RESEARCH QUARTERLY

Third Quarter 2017

RESEARCH REPORT

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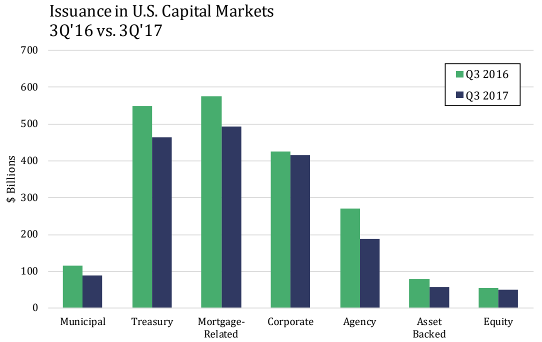
CAPITAL MARKETS OVERVIEW



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

Issuance Highlights - Year-Over-Year(1)

$ Billions	2017:Q3	2016:Q3	% Change
Municipal	87.6	115.4	-24.0%
Treasury	463.9	548.0	-15.3%
Mortgage-Related	493.0	575.9	-14.4%
Corporate	415.7	426.3	-2.5%
Federal Agency	185.7	255.5	-27.3%
Asset-Backed	57.5	80.1	-28.3%
Equity	51.1	54.9	-6.8%

Issuance Highlights - Quarter-Over-Quarter(1)

$ Billions	2017:Q3	2017:Q2	% Change
Municipal	87.6	108.1	-18.9%
Treasury	463.9	570.8	-18.7%
Mortgage-Related	493.0	451.6	9.2%
Corporate	415.7	395.0	5.2%
Federal Agency	185.7	166.7	11.4%
Asset-Backed	57.5	161.8	-64.5%
Equity	51.1	52.9	-3.3%

(1) Includes long-term issuance only

Total Capital Markets Issuance

Long-term securities issuance totaled $1.76 trillion in 3Q'17, an 8.0 percent decrease from $1.91 trillion in 2Q'17 and a 15.2 percent decrease year-over-year (y-o-y) from $2.07 trillion. Issuance decreased quarter-over-quarter (q-o-q) across all asset classes except mortgage-related, corporate, and agency securities; y-o-y, all asset classes suffered declines in issuance.

Long-term public municipal issuance volume including private placements for 3Q'17 was $87.6 billion, down 18.9 percent from $108.1 billion in 2Q'17 and down 24.0 percent from $115.4 billion in 3Q'16.

The U.S. Treasury issued $463.9 billion in coupons, FRNs and TIPS in 3Q'17, down 18.7 percent from $570.8 billion in the prior quarter and 15.3 percent below $548.0 billion issued in 3Q'16.

Issuance of mortgage-related securities, including agency and non-agency passthroughs and collateralized mortgage obligations, totaled $493.0 billion in the third quarter, a 9.2 percent increase from 2Q'17 ($451.6 billion) but a 14.4 percent decrease y-o-y ($575.9 billion).

Corporate bond issuance totaled $415.7 billion in 3Q'17, up 5.2 percent from $395.0 billion issued in 2Q'17 but down 2.5 percent from 3Q'16's issuance of $426.3 billion. Of 3Q'17 corporate bond issuance, investment grade issuance was $352.8 billion (84.9 percent of total) while high yield issuance was $62.9 billion (15.1 percent).

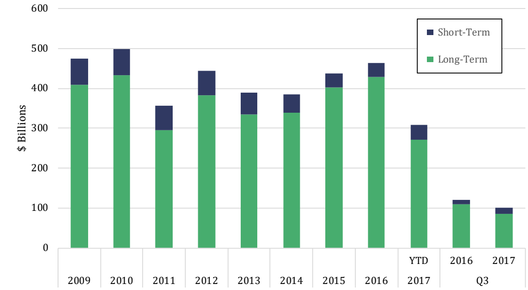
Long-term federal agency debt issuance was $185.7 billion in the third quarter, a 11.4 percent increase from $166.7 billion in 2Q'17 but a 27.3 percent decrease from $255.5 billion issued in 3Q'16.

Asset-backed securities issuance totaled $57.5 billion in the third quarter, a decrease of 64.5 percent q-o-q ($161.8 billion) and a 28.3 percent decrease y-o-y ($80.1 billion).

Equity underwriting decreased by 3.3 percent to $51.1 billion in the third quarter from $52.9 billion in 2Q'17 and was down 6.8 percent from $54.9 billion issued in 3Q'16. Of the total, "true" initial public accounted for $4.3 billion, down 50.1 percent from $8.7 billion in 2Q'17 and down 29.5 percent from $6.2 billion in 3Q'16.

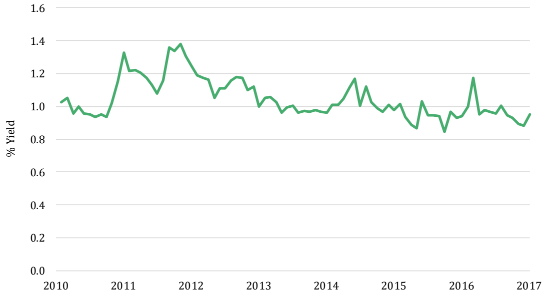
MUNICIPAL BOND MARKET

Short-[1] and Long-Term Municipal Issuance
2009 - 2017:Q3



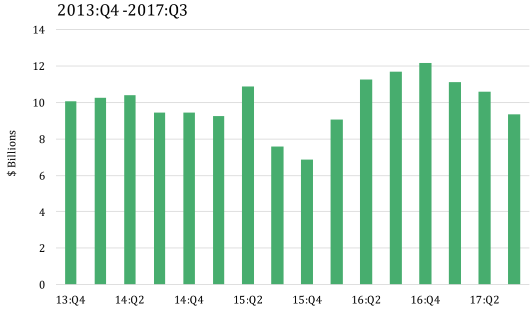
[1]Includes maturities of 13 months or less.
Source: Thomson Reuters

Municipal GO AAA and 10-Yr Treasury Ratio
Oct. 2010 - Sep. 2017



Source: Bloomberg, MMA

Average Daily Trading Volume of Municipal Securities[1]
2013:Q4 -2017:Q3



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

According to Thomson Reuters, long-term public municipal issuance volume totaled $87.6 billion in the third quarter of 2017, a decline of 16.0 percent from the prior quarter ($100.7 billion) and a decline of 22.0 percent year-over-year (y-o-y) ($108.7 billion)[1]. As of the end of September, year-to-date municipal issuance totaled $287.2 billion and was generally in line with the 10-year average of $271.6 billion for the first three quarters of the year.

Tax-exempt issuance totaled $75.2 billion in 3Q'17, a decline of 14.0 percent q-o-q and a decline of 23.7 percent y-o-y; year to date, tax-exempt issuance was $239.1 billion. Taxable issuance totaled $5.9 billion in 3Q'17, a decline of 37.3 percent q-o-q and 25.1 percent y-o-y; year to date, taxable issuance totaled $22.7 billion. AMT issuance was $3.5 billion in 3Q'17, a decline of 7.9 percent q-o-q but an increase of 49.4 percent y-o-y; year to date, AMT volumes were $10.0 billion year to date ending September.

By use of proceeds, general purpose led issuance totals in 3Q'17 ($20.2 billion), followed by primary & secondary education ($15.5 billion) and higher education ($7.8 billion). Refunding volumes rose slightly to comprise 44.1 percent of issuance in 3Q'17 from 41.4 percent in the prior quarter but declined from 52.4 percent from the third quarter of 2016.[2]

Yields, Inflows, and Total Return

Ratios of 10-year tax-exempt AAA GOs and similar-maturity Treasuries fell in the third quarter on a q-o-q basis, averaging 85.0 percent in 3Q'17 from 89.6 percent in 2Q'17.

According to the Investment Company Institute (ICI), third quarter net flow into long-term tax-exempt funds was positive, with $7.3 billion of net inflow in 3Q'17 compared to $8.0 billion of inflow from 2Q'17 and $16.5 billion of inflow y-o-y.

According to Bank of America-Merrill Lynch indices, municipals gained 1.2 percent in the third quarter of 2017. The transportation, leasing/rental, and local sectors had the strongest performance within the individual municipal sectors (1.9 percent, 1.5 percent and 1.4 percent respectively) in 3Q'17 while multifamily, education, and miscellaneous underperformed relative to other municipal sectors (0.8 percent, 0.9 percent and 0.9 percent total return, respectively). Build America Bonds (BABs) gained 1.6 percent, outperforming both tax exempts bonds and similarly-rated corporate bonds (1.2 percent) in 3Q'17.

Year to date ending September, tax-exempt municipals returned 4.6 percent, Build America Bonds returned 0.4 percent, and investment grade corporates returned 0.9 percent.

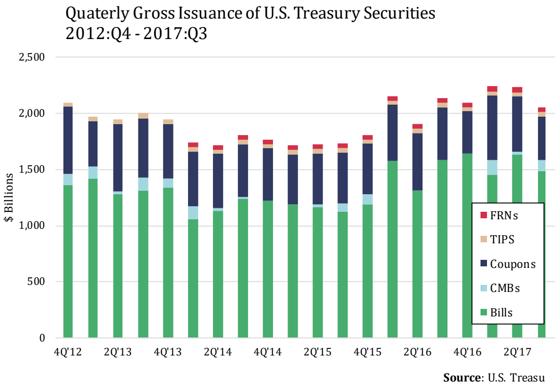
Trading Activity and Bank Holdings

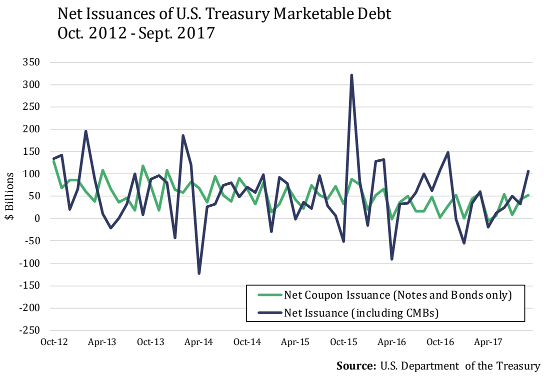
Trading activity fell 11.7 percent q-o-q to $9.3 billion daily in 3Q'17 from $10.6 billion in 2Q'17 and fell 20.2 percent from 3Q'16 ($11.7 billion). By number of trades, trading activity also fell 9.3 percent on a q-o-q basis but rose 8.5 percent on a y-o-y basis.

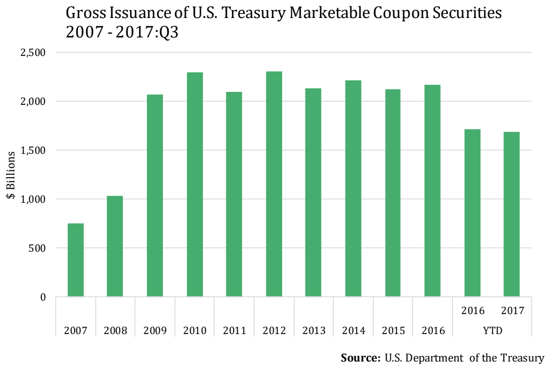
Bank holdings of both municipal loans rose in 2Q'17 from the prior quarter to $180.3 billion (from $176.0 billion) while holdings of bonds fell slightly to $376.9 billion (from $378.2 billion).

[1] Private placement figures are included.
[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 $2.05 trillion in 3Q'17, down 8.1 percent from $2.23 trillion in 2Q'17 and a 4.0 percent decrease from $2.14 trillion in 3Q'16. Treasury net issuance, including CMBs, increased to $188.7 billion in the third quarter, up from $17.1 billion in the previous quarter but down from net issuance of $222.4 billion in 3Q'16. Third quarter net issuance was almost double the Treasury's net issuance estimate of $96.0 billion.[3]

In 3Q'17, $105.0 billion in CMBs was issued, a large increase from $25.0 billion issued in 2Q'17 and from $0.03 billion in 3Q'16.

The U.S. Treasury issued $463.9 billion in coupons, FRNs and TIPS in 3Q'17, down 18.7 percent from $570.8 billion in the prior quarter and 15.3 percent below $548.0 billion issued in 3Q'16.

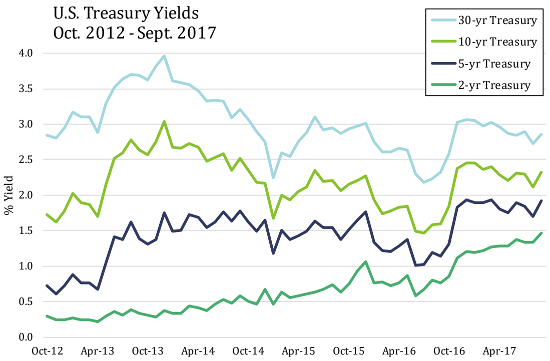
Excluding TIPS and FRNs, total gross issuance of Treasury marketable coupon securities was $381.6 billion, down 22.5 percent from $492.2 billion issued in 2Q'17 and 18.0 percent below the $465.5 billion issued in 3Q'16. Net coupon issuance was $104.8 billion in 3Q'17, a 86.7 percent increase from $56.1 billion in 2Q'17 and up 25.6 percent y-o-y.

In 3Q'17, $42.5 billion in FRNs was issued, down 4.7 percent from $44.6 billion in 2Q'17 and down 0.7 percent from $42.8 billion in 3Q'16.

Trading Activity

The daily trading volume of Treasury securities by primary dealers averaged $473.2 billion in 3Q'17, a 7.6 percent decrease from $511.9 billion in the previous quarter and a 4.7 percent decrease from the $496.5 billion traded daily in 3Q'16.

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



Source: Federal Reserve

Treasury Yield Curve

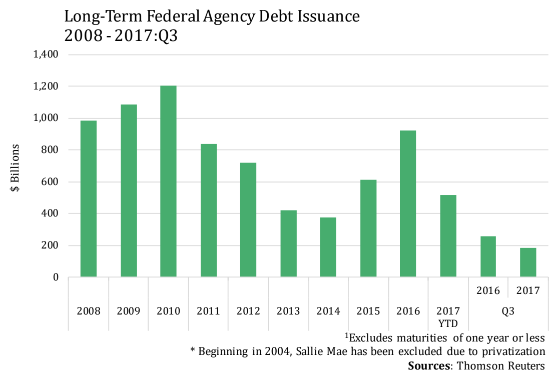
In 3Q'17 U.S. Treasury yields increased for short-, medium- and long-term securities. Two-year rates increased to 1.47 percent in 3Q'17, up from 1.38 percent end-June and from 0.77 percent end-September 2016. Five-year yields increased to 1.92 percent end-September, up from 1.89 percent in 2Q'17 and from 1.14 percent in 3Q'16. Ten-year yields increased to 2.33 percent end-September, up from 2.31 percent end-June and from 1.60 percent in 3Q'16. 30-year yields ended 3Q'17 at 2.86 percent, up from 2.84 percent end-June and from 2.32 percent end-September 2016.

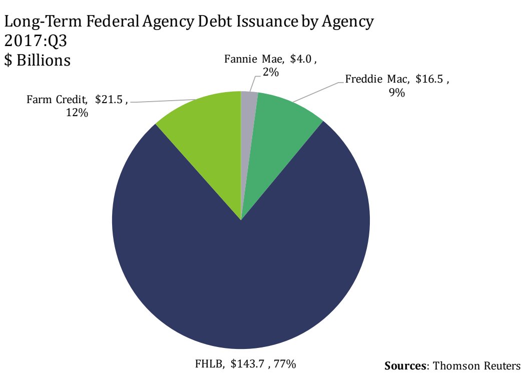
FOMC Meeting Summary

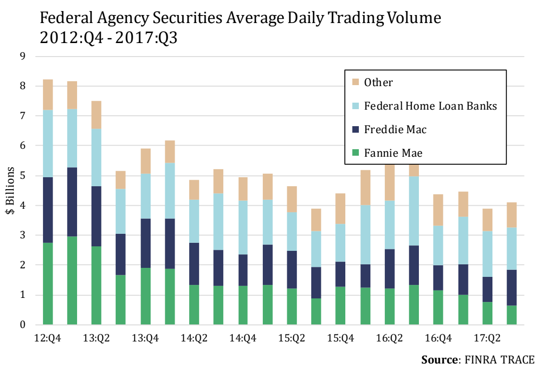
During its October 31-November 1, 2017 meeting, the Federal Reserve's Federal Open Market Committee decided to maintain the target range for the federal funds rate at 1.00-1.25 percent.[4] The FOMC also confirmed that its stance of monetary policy remains accommodative, thereby supporting some further 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, November 1, 2017.
[5] Ibid.

FEDERAL AGENCY DEBT MARKET







Federal agency long-term (LTD) issuance was $185.7 billion in the third quarter, a 11.4 percent increase from $166.7 billion in 2Q'17 but a 27.3 percent decrease from $255.5 billion issued in 3Q'16. Year-to-date (YTD) 2017, federal agency LTD issuance totaled 515.2 billion, a 29.4 percent decrease from $729.5 billion y-o-y.

Fannie Mae's 3Q'17 gross debt issuance, both short term debt (STD) and LTD, totaled $200.7 billion, and a 31.7 percent increase from $152.3 billion in 2Q'17. STD issuance increased to $196.7 billion compared with $149.2 billion in 2Q'17 while LTD issuance increased to $4.0 billion in 3Q'17 from $3.1 billion in 2Q'17. Fannie Mae had $33.4 billion STD outstanding and $237.3 billion LTD outstanding at the end of 3Q'17.

Freddie Mac's gross debt issuance totaled $106.3 billion in 3Q'17, a decrease of 19.7 percent from $132.4 billion in 2Q'17. As of quarter-end, Freddie Mac had $48.5 billion STD and $162.4 billion LTD outstanding, in comparison with $52.4 billion STD and $172.5 billion LTD in the prior quarter.

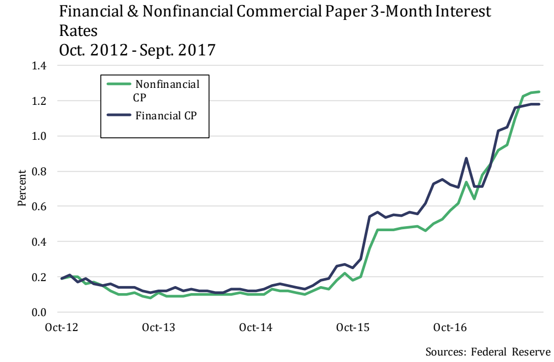
The 12 Federal Home Loan Banks (FHLB) issued $143.7 billion in LTD in the third quarter, an increase of 26.3 percent from $113.9 billion in 2Q'17. In 3Q'17, $1,580.8 billion of STD was issued, down from $1,729.6 billion issued in 2Q'17. Total FHLB LTD outstanding was $620.5 billion at quarter-end, up from $582.3 billion outstanding at the end of the second quarter. Discount notes outstanding increased to $407.9 billion in 3Q'17 from $429.2 billion in 2Q'17.

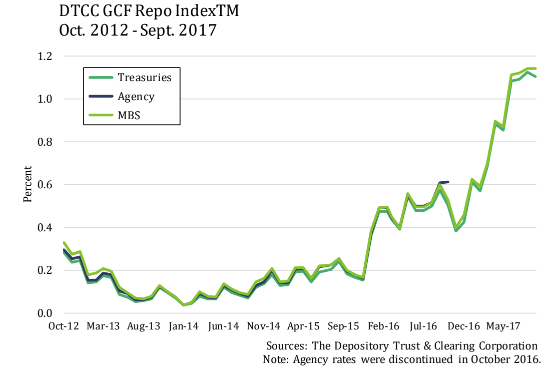
Total Farm Credit System gross debt issuance for 3Q'17 totaled $63.3 billion. Total debt outstanding at the end of the third quarter was $258.0 billion, of which $25.5 billion was short-term and $232.5 billion was long-term compared to $25.7 billion short-term and $232.9 billion long-term in the prior quarter.

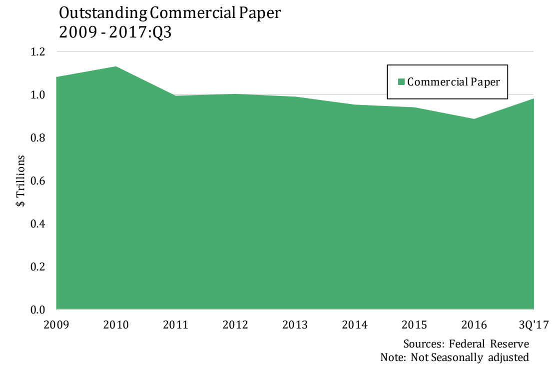
Trading Activity

Average daily trading volume of agency securities in the third quarter was $4.1 billion, up 5.1 percent from $3.9 billion traded in 2Q'17 but down 33.9 percent from $6.2 billion traded in 3Q'16. Growth was primarily driven by Freddie Mac agency securities trading volume increasing 40.0 percent q-o-q while Fannie Mae and FHLB security trade volume decreased 13.8 percent and 6.8 percent q-o-q, respectively.

FUNDING AND MONEY MARKET INSTRUMENTS







Total Repurchase Activity

The average daily amount of total repurchase (repo) and reverse repo agreement contracts outstanding was $4.00 trillion in 3Q'17, an increase of 0.4% percent from 2Q'17's $3.98 trillion and a decline of 1.2 percent y-o-y.

Average daily outstanding repo transactions totaled $2.23 trillion in 3Q'17, an increase of 0.6 percent q-o-q and an increase of 0.3 percent y-o-y. Reverse repo transactions in 3Q'17 averaged $1.77 trillion daily outstanding, an increase of 0.02 percent and a decline of 3.2 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 3Q'17 on a q-o-q basis and y-o-y basis: the average repo rate for Treasuries (30-year and less) rose to 110.6 basis points (bps) from 2Q'17's average rate of 94.2 bps and 3Q'16's average of 51.7 bps. The average MBS repo rate rose to 113.4 bps from 96.2 bps in the previous quarter and 53.6 bps in 3Q'16.

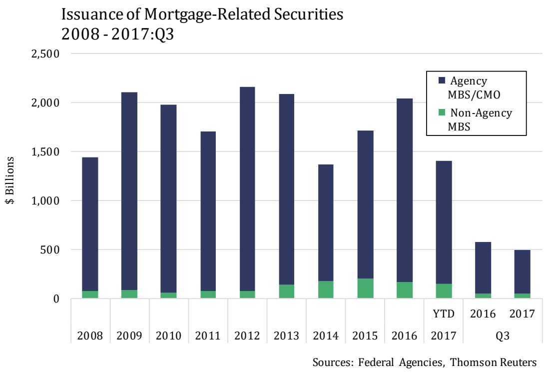
Financial and Nonfinancial 3-Month Commercial Paper Interest Rates

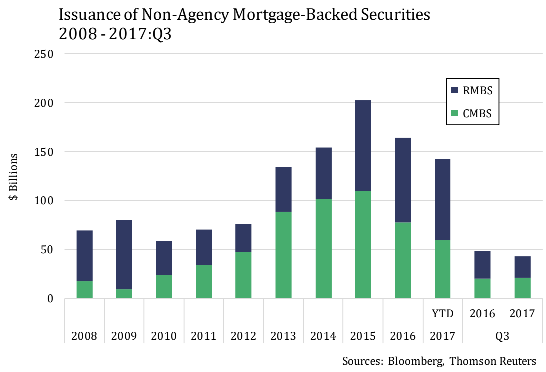
Interest rates for nonfinancial commercial paper (CP) rose to 125 bps end-September 2017 from 110 bps end-June 2017 and from 53 bps end-September 2016, and financial CP increased to 118 bps end-September from 116 bps end-June 2017 and also rose from 75 bps end-September 2016.

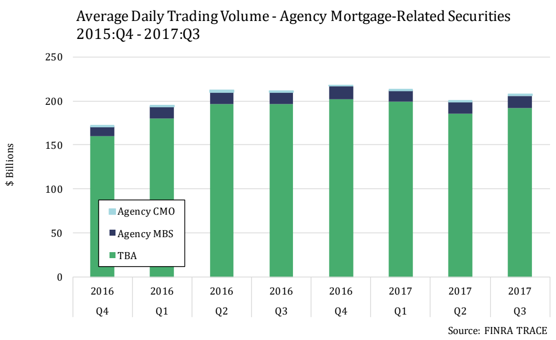
Total Money Market Instruments Outstanding

Preliminary outstanding volume of commercial paper, stood at $952.4 billion at the end of the third quarter, up 6.1 percent from the prior quarter's $925.7 billion and an increase of 7.8 percent y-o-y.

MORTGAGE-RELATED SECURITIES







Mortgage-Related Issuance

Issuance of mortgage-related securities, including agency and non-agency passthroughs and collateralized mortgage obligations (CMOs), totaled $493.0 billion in the third quarter, a 9.2 percent increase from 2Q'17 ($451.6 billion) and a 14.6 percent decline y-o-y ($577.0 billion). The increase was due to agency issuance volumes increasing; while non-agency volumes declined q-o-q in 3Q'17, leading to the agency share of issuance to climb to 91.3 percent from 86.1 percent.

Agency Issuance

Agency mortgage-related issuance totaled $450.2 billion in 3Q'17, an increase of 15.7 percent q-o-q ($389.0 billion) but a decline of 14.9 percent from 3Q'16 ($529.1 billion).

According to Freddie Mac, average conventional 30-year mortgage rates rose in the third quarter to 3.90 percent, up from 3.88 percent in in the prior quarter.

Non-Agency Issuance

Non-agency issuance totaled $42.8 billion in 3Q'17, a decline of 31.7 percent from 2Q'17 ($62.6 billion) and a decline of 10.6 percent y-o-y ($47.9 billion). Non-agency residential mortgage-backed securities (RMBS) issuance was $21.6 billion (down 45.3 percent q-o-q and 22.8 percent y-o-y, while commercial mortgage backed securities (CMBS) issuance was $21.1 billion (down 8.2 percent q-o-q but up 6.6 percent y-o-y).

Trading Activity

Daily trading volumes for mortgage-related securities rose in the third quarter, with increases in both agency and non-agency trading volumes. Average daily trading volume of agency mortgage-related securities, including passthroughs, CMOs and TBAs, was $207.4 billion in 3Q'17, an increase of 3.5 percent from 2Q'17 but a decline of 2.1 percent y-o-y. Average daily trading volumes of non-agency securities rose to $2.2 billion daily in 3Q'17, an increase of 5.1 percent q-o-q but a decline of 20.9 percent y-o-y.

ASSET-BACKED SECURITIES

Asset-Backed Securities Issuance

Asset-backed securities (ABS) issuance totaled $57.5 billion in the third quarter, a decline of 64.5 percent q-o-q and 28.3 percent y-o-y. Both auto and the CDO sectors led issuance totals with $21.7 billion (37.7 percent of 3Q'17 total issuance) and $11.6 billion (20.2 percent of second quarter issuance) issued, respectively. CLO refinancings, which drove most of issuance volume in prior quarters, have eased in volume in the third quarter.

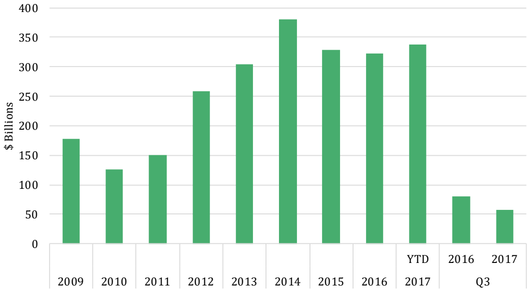
On a q-o-q basis, only student loan ABS experienced increases in issuance volumes in the third quarter, rising 38.4 percent. Autos, USD-denominated CDOs, credit cards, equipment, and "other" asset categories experienced q-o-q declines of 16.7 percent, 87.1 percent, 43.4, 22.2 and 65.4 percent, respectively.

Outstanding volumes ended the third quarter at $1.4 trillion, a decline of 0.5 percent q-o-q and an increase 2.7 percent y-o-y. USD-denominated CDOs, equipment, and esoteric ABS experienced increases in outstanding volume by 0.6 percent, 0.9 percent, and 1.6 percent respectively. Auto, credit cards, and student loans declined by 2.3 percent, 5.4 percent and 1.6 percent respectively. Notable subcategories to see q-o-q growth were: prime auto (2.7 percent), agricultural and industrial equipment (12.2 percent), large ticket transportation (5.5 percent), consumer/personal loans (7.3 percent), franchise (13.1 percent) and USD-denominated CLOs (2.1 percent).

Trading Activity

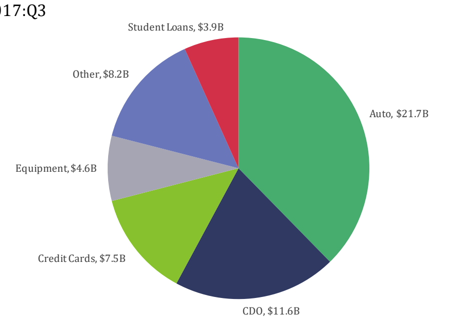
Daily average trading activity in ABS and CDOs declined for the second time in 3Q'17 to $1.15 billion, a decline of 26.3 percent from $1.56 billion in 2Q'17, and a decline of 11.4 percent from 3Q'16. Trading activity declined in both ABS and CDO markets, 22.1 percent and 42.4 percent q-o-q respectively.

Issuance of Asset-Backed Securities
2009 - 2017:Q3



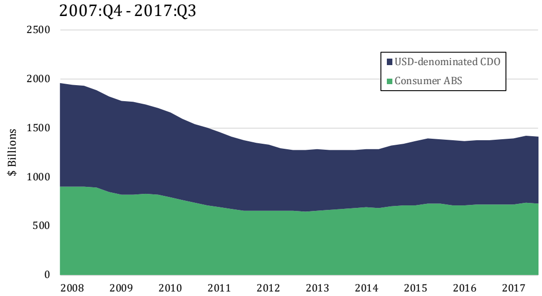
Source: Thomson Reuters

ABS Issuance by Major Types of Credit
2017:Q3



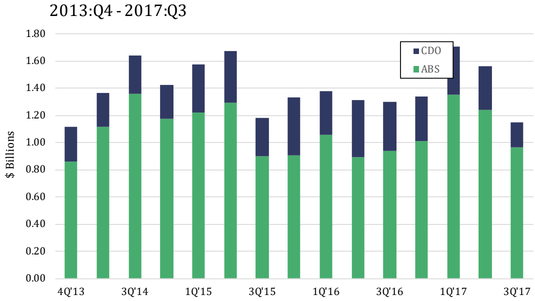
Source: Bloomberg, Thomson Reuters, SIFMA

Asset Backed Securities Outstanding
2007:Q4 - 2017:Q3



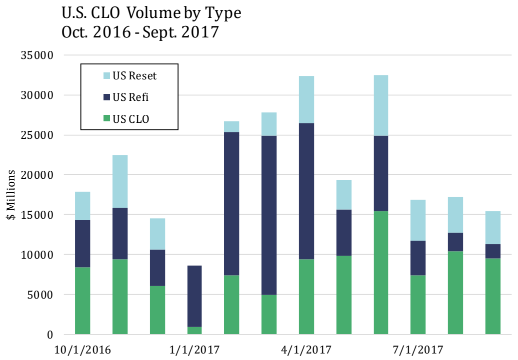
Source: Bloomberg, Thomson Reuters Eikon, SIFMA

ABS and CDO Average Daily Trading Volume
2013:Q4 - 2017:Q3



Source: FINRA Trace

U.S. COLLATERALIZED LOAN OBLIGATIONS[6]



Source: Creditflux, CLO-i

CLO Managers Return to New Issues

It was all about new issue paper in the CLO universe during the third quarter as $35.4 billion priced in the primary market. This meant that for the first time this year new issue CLOs outweighed the combination of refinancings and resets, which together contributed $33.9 billion to global CLO volumes during the quarter.

Between the second and third quarters, CLO volumes traditionally drop substantially. However, market participants evidently had little time for vacations this year as new issue volumes fell by just 17 percent ($42.9 billion priced in Q2).

At the same time, US CLO triple A spreads tightened from an average of 128 bps in the second quarter to 124 bps in the following period. Junior CLO spreads were relatively flat as double B spreads moved from 672 bps to 671 bps. In Q1, double B CLO spreads averaged 650.8 bps.

New CLO managers took advantage of market conditions to add to their assets under management. The third quarter saw CBAM and King Street Capital Management make further inroads into CLOs. King Street followed up its debut Rockford Tower CLO with a second deal, and CBAM priced two enormous CLOs, which helped the manager jump an astonishing 50 places in the CLO manager rankings (to 44th). Each of CBAMs three CLOs total more than $1 billion and CBAM 2017-2 and CBAM 2017-3 priced within 39 days of each other.

Elsewhere, Assurant and Nassau Credit, two firms with insurance company affiliates, made their debuts as CLO managers. Another insurance-linked firm, Post Advisory, announced in September that it planned to issue a CLO.. The firm is majority-owned by Principal Financial Group and announced that Bill Lemberg, former head of CLOs at Alcentra, had joined to establish a CLO business.

Despite the rash of new managers, there is evidence that the largest firms are consolidating their hold on the market. The top 10 managers in our ranking account for 36.6 percent of assets. This is up from 29.18 percent at the same time last year.

There were some dramatic moves in the top 10. New York-based CIFC Asset Management priced two deals to become the seventh largest manager globally, and MJX Asset Management priced three to move into the top 10.

In Europe, market participants welcomed a new manager as Brigade Capital Management issued Armada Euro CLO I on 1 August. Triple A spreads drifted out to an average of 89.1 bps, compared to Q2's average of 86.6 bps. However, there was a significant contraction in junior CLO spreads on the continent. Double Bs tightened from 585 bps to 545 bps.

Oaktree Capital Management's Oaktree EIF III Series II and Redding Ridge Asset Management's Redding Ridge CLO achieved triple-A spreads of 118 bps, which were the tightest prints in the US market. In Europe, Partners Group took the honours, pricing senior notes in Penta CLO 3 at 85 bps.

In the mid-market CLO space the biggest players were all active. Golub Capital Partners and Madison Capital Funding each priced a new issue and a reset. Golub's September deal, Golub Capital Partners CLO 18(M)-R, achieved the tightest spread of the year, with triple As pricing at 153 bps.

Monroe Capital and Tennenbaum Capital Partners priced their first mid-market CLOs of the year and both firms were welcomed by investors. Monroe Capital MML CLO 2017-1 and TCP Whitney achieved tight triple A spreads of 160 bps and 168 bps respectively.

As far as risk retention goes, vertical positions were favoured most in the third quarter, perhaps

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

indicating that financing terms remain attractive. 19 CLOs opted to be both US and European compliant, while AMMC was the only manager to go for an L-shaped risk retention position in the quarter.

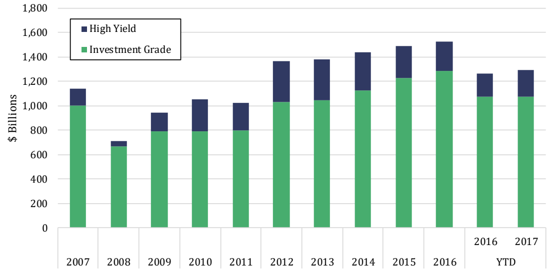
Citi was again the most active arranger in the market, topping the rankings for new issue CLOs, resets and refis globally. Morgan Stanley, however, topped the US rankings for new issue and refis. 16 arrangers were involved in new issue CLO transactions globally.

One feature of the third quarter that stood out was how CLO 1.0s are being wound up. Six managers liquidated legacy deals during the quarter. Out of a universe of 1,166 CLOs, only 113 that were issued before 2008 are still outstanding. In terms of outstanding liabilities this represents 4.5% of the universe.

This shows that despite a continuing tough regulatory environment, a series of political shocks and consistent pressure on securing assets, the new issue market is thriving. Compared to this time last year, the CLO market has 30 more deals and over $60 billion more in terms of liabilities outstanding.

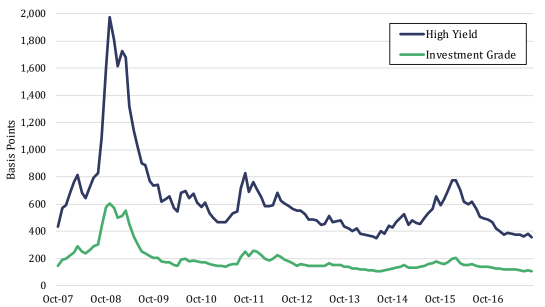
CORPORATE BOND MARKET

Corporate Bond Issuance
2007 - 2017:Q3



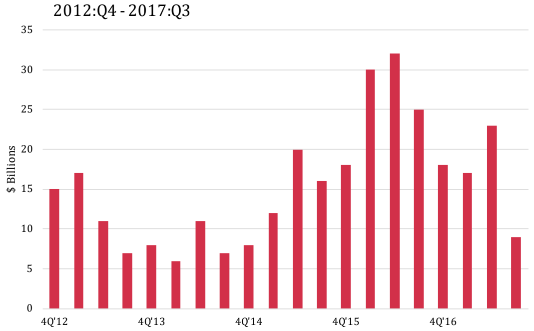
Note: Includes all nonconvertible debt, MTNs Yankee bonds, and TLGP debt, but excludes all issues with maturities of one year or less, CDs, and federal agency debt
Source: Thomson Reuters

Corporate Option Adjusted Spreads to U.S. Treasury
Oct. 2007 - Sept. 2017



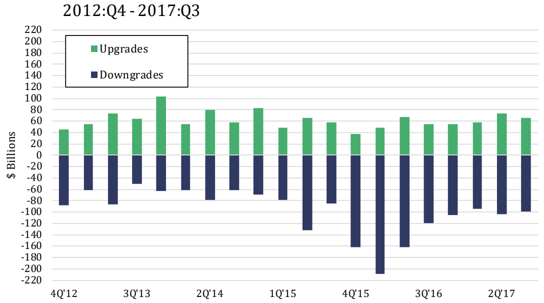
Source: Bank of America Merrill Lynch

Corporate Bond Defaults
2012:Q4 - 2017:Q3



Source: S&P Global Ratings

Corporate Bond Rating Actions
2012:Q4 - 2017:Q3



Note: Includes nonconvertible corporate bonds only; private placements trading volume only available from 2Q'14 on.
Source: FINRA TRACE

Corporate Bond Issuance

Corporate bond issuance totaled $415.7 billion in 3Q'17, up 5.2 percent from $395.0 billion issued in 2Q'17 but down 2.5 percent from 3Q'16's issuance of $426.3 billion. Almost a third of the bonds issued in the third quarter were for general corporate purposes (29.7 percent of total issuance), followed by indebtedness reduction (22.6 percent), and future acquisitions (12.8 percent).

Investment grade (IG) bond issuance increased to $352.8 billion in 3Q'17, up 6.6 percent from $331.0 billion in the previous quarter but down 1.5 percent from $358.2 billion in 3Q'16. The top three industries accounted for over two thirds of 3Q'17 IG issuance: financial companies remained the leading IG debt issuance sector accounting for almost half ($174.4 billion) of all IG issuance, followed by the energy and power sector with 12.4 percent ($43.8 billion) and the telecomunications sector with 8.1 percent ($28.5 billion).

Issuance of high yield (HY) bonds decreased to $62.9 billion in 3Q'17, 1.7 percent below the 2Q'17's total of $64.0 billion and down 7.7 percent from $68.1 billion issued in 3Q'16. The following three sectors made up over half of total HY issuance in the third quarter: financials (22.8 percent, $14.3 billion), energy and power (19.4 percent, $12.2 billion), and materials (14.2 percent, $8.9 billion).

Bond Spreads and U.S. Default Rate

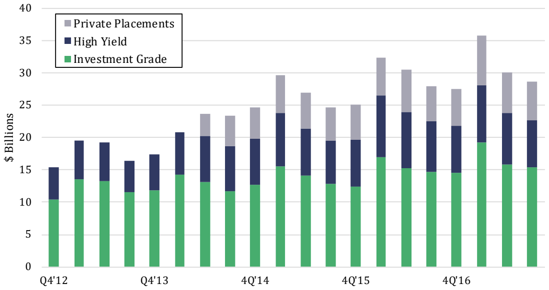
According to Bank of America-Merrill Lynch, option adjusted spreads for both IG and HY bonds tightened in the third quarter of 2017. Spreads of IG bond stood at 107 bps at the end of 3Q'17, down 8 bps from 115 bps at end-June 2017 and down 36 bps from 143 bps at the end of September 2016. HY bond spreads tightened even more q-o-q, ending 3Q'17 at 356 bps, 21 bps below 377 bps in 2Q'17 and down 141 bps from 497 bps at the end of September 2016.

S&P's Global Fixed Income Research reported the number of U.S. defaulted issuers decreased significantly to 9 issuers in the third quarter of 2017 from 23 defaults in 2Q'17 and down from 25 in 3Q'16. The U.S. trailing 12-month speculative-grade corporate default rate decreased to 3.1 percent end-September 2017, down from 3.8 percent end-June 2017 and down from 5.0 percent end-September 2016. The U.S. speculative-grade corporate default rate is expected to fall further to 2.8 percent by June 2018.[7]

In 3Q'17, S&P Ratings Services downgraded 99 and upgraded only 65 U.S. issuers, a ratio of downgrades to upgrades of 1.5. This was an increase from the previous quarter when there were 104 downgrades versus 73 upgrades (downgrade/upgrade ratio of 1.4).

[7] Standard & Poor's Rating Services, The U.S. Speculative-Grade Corporate Default Rate, August 14, 2017.

Corporate Bond Average Daily Trading Volume
2012:Q4 - 2017:Q3

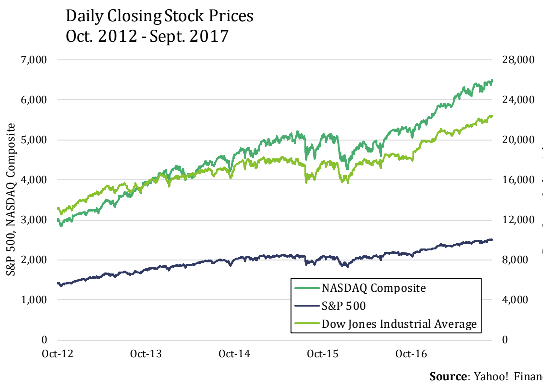


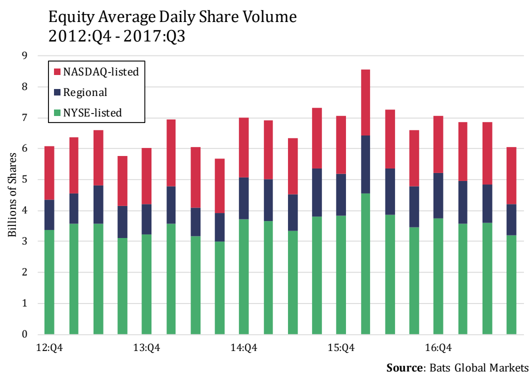
Note: Includes nonconvertible corporate bonds only; private placements trading volume only available from 2Q'14 on.
Source: FINRA TRACE

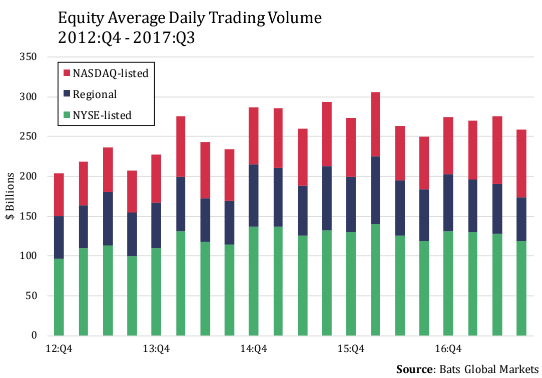
Trading Activity

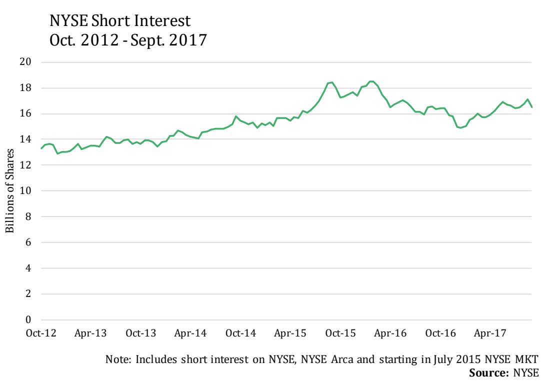
According to the FINRA TRACE data, average daily trading volume of non-convertible corporate bonds was $28.6 billion in 3Q'17, down 4.7 percent from $30.0 billion in 2Q'17 but up 2.5 percent y-o-y. Decreased in volume were observed across all corporate bond segments in the third quarter. Investment grade (IG) corporate bonds average daily trading volume decreased to $15.3 billion in 3Q'17, down 3.5 percent from $15.9 billion in the previous quarter but up 4.6 percent from $14.7 in 3Q'16. High yield (HY) corporate bonds average daily trading volume was $7.4 billion in 3Q'17, a 7.9 percent decrease from $8.0 billion in the previous quarter and a 6.5 percent decrease from $7.9 billion in 3Q'16. Private placements average daily trading volume decreased to $5.9 billion in 3Q'17, down by 14.7 percent from $6.1 billion in 2Q'17 but up 9.8 percent from $5.4 billion in 3Q'16.

EQUITY AND OTHER MARKETS









The U.S. stock market posted a strong third quarter for 2017 with all three major stock indices reaching their record highs during the quarter. The S&P 500 closed 3Q'17 at an all-time high 2,519.36, a 4.0 percent increase from the prior quarter and 16.2 percent increase y-o-y. The NASDAQ Composite Index also finished 3Q'17 at an all-time high reaching 6,495.96, a 5.8 percent increase q-o-q and a 22.3 percent increase y-o-y. The Dow Jones Industrial Average (DJIA) ended 3Q'17 at 22,405.09, a 4.9 percent gain q-o-q and a 22.4 percent gain y-o-y and recoded an all-time high 22,412.59 on September 20, 2017.

Equity Average Daily Share and Dollar Volume

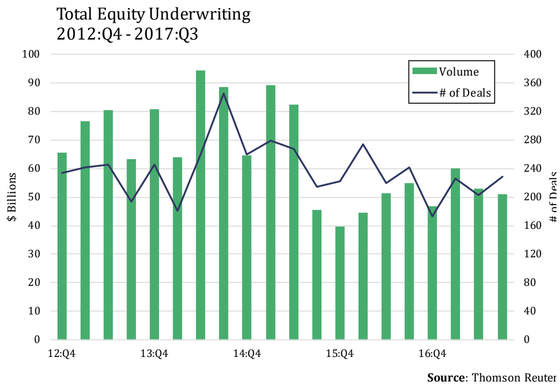
Equity average daily share volume was 6.1 billion shares in 3Q'17, a decrease of 11.6 percent from 6.9 billion shares in 2Q'17 and a 8.0 percent decrease from 6.6 billion in 3Q'16. The largest quarterly decrease was observed in stocks listed on regional exchanges, where average daily share volume dropped by 17.8 percent in 3Q'17 while NYSE-listed stock volume decreased by 11.2 percent and NASDAQ-listed stock volume decreased by 8.4 percent q-o-q.

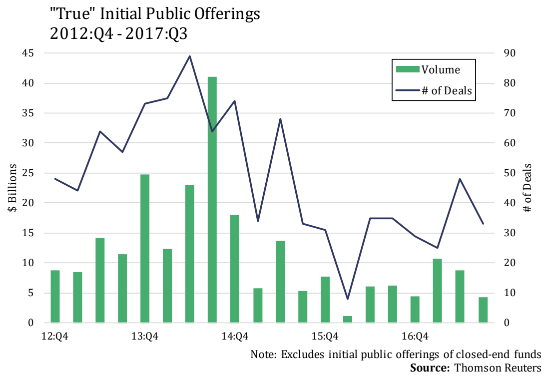
Equity average daily dollar volume decreased by 6.3 percent to $258.3 billion in 3Q'17 from $275.6 billion in 2Q'17 but was up 3.5 percent from $249.6 billion in 3Q'16. Similarly to share trade volume, the largest quarterly decrease in dollar volume was observed in regional-listed stocks (down 12.9 percent), followed by NYSE-listed volume (down 6.5 percent) and NASDAQ-listed volume (down 1.0 percent q-o-q).

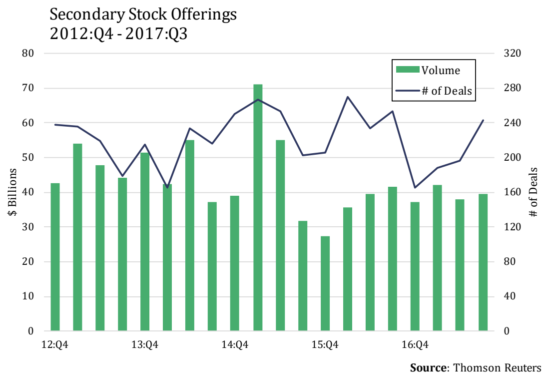
NYSE Short Interest

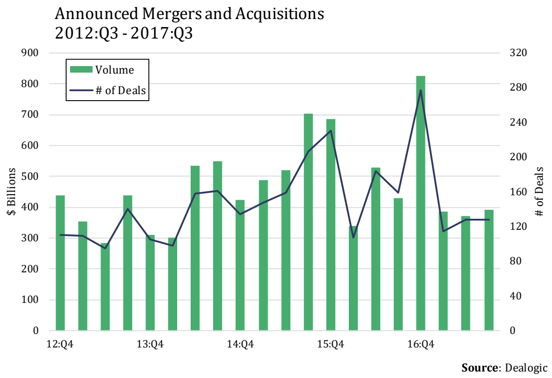
The number of shares sold short on the NYSE averaged 16.64 billion in 3Q'17, up 1.8 percent from 16.35 billion during the previous quarter and up 2.1 percent from 16.29 billion in 3Q'16. NYSE short interest was 7.7 percent above the five-year average of 15.45 billion. Out of approximately 6,100 issues, a short position was shown in 4,874 issues at the end of 3Q'17 and 3,934 issues showed a short position of 5,000 shares or more.[8]

[8] NYSE, NYSE Arca and NYSE MKT Short Interest Reports, September 29, 2017.









Equity Underwriting Volume

Equity underwriting decreased by 3.3 percent to $51.1 billion in the third quarter from $52.9 billion in 2Q'17 and was down 6.8 percent from $54.9 billion issued in 3Q'16. Equity underwriting volume in 3Q'17 was 21.1 percent below the five-year average of $64.8 billion.

IPO Volume

"True" initial public offerings (IPOs), which exclude closed-end mutual funds, decreased to $4.3 billion on 33 deals in 3Q'17. The IPO volume decreased by 50.1 percent from $8.7 billion on 48 deals in 2Q'17 and was down 29.5 percent from $6.2 billion on 35 deals in 3Q'16. The top three sectors in IPO issuance in 3Q'17 were: consumer products & services ($1.1 billion on 7 deals), materials ($1.0 billion on 3 deals) and healthcare ($1.0 billion on 10 deals), which together accounted for almost three quarters of the quarter's total volume.

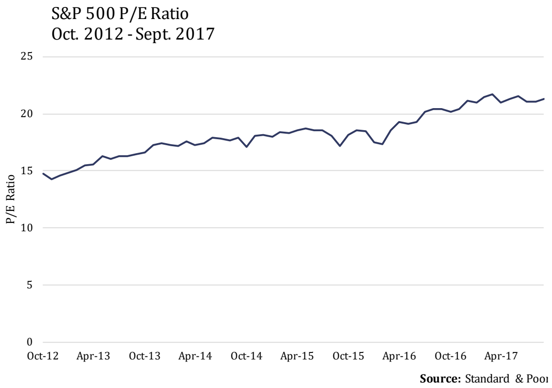
Secondary Offerings

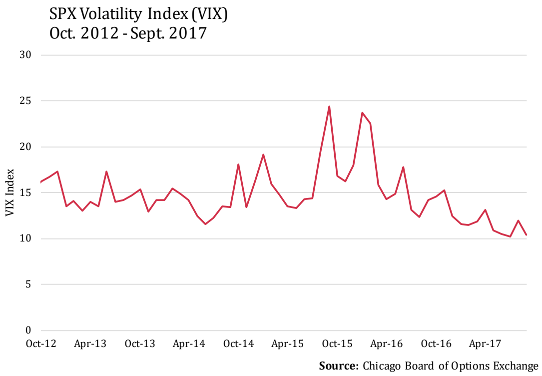
Secondary market issuance increased to $39.4 billion on 162 deals in 3Q'17, an increase of 3.9 percent from $38.0 billion on 193 deals in 2Q'17 but a decrease of 5.5 percent from $41.7 billion on 165 deals in 3Q'16.

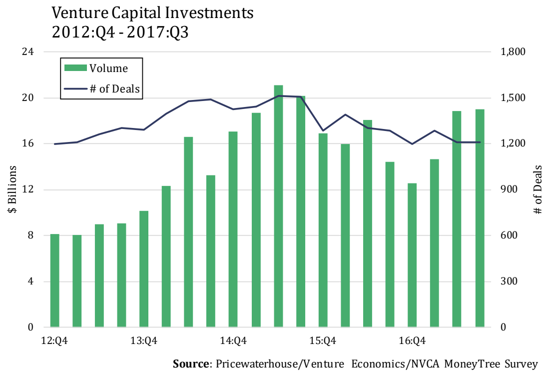
Announced M&A Volume

Announced U.S. mergers and acquisitions (M&A) volume stood at $391.0 billion in 3Q'17, a 4.9 percent increase from the previous quarter's $372.8 billion but a 9.1 percent decrease from $430.0 billion in 3Q'16. M&A volume was 19.9 percent below the 5-year quarterly average of $465.4 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 $51.3 billion in 3Q'17, down 21.8 percent from $65.6 billion in the previous quarter and down 57.3 percent from $120.2 billion in 3Q'16. The dollar amount U.S. companies invested in other countries through M&A ("US Outbound") increased in 3Q'17 to $51.4 billion, up 79.8 percent from $28.6 billion in 2Q'17 and up 23.4 percent from $41.6 billion invested in 3Q'16.







S&P P/E Ratio

The S&P 500's P/E ratio averaged 21.1 in 3Q'17, down 0.8 percent from the previous quarter's 21.3 but up 4.1 percent from 20.3 in 3Q'16. The S&P P/E ratio stood 16.0 percent above the 5-year average of 18.2 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 10.9 in the third quarter from an average of 11.4 in 2Q'17 and down 17.3 percent from 13.2 in 3Q'16. The quarter started with an index decreasing to a low of 9.36 in late July but then spiked up to 16.04 in the middle of August after which it slowly decreased back to finish the third quarter at 9.51. The spread between high and low values for the VIX was 6.68 in 3Q'17, a little wider than 6.21 in 2Q'17 and narrower than the 6.80 spread in 3Q'16.

Venture Capital Volume

Venture capitalists invested $19.0 billion in 1,207 deals in the third 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 0.8 percent in dollar terms but decreased by 0.1 percent in the number of deals compared to 2Q'17 when $18.9 billion was invested in 1,208 deals. The internet sector continued to receive the highest level of funding of all industries with $7.9 billion in 3Q'17, down 14.2 percent from $9.2 billion in 2Q'17 but up 21.5 percent y-o-y. The healthcare sector received second largest amount of funding with $3.2 billion (up 6.1 percent q-o-q) followed by the business products & services sector with $2.5 billion (up from $137 million in 2Q'17).[10]

[9] SIFMA records start in January 2000.

[10] US MoneyTree Report Press Release, 3Q 2017.

Kyle Brandon
Managing Director, Director of Research

SIFMA RESEARCH

Sharon Sung – Vice President, Research
Justyna Podziemska – Assistant Vice President, Research

Tommy Rodriguez – Intern, Research

General Research Contact: research@sifma.org

SIFMA CAPITAL MARKETS

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