.1 billion in 1Q'16. The average daily trading volume of CV bonds decreased to $0.88 billion in 1Q'17, a 13.2 percent below 4Q'16's $1.02 billion but up 0.8 percent from $0.88 billion in 1Q'16.

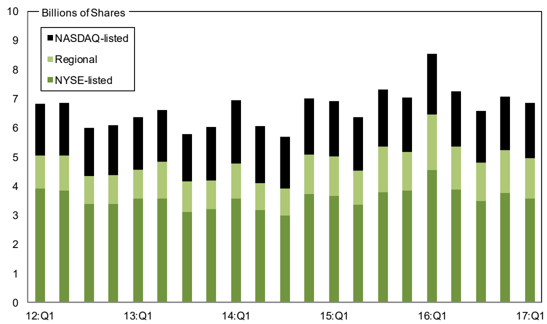
EQUITY AND OTHER MARKETS

Daily Closing Stock Prices
Mar. 2012 - Mar. 2017



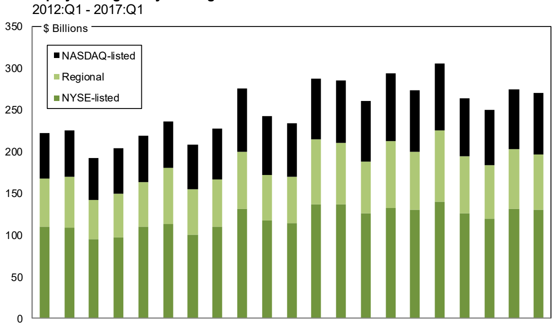
Source: Bloomberg

Equity Average Daily Share Volume
2012:Q1 - 2017:Q1



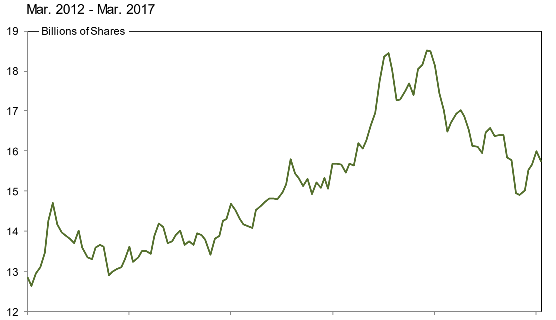
Source: Bats Global Markets

Equity Average Daily Trading Volume
2012:Q1 - 2017:Q1



Source: Bats Global Markets

NYSE Short Interest
Mar. 2012 - Mar. 2017



Source: NYSE
Note: Starting in July 2015 totals include short interest on NYSE MKT

The U.S. equity market posted a strong quarter to start the year. The S&P 500 closed 1Q'17 at 2,362.72, a 5.5 percent increase from the prior quarter and 14.7 percent increase y-o-y. The NASDAQ Composite Index finished 1Q'17 at 5,911.74, a 9.8 percent increase q-o-q and a 21.4 percent increase y-o-y. The Dow Jones Industrial Average (DJIA) also posted gains ending 1Q'17 at 20,663.22, a 4.6 percent gain q-o-q and a 16.8 percent gain y-o-y. The DJIA closed above 20,000 for the first time on January 25, 2017.Equity Average Daily Share and Dollar Volume

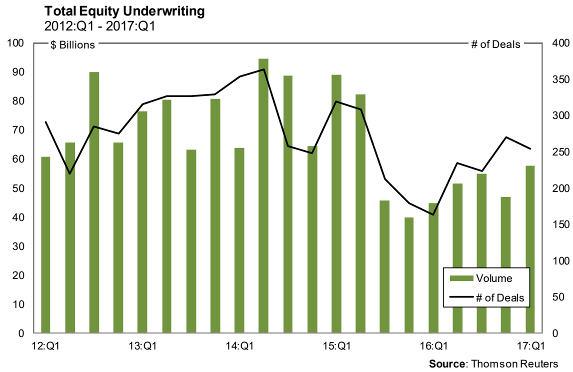
Equity average daily share volume decreased by 3.1 percent to 6.8 billion shares in 1Q'17 from 7.1 billion shares in 4Q'16 and down 20.0 percent from 8.6 billion in 1Q'16. The largest quarterly decrease was observed in stocks listed on regional exchanges, which average daily share volume dropped by 6.0 percent in 1Q'17 while NYSE-listed stock volume decreased by 4.9 percent and NASDAQ-listed stock volume increased by 3.1 percent.

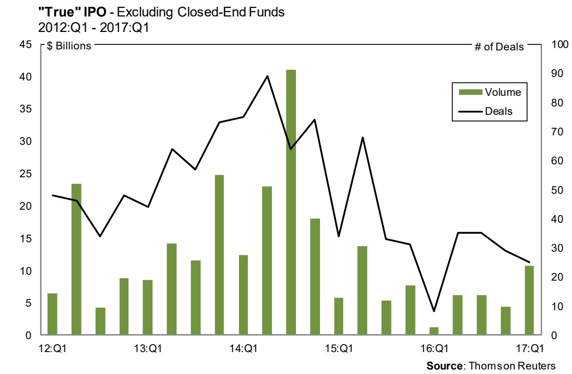
Equity average daily dollar volume decreased by 1.7 percent to $269.7 billion in 1Q'17 from $274.3 billion in 4Q'16 and down 11.7 percent from $305.5 billion in 1Q'16. Similarly to share trade volume, decreases in dollar volume were observed in NYSE- (down 0.9 percent q-o-q) and regional-listed stocks (down 7.0 percent), while NASDAQ-listed stocks' dollar volume increased by 2.2 percent from 4Q'16.

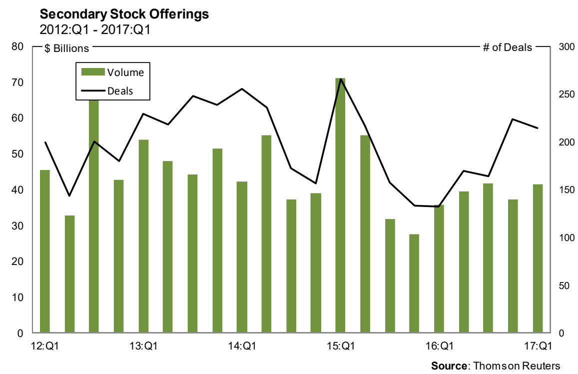
NYSE Short Interest

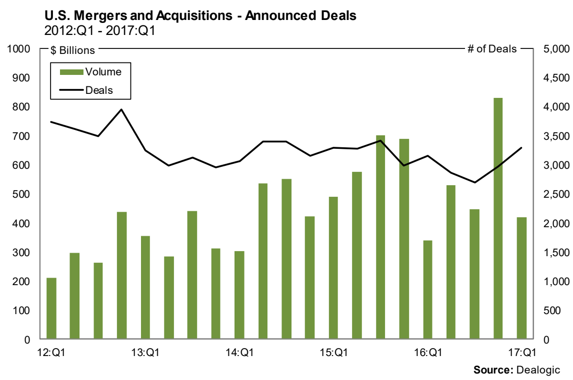
The number of shares sold short on the NYSE averaged 15.5 billion in 1Q'17, down 3.0 percent from 16.0 billion during the previous quarter and down 14.6 percent from 18.1 billion in 1Q'16. NYSE short interest was 1.9 percent above the five-year average of 15.2 billion. Out of approximately 6,100 issues, a short position was shown in 4,976 issues at the end of 1Q'17, of which 3,940 issues showed a short position of 5,000 shares or more.[7]

[7] NYSE, NYSE Arca and NYSE MKT Short Interest Reports, April 11, 2017.









Equity Underwriting Volume

Equity underwriting increased by 23.4 percent to $57.7 billion in the first quarter from $46.8 billion in 4Q'16 and up 29.4 percent from $44.6 billion issued in 1Q'16. Equity underwriting volume in 1Q'17 was 14.2 percent below the five-year average of $67.3 billion.

IPO Volume

"True" initial public offerings (IPOs), which exclude closed-end mutual funds, increased to $10.7 billion on 25 deals in 1Q'17. The IPO volume increased by 144.8 percent from $4.4 billion on 29 deals in 4Q'16 and was up tenfold from $1.2 billion on 8 deals in 1Q'16.

Secondary Offerings

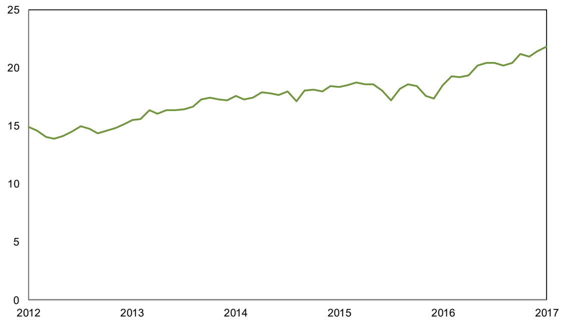
Secondary market issuance increased to $41.4 billion on 214 deals in 1Q'17, up 11.4 percent from $37.1 billion on 132 deals in 4Q'16 and up 16.1 percent from $35.6 billion on 132 deals in 1Q'16.

Announced M&A Volume

Announced U.S. mergers and acquisitions (M&A) volume stood at $420.5 billion in 1Q'17, a 49.3 percent decrease from the previous quarter's $828.9 billion but a 23.6 percent increase y-o-y. M&A volume was 8.8 percent below the 5-year quarterly average of $460.9 billion.

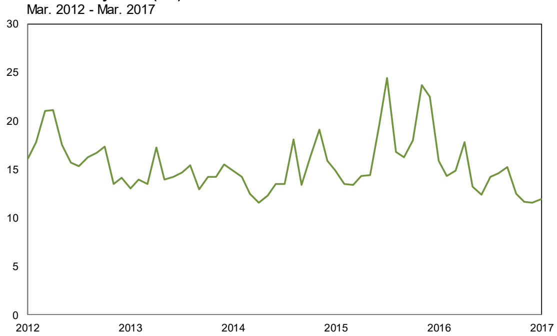
According to data from Dealogic, the amount of "U.S. Inbound" M&A (money invested in U.S. companies by those outside the U.S. through M&A) decreased to $85.5 billion in 1Q'17, down 47.6 percent from $163.0 billion in the previous quarter but up 3.4 percent from $82.6 billion in 1Q'16. The dollar amount U.S. companies invested in other countries through M&A ("US Outbound") also decreased in 1Q'17; American firms invested $98.2 billion in deals outside of the U.S., a 33.4 percent decrease from $147.4 billion in 4Q'16 but up 103.8 percent from $48.2 billion invested in 1Q'16.

S&P 500 P/E Ratio
Mar. 2012 - Mar. 2017



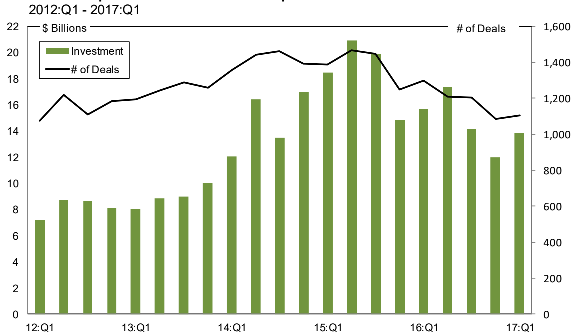
Source: S&P

SPX Volatility Index (VIX)
Mar. 2012 - Mar. 2017



Source: Chicago Board of Options Exchange

Venture Capital Investments in U.S. Companies
2012:Q1 - 2017:Q1



Source: Pricewaterhouse/Venture Economics/NVCA MoneyTree Survey

S&P P/E Ratio

The S&P 500's P/E ratio averaged 21.4 in 1Q'17, up 4.0 percent from the previous quarter's 20.6 and up 20.0 percent from 17.8 in 1Q'16. The S&P P/E ratio stood 22.0 percent above the 5-year average of 17.5 in 1Q'17 but 24.6 percent below the high of 28.4 in 1Q'00.[8]

CBOE VIX Index

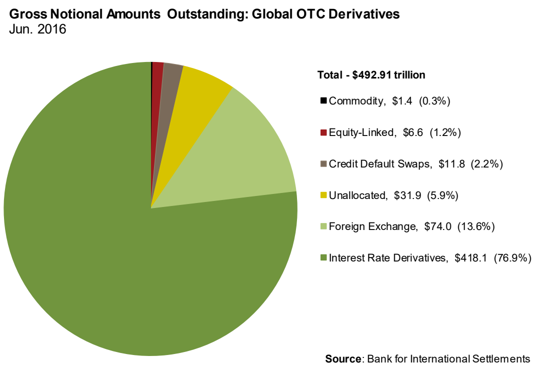
The Chicago Board Options Exchange Volatility Index (VIX) decreased to an average of 11.7 in the first quarter from an average of 14.1 in 4Q'16 and down 42.9 percent from 20.5 in 1Q'16. The quarter started with an index decreasing to a low of 10.58 in the beginning of March but then gradually increased to a high of 13.12 at the end of March The spread between high and low values for the VIX was 2.54 in 1Q'17, much tighter than 11.24 in 4Q'16 and 14.58 in 1Q'16.

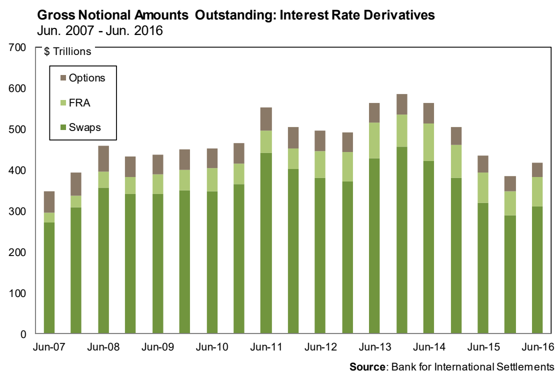
Venture Capital Volume

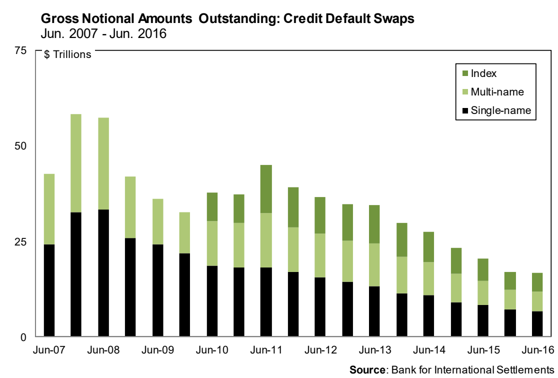
Venture capitalists invested $13.9 billion in 1,104 deals in the first quarter of 2017, according to the MoneyTree™ Report from PricewaterhouseCoopers LLP (PwC) and the National Venture Capital Association (NVCA), based on data provided by Thomson Reuters. Quarterly venture capital (VC) investment activity increased by 15.5 percent in dollar terms and by 1.8 percent in the number of deals compared to 4Q'16 when $12.0 billion was invested in 1,085 deals. The internet sector continued to receive the highest level of funding of all industries with $5.2 billion in 1Q'17, up 11.4 percent from $4.7 billion in 4Q'16 but down 9.2 percent y-o-y. The healthcare sector received second largest amount of funding with $3.7 billion (up 85.6 percent q-o-q) followed by the mobile and telecommunications sector with $1.9 billion (down 26.3 percent q-o-q).[9]

[8] SIFMA records start in January 2000.
[9] US MoneyTree Report Press Release, 1Q 2017.

GLOBAL OTC DERIVATIVES[10]







Global OTC Derivatives Market

According to the most recent Bank of International Settlements (BIS) Semi-annual Over-the-Counter (OTC) Derivatives Markets Statistics Report ("BIS Report")[11], the gross notional amount outstanding of OTC derivatives totaled $544.1 trillion as of end-June 2016, up 10.4 percent from end-December 2015 (most recent data available). While equities (down 7.1 percent to $6.6 trillion) and credit default swaps (CDS) (down 4.2 percent to $11.8 trillion) saw decreases, these were outweighed by increases in interest rate derivatives (IRD) (up 8.9 percent to $418.1 trillion), foreign exchange contracts (up 5.1 percent to $74.0 trillion), unallocated contracts (up 83.0 percent to $31.9 trillion), and commodity swaps (up 5.5 percent to $1.4 trillion) from end-December 2015.

The gross market value of OTC derivatives increased to $20.7 trillion as of end-June 2016, up 42.9 percent from end-December 2015, which according to the BIS statistical release[12] can largely attributed to increases in foreign exchange derivatives involving the yen and pound sterling, due to sharp moves in the respective currencies. Gross credit exposure of outstanding OTC derivatives increased 29.0 percent to $3.7 trillion during the same period.

Interest Rate Derivatives

According to the BIS Report, IRD accounted for the majority of the gross notional amount outstanding for the OTC derivatives market, at $418.1 trillion as of end-June 2016, representing 76.8 percent of the global market (a 1.4 percent decrease from the end-December 2015 market share of 77.9 percent). Interest rate swaps (IRS) (accounting for 74.5 percent of the total IRD market as of end-June 2016) totaled $311.5 trillion, up 7.9 percent from end-December 2015 (down 2.6 percent, however, y-o-y). Forward Rate Agreements (FRAs) also saw increases (up 23.2 percent from end-December 2015, but down 5.0 percent y-o-y). Options, however, declined 6.3 percent from end-December 2015 and 13.3 percent y-o-y.

Credit Default Swaps

According to the BIS Report, CDS accounted for 2.3 percent of the gross notional amount outstanding of the global OTC derivatives market, at $11. 8 trillion as of end-June 2016 (down 4.2 percent from end-December 2015 and 19.3 percent y-o-y). Single-name CDS totaled $6.6 trillion as of end-June 2016 (down 7.8 percent from end-December 2015 and 19.3 percent y-o-y). Multi-name CDS totaled $5.2 trillion as of end-June 2016 (unchanged from end-December 2015 and down 19.3 percent y-o-y). Index CDS totaled $4.8 trillion as of end-June 2016 (up 2.1 percent from end-December 2015, but down 18.2 percent y-o-y).

[10] Updated semiannually based on data from Bank for International Settlements.
[11] Based on data from most recent report released, available at: http://www.bis.org/statistics/derstats.htm.
[12] Available at: http://www.bis.org/publ/otc_hy1611.pdf.

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