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RESEARCH QUARTERLY

Third Quarter 2016

RESEARCH REPORT

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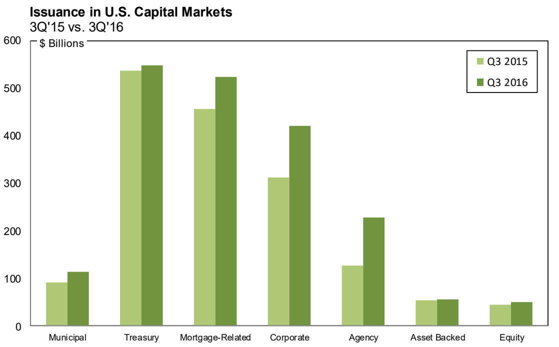
CAPITAL MARKETS OVERVIEW



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

Issuance Highlights - Year-Over-Year(1)

$ Billions	2016:Q3	2015:Q3	% Change
Municipal	114.4	92.2	24.1%
Treasury	548.0	536.3	2.2%
Mortgage-Related	524.0	455.6	15.0%
Corporate	420.3	312.5	34.5%
Federal Agency	228.6	127.8	78.9%
Asset-Backed	55.8	54.7	2.0%
Equity	51.1	45.5	12.3%

Issuance Highlights - Quarter-Over-Quarter(1)

$ Billions	2016:Q3	2016:Q2	% Change
Municipal	114.4	125.2	-8.7%
Treasury	548.0	591.6	-7.4%
Mortgage-Related	524.0	429.8	21.9%
Corporate	420.3	470.0	-10.6%
Federal Agency	228.6	194.6	17.5%
Asset-Backed	55.8	58.1	-4.0%
Equity	51.1	49.8	2.5%

(1) Includes long-term issuance only

Total Capital Markets Issuance

Long-term securities issuance totaled $1.94 trillion in 3Q'16, a 1.1 percent increase from $1.92 trillion in 2Q'16 and a 19.4 percent increase year-over-year (y-o-y) from $1.62 trillion. Issuance rose quarter-over-quarter (q-o-q) across all but municipal, treasury, corporate, and asset-backed debt classes; growth was positive y-o-y in all asset classes.

Long-term public municipal issuance volume, including private placements, totaled $114.4 billion in the third quarter of 2016, a decline of 8.7 percent from the prior quarter ($125.2 billion) but an increase of 24.1 percent y-o-y ($92.2 billion).

Total gross issuance of Treasury bills and coupons, including cash management bills, Floating Rate Notes and Treasury Inflation-Protected Securities, was $2.14 trillion in 3Q'16, up 12.0 percent from $1.91 trillion in 2Q'16 and a 23.0 percent increase from 3Q'15's issuance of $1.81 trillion. U.S. Treasury net issuance, including CMBs, increased to $222.4 billion in the third quarter, compared to net redemptions of $24.6 billion in the previous quarter and net issuance of $132.9 billion in 3Q'15.

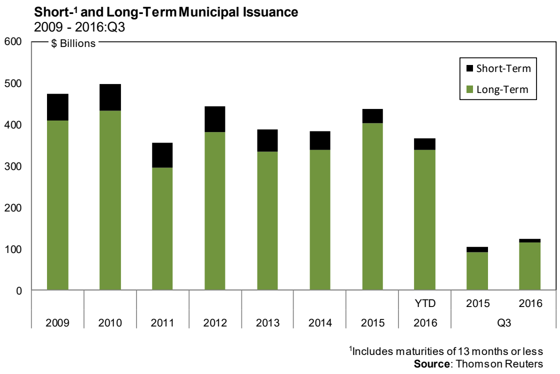
Federal agency long-term debt issuance was $229.3 billion in the third quarter, a 17.8 percent increase from $194.8 billion in 2Q'16 and 79.5 percent above $127.8 billion issued in 3Q'15.

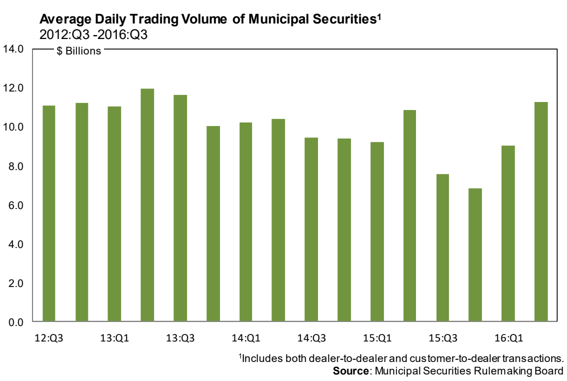
Issuance of mortgage-related securities, including agency and non-agency passthroughs and collateralized mortgage obligations, totaled $524.0 billion in the third quarter, a 21.9 percent increase from 2Q'16 ($429.8 billion) and a 15.0 percent increase y-o-y ($455.6 billion).

Corporate bond issuance totaled $420.3 billion in 3Q'16, down 3.7 percent from the $436.5 billion issued in 2Q'16 but 34.5 percent above 3Q'15's issuance of $312.5 billion. The investment grade sector recorded a quarterly increase in issuance while high yield issuance recorded a quarterly decrease.

Equity underwriting increased by 2.5 percent to $51.1 billion in the third quarter from $49.8 billion in 2Q'16 and was 12.3 percent above the $45.5 billion issued in 3Q'15. "True" initial public offerings, which exclude closed-end mutual funds, decreased to $6.0 billion on 35 deals in 3Q'16 from $6.1 billion on 35 deals in 2Q'16.

MUNICIPAL BOND MARKET





Long-term public municipal issuance volume, including private placements, totaled $114.4 billion in the third quarter of 2016, a decline of 8.7 percent from the prior quarter ($125.2 billion) but an increase of 24.1 percent y-o-y ($92.2 billion). Year to date ending September 30, municipal issuance totaled $339.3 billion, well above the ten-year average of $276.5 billion.

Tax-exempt issuance totaled $98.1 billion in 3Q'16, a decline of 29.3 percent but an increase of 29.3 percent, respectively, q-o-q and y-o-y. Taxable issuance totaled $7.9 billion in 3Q'16, an increase of 15.8 percent q-o-q and a 0.6 percent increase y-o-y.

By use of proceeds, general purpose led issuance totals in 3Q'16 ($29.0 billion), followed by primary & secondary education ($17.0 billion) and water & sewer facilities ($10.7 billion).

Refunding volumes as a percentage of issuance fell slightly from the prior quarter, with 50.6 percent of issuance attributable to refundings compared to 51.2 percent in 2Q'16, but was higher than from 3Q'15 (48.9 percent).

Yields, Inflows, and Total Return

Ratios of 10-year tax-exempt AAA GOs and similar-maturity Treasuries rose in the third quarter on a q-o-q basis basis, ending at 95.5 percent end-September 2016 from 92.5 percent end-June 2016 but was well below the 102.7 percent end-September 2015.

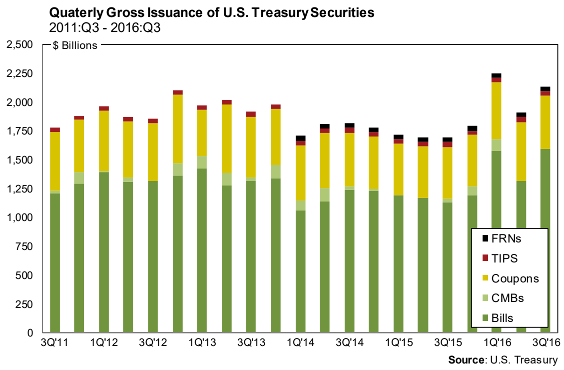
According to the Investment Company Institute (ICI), third quarter net flow into long-term municipal funds was positive, with $16.6 billion of inflow in 3Q'16, down from $19.2 billion of inflow from 2Q'16 but up from the $2.6 billion of outflow at the same time last year.

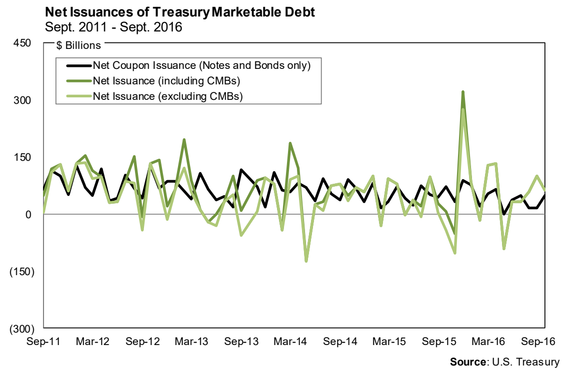
According to Bank of America-Merrill Lynch indices, municipals had a negative total return of 0.31 percent in the third quarter of 2016. Build America Bonds (BABs) returned 0.44 percent, underperforming similarly-rated corporates, which were up by 0.89 percent. Within the municipal asset class only transportation had a positive total return in the third quarter, returning 0.11 percent while all other municipals had negative returns.

Trading Activity and Broker-Dealers

Trading activity rose q-o-q to $11.7 billion daily in 3Q'16, a 3.8 percent increase from 2Q'16 ($11.3 billion) and a 54.2 percent increase from 3Q'15 ($7.6 billion). By number of trades, however, trading activity continued to fall on a q-o-q and y-o-y basis, falling 8.3 percent and 7.8 percent, respectively.

TREASURY MARKET





Gross Issuance of U.S. Treasury Securities

Total gross issuance of Treasury bills and coupons, including cash management bills, Floating Rate Notes and Treasury Inflation-Protected Securities, was $2.14 trillion in 3Q'16, up 12.0 percent from $1.91 trillion in 2Q'16 and a 23.0 percent increase from $1.81 trillion in 3Q'15. U.S. Treasury net issuance, including CMBs, increased to a $222.4 billion in the third quarter, compared to net redemptions of $24.6 billion in the previous quarter and net issuance of $132.9 billion in 3Q'15. Third quarter net issuance was above the Treasury's net estimate of $201 billion.[1]

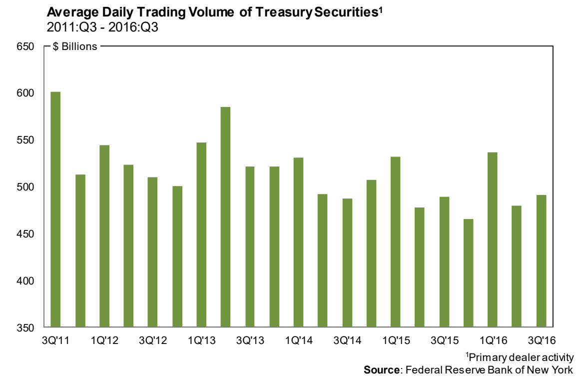
No CMBs were issued in 3Q'16, remaining unchanged from 2Q'16 but a decrease from $75 billion in 3Q'15.

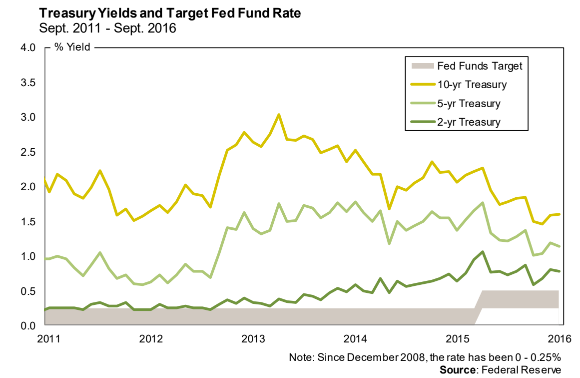
In the third quarter, $548 billion in Treasury coupons, FRNs and TIPS were issued, down 7.4 percent from $591.6 billion issued in the prior quarter but 2.2 percent above the issuance of $536.3 billion in 3Q'15.

Excluding TIPS and FRNs, total gross issuance of Treasury marketable coupon securities was $465.5 billion, down 8.9 percent from $511.1 billion issued in 2Q'16 and 3.2 percent above the $451.3 billion issued in 3Q'15. Net coupon issuance was $83.4 billion, a 2.3 percent decrease from $85.4 billion in 2Q'16 and down 50.9 percent y-o-y.

In 3Q'16, $39.6 billion in FRNs was issued, up 11.5 percent from $35.5 billion in 2Q'16 and down 3.3 percent from 41.0 in 3Q'15. The demand for FRNs picked up in 3Q'16 with an average bid-to-cover ratio of 3.5, slightly up from 3.4 in the previous quarter and unchanged from 3Q'15.

[1] Treasury's August borrowing estimates can be found here.





Trading Activity

Daily trading volume of Treasury securities by primary dealers averaged $490.6 billion in 3Q'16, a 2.4 percent increase from $479.2 billion in the previous quarter and a 0.3 percent increase from the $489.1 billion traded daily in 3Q'15. The 5-year average of daily trading volume of Treasuries decreased to $512.6 billion, down 1.1 percent from $518.1 billion in the prior quarter.

Treasury Yield Curve

In 3Q'16, the Treasury yields increased for all maturities with larger increases in short- and medium-term securities. Two-year rates increased to 0.77 percent at the end of September from 0.58 percent end-June, 5-year yields increased to 1.14 percent end-September from 1.01 percent end-June, 10-year yields increased to 1.60 percent from 1.49 percent end-June, and 30-year yields increased to 2.32 percent end-September 2016 from 2.3 percent end-June.

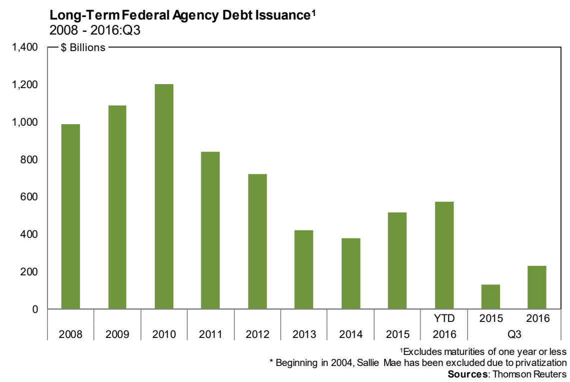
FOMC Meeting Summary

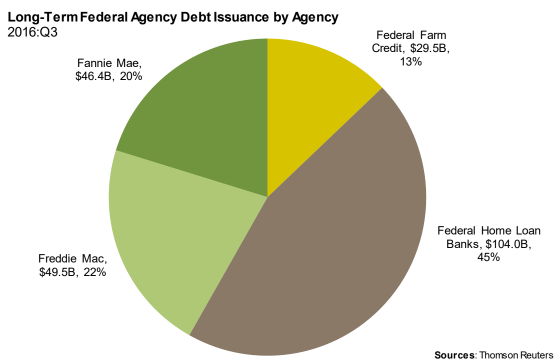
During its most recent meeting in September 2016, the Federal Open Markets Committee (FOMC) announced that it was maintaining its accommodative policy of 0.25-0.50 percent target federal funds rate, supporting further improvement in labor market conditions and a return to 2 percent inflation. The Committee indicated that the case for an increase in the federal funds rate has strengthened during the third quarter.

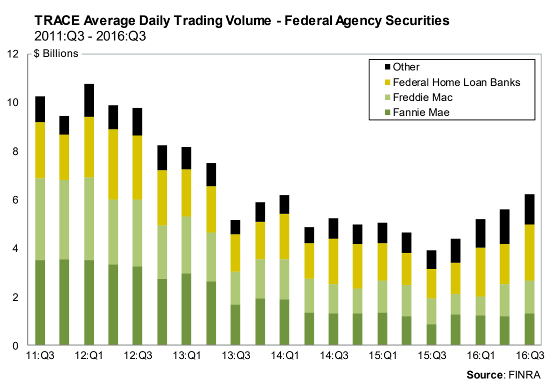
The Committee is also maintaining its existing policy of reinvesting principal payments from its holdings of agency debt and agency mortgage-backed securities, in agency mortgage-backed securities. Additionally, the Committee continues rolling over maturing Treasury securities at auction, and anticipates doing so until normalization of the level of the federal funds rate is well under way. This policy, by keeping the Committee's holdings of longer-term securities at sizable levels, should help maintain accommodative financial conditions.[2]

[2] Press Release from the Federal Open Market Committee Meeting, September 21, 2016.

FEDERAL AGENCY DEBT MARKET







Federal agency long-term debt (LTD) issuance was $229.3 billion in the third quarter, a 17.8 percent increase from $194.3 billion in 2Q'16 and 79.5 percent above $127.8 billion issued in 3Q'15.

Fannie Mae's 3Q'16 gross debt issuance, both short term debt (STD) and LTD, totaled $185.6 billion, a decrease of 6.0 percent from $197.5 billion in 2Q'16. STD issuance decreased to $136.7 billion compared with $162.7 billion in 2Q'16 while LTD issuance increased to $48.9 billion in 3Q'16 from $27.4 billion in 2Q'16. Fannie Mae had $51.5 billion in STD outstanding and $302.1 billion LTD outstanding at the end of 3Q'16.

Freddie Mac's gross debt issuance totaled $158.4 billion in 3Q'16, a decrease of 3.0 percent from $163.3 billion in 2Q'16. As of quarter-end, Freddie Mac had $69.5 billion STD and $303.5 billion LTD outstanding, in comparison with $58.2 billion STD and $315.1 billion LTD in the prior quarter.

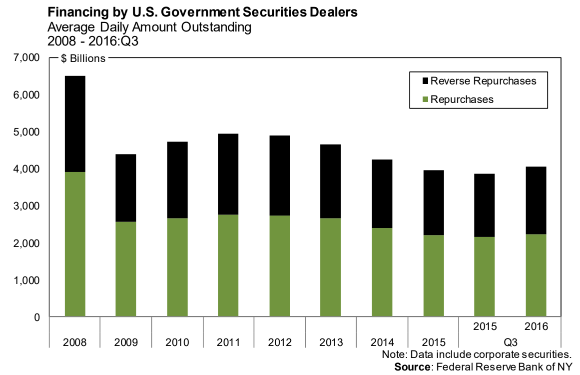
The 12 Federal Home Loan Banks (FHLB) issued $95.0 billion in LTD in the third quarter, an increase of 49.8 percent from $63.4 billion in 2Q'16. In 3Q'16, $1,073.6 billion of short-term debt (STD) was issued, up from $953.1 billion issued in 2Q'16, driven primarily by discount note issuance. Total FHLB LTD outstanding was $532.9 billion at quarter-end, up from $492.4 billion outstanding at the end of second quarter and up from $447.0 billion y-o-y. Discount notes decreased to $434.8 billion in 3Q'16 from $471.47 billion in 2Q'16 and increased y-o-y from $409.5 billion in 3Q'15.

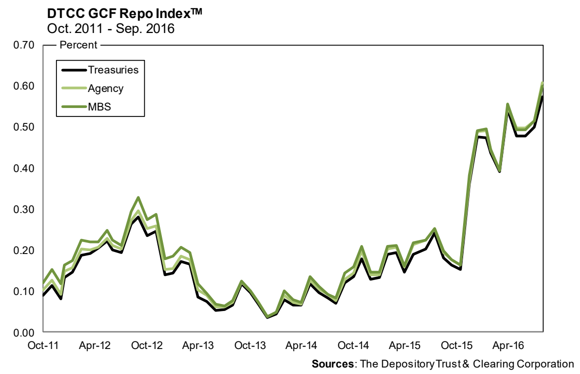
Total Farm Credit System gross debt issuance for 3Q'16 totaled $76.7 billion. Total debt outstanding at quarter end was $251.9 billion, of which $32.9 billion was short-term and $218.9 billion was long-term compared to $33.8 billion short-term and $220.7 billion long-term in the prior quarter.

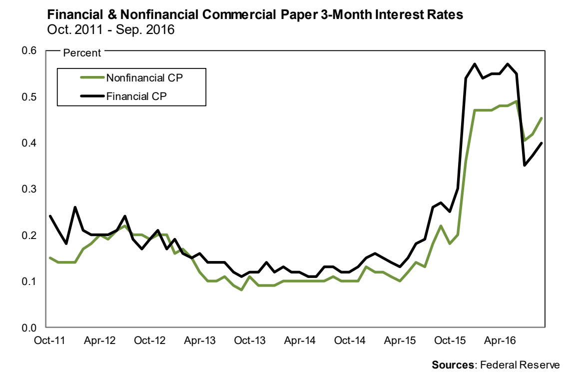
Trading Activity

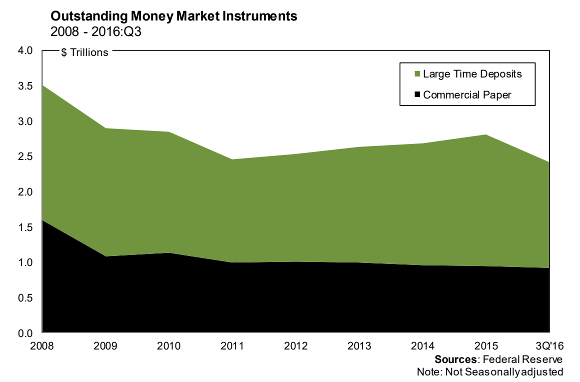
Average daily trading volume of agency securities in the third quarter was $6.2 billion, up 11.1 percent from $5.6 billion traded in 2Q'16 and up 59.3 percent from $3.90 billion traded in 3Q'15.

FUNDING AND MONEY MARKET INSTRUMENTS









Total Repurchase Activity

The average daily amount of total repurchase (repo) and reverse repo agreement contracts outstanding was $4.05 trillion in 3Q'16, an increase of 2.0 percent from 2Q'16's $3.97 trillion and an increase of 4.6 percent y-o-y.

Average daily outstanding repo transactions totaled $2.22 trillion in 3Q'16, an increase of 1.8 percent and 3.6 percent, respectively, q-o-q and y-o-y. Reverse repo transactions in 3Q'16 averaged $1.82 trillion daily outstanding, an increase of 2.2 percent and 5.8 percent q-o-q and y-o-y, respectively.

GCF Repo Rates

DTCC general collateral finance (GCF) repo rates increased for Treasuries, agency, and MBS in 3Q'16: the average repo rate for Treasuries (30-year and less) rose to 51.7 basis points (bps) from 2Q'16's average rate of 45.2 bps and more than doubled the 20.8 bps in 3Q'15; the average agency repo rate increased to 51.4 bps from 46.0 bps in the previous quarter, also more than doubling from the 22.3 bps in 3Q'15; and the average MBS repo rate rose to 53.6 bps from 46.0 bps in 2Q'16 and 22.5 bps in 3Q'15. Repo rates continued to climb higher in anticipation of the next Fed rate hike.

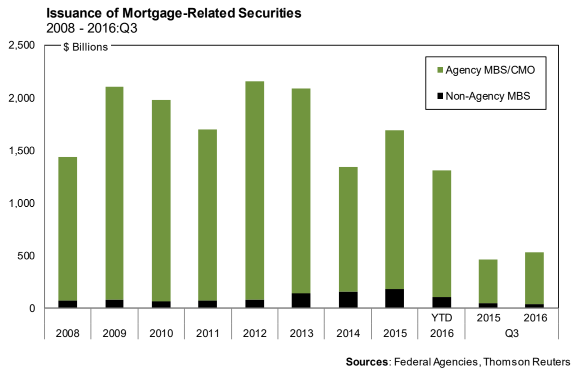
Financial and Nonfinancial 3-Month Commercial Paper Interest Rates

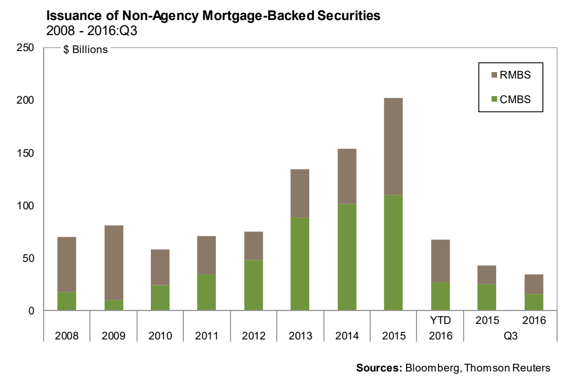
Interest rates for nonfinancial commercial paper (CP) fell to 45 bps end-September 2016 from 49 bps end-June 2016 and rising from 22 bps end-September 2015, while financial CP declined to 40 bps end-September from 55 bps end-June but rose from 27 bps end-September 2015.

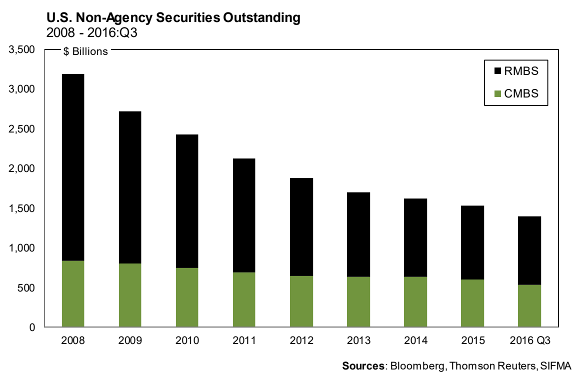
Total Money Market Instruments Outstanding

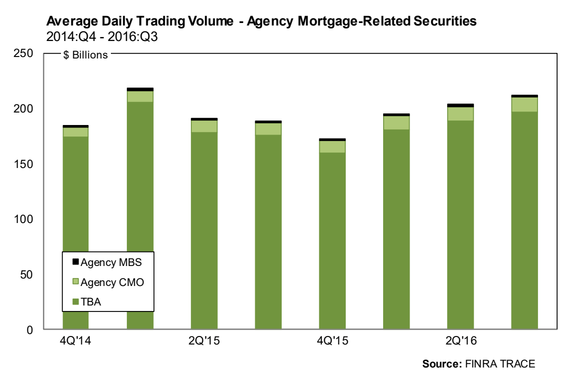
Preliminary outstanding volume of total money market instruments (MMI), including CP and large time deposits, stood at $2.42 trillion at the end of the third quarter, down 9.5 percent from the prior quarter's $2.67 trillion and 9.5 percent y-o-y. CP outstanding totaled approximately $911.3 billion in 3Q'16, a 10.3 percent decline from the $1.02 trillion in 2Q'16 and a 8.1 percent decline y-o-y. Large time deposits outstanding totaled $1.51 trillion in 3Q'16, a decline of 9.0 percent from 2Q'16 and 10.3 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 $524.0 billion in the third quarter, a 21.9 percent increase from 2Q'16 ($429.8 billion) and a 15.0 percent increase y-o-y ($455.6 billion). The q-o-q increase stemmed from agency issuance, with volumes rising 23.4 percent q-o-q compared to non-agency volumes rising 4.3 percent q-o-q. Overall, the agency share of issuance rose slightly to represent 93.4 percent of total issuance in 3Q'16 from 92.3 percent in the prior quarter and 90.7 percent in 3Q'15.

Agency Issuance

Agency mortgage-related issuance totaled $489.7 billion in 3Q'16, an increase of 23.4 percent and 18.5 percent, respectively, from 2Q'16 ($396.9 billion) and 3Q'15 ($413.3 billion).

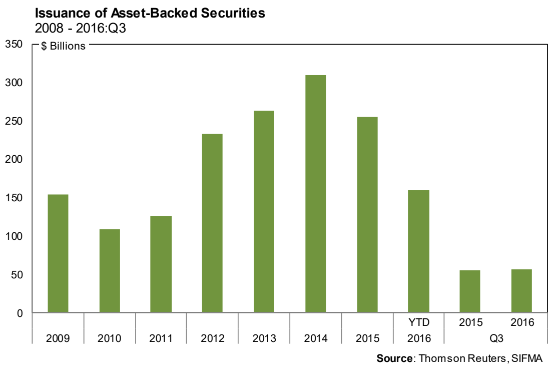
Non-Agency Issuance

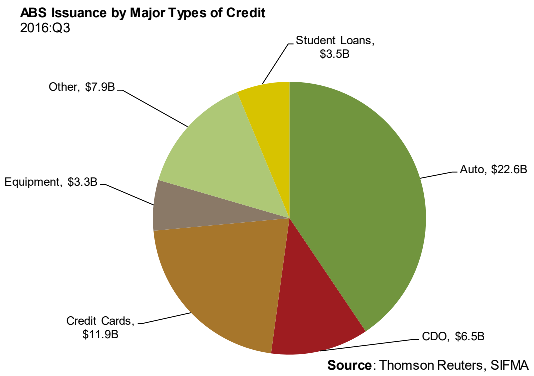
Non-agency issuance totaled $34.4 billion in 3Q'16, an increase of 4.3 percent from 2Q'16 ($32.9 billion) but a decrease of 18.9 percent y-o-y ($42.3 billion). Non-agency residential mortgage-backed securities (RMBS) issuance was $18.9 billion (down 12.9 percent q-o-q), while commercial mortgage backed securities (CMBS) issuance was $15.5 billion (up 37.5 percent q-o-q).

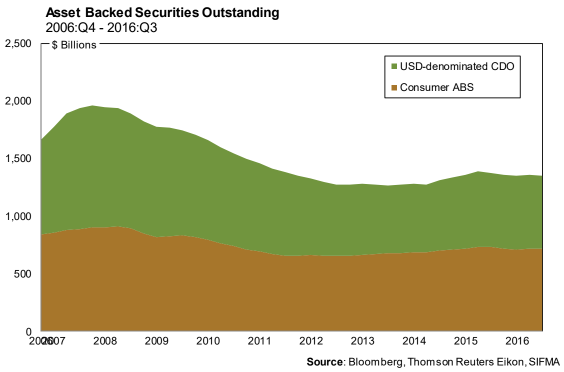
Trading Activity

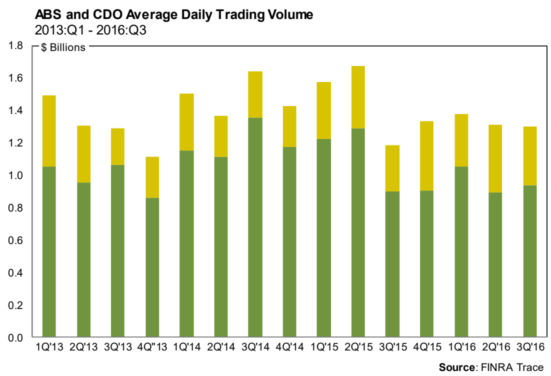
Daily trading volumes for mortgage-related securities rose slightly in the third quarter, with increases agency trading while non-agency trading volumes declined. Average daily trading volume of agency mortgage-related securities, including passthroughs, CMOs and TBAs, was $211.9 billion in 3Q'16, an increase of 3.9 percent from 2Q'16 and 12.3 percent y-o-y. Average daily trading volumes of non-agency securities fell to $2.8 billion daily in 3Q'16, a decline of 6.2 percent q-o-q but an increase of 13.6 percent y-o-y.

ASSET-BACKED SECURITIES









Asset-Backed Market Issuance

Asset-backed securities (ABS) issuance totaled $55.8 billion in the third quarter, a decline of 4.0 percent q-o-q but an increase of 2.0 percent y-o-y. The auto sector continued to lead issuance totals with $22.6 billion (40.6 percent of 3Q'16 total issuance), followed by credit cards ($11.9 billion, or 21.4 percent).

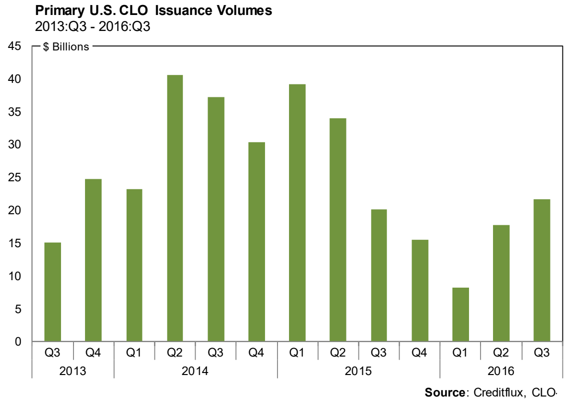
On a q-o-q basis, auto, collateralized debt obligations (CDOs) and equipment experienced a decline in issuance volumes in the third quarter, falling 9.0 percent, 32.1 percent, and 16.3 percent, respectively. Credit cards grew by 20.9 percent, esoteric ABS grew by 18.8 percent, and student loans grew by 8.8 percent. Notably, Verizon issued a debut securitization early in the third quarter backed by smartphone contracts.

Outstanding volumes ended third quarter at $1.35 trillion, a decline of 0.9 percent q-o-q and a decline 2.0 percent y-o-y. Equipment and student loan ABS were the only categories to see declines in third quarter, with 1.4 percent and 1.8 percent declines q-o-q, respectively. The remaining categories saw increases: auto grew 2.0 percent q-o-q, credit cards grew 1.1 percent, esoteric/other ABS grew 2.4 percent, and CDOs grew 0.6 percent. Notable subcategories to see q-o-q growth were: auto fleet lease (5.0 percent growth), unsecured personal/consumer loans (5.5 percent), PACE securitizations (31.5 percent), and timeshare (7.5 percent). Notable declines were: motorcycle (18.6 percent), equipment floorplan (10.3 percent) and truck (11.5 percent).

Trading Activity

Daily average trading activity in ABS and CDOs fell in the third quarter to $1.30 billion, a decline of 0.8 percent from $1.31 billion in 2Q'16 but a 9.8 percent increase from $1.18 billion in 3Q'15. ABS trading volumes were $0.94 billion in 3Q'16, an increase of 4.5 percent and 4.2 percent, respectively, q-o-q and y-o-y. CDO trading volumes were $0.36 billion, a decline of 12.2 percent q-o-q but an increase of 27.2 percent y-o-y.

U.S. COLLATERALIZED LOAN OBLIGATIONS[3]



As the broader credit markets continued their recovery from the extreme volatility and uncertainty that came to define the beginning of 2016, the CLO market settled into a steady rhythm in the third quarter.

According to Creditflux data, global CLO issuance jumped from $21.1 billion in the second quarter to $30.4 billion in the third – an increase of 44.1 percent, and the highest third-quarter total since 2014, when $41.4 billion priced globally. Notably, this is also the first time since 2012 that the pace of new issuance has increased between the second and third quarters. Typically, a "summer slowdown" in July and August hampers new CLO creation, with the pace picking up again after the Labor Day holiday in the US.

CLO Primary Market – Refinancings and Resets

As the leveraged loan market rallied towards par and CLO prices stabilized, managers and investors alike turned their attention towards preparing for US risk retention rules. As a result, the number of CLO "resets" – a subset of CLO refinancings in which the reinvestment period and legal maturity of the deal are extended – picked up towards the end of the third quarter, and has continued in the weeks since. At the same time, standard CLO refinancings became more common, with non-risk retention-compliant deals now having only a limited window in which to reprice their liabilities and secure cheaper financing costs.

According to Creditflux data, the proportion of CLO issuance taken up by refinancings and resets increased in every month of the third quarter. While these transactions made up just 3.7 percent of CLO issuance in the first half of the year, resets and refinancings accounted for 17.3 percent of new issuance in July, 22.9 percent in August, and 44.8 percent in September.

CLO Market Size

Alongside the increase in refinancings and resets, redemptions of older CLOs continued in the third quarter. According to a Nomura, 76 CLOs were redeemed in the first three quarters, with 68 of these being CLO 1.0 deals. As a result, the 1.0 portion of the CLO market shrank further, from 18.2 percent in the second quarter to just 11.8 percent now.

A notable result of the rise in refinancings, resets and redemptions is that the global CLO market shrunk in size between June and September, from $493 billion to $483 billion – the first time this has happened since the first quarter of 2014, according to Creditflux data.

CLO Secondary Trading

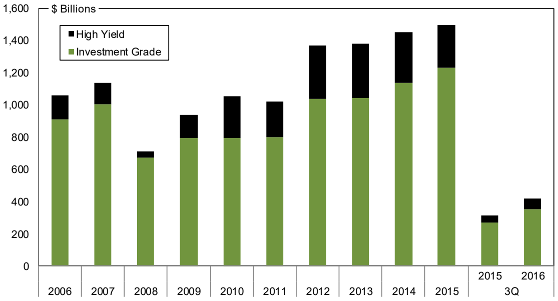
Demand for CLO paper proved very strong in the third quarter. Despite the expected summer slowdown and the UK's "Brexit" vote – which had been expected to hamper demand for risky assets – secondary volumes picked up by 24.6 percent, with $10.1 billion appearing on b-wics between July and September. August – traditionally the quietest month of the year for CLO traders – was particularly busy, with $3.6 billion of CLO bid lists. According to Creditflux data, this was the busiest month in the secondary CLO market since October 2015.

This heightened demand was reflected in secondary CLO prices, with all of Creditflux's secondary indices up on their second quarter levels. Triple-A CLOs rallied by nearly half a point to finish September at 99.97 cents on the dollar, while double-B tranches gained seven points, ending the quarter at 90.82 cents on the dollar, according to CLO-i data. CLO equity prices also improved as loans continued their rally toward par, increasing NAV coverage for equity holders.

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

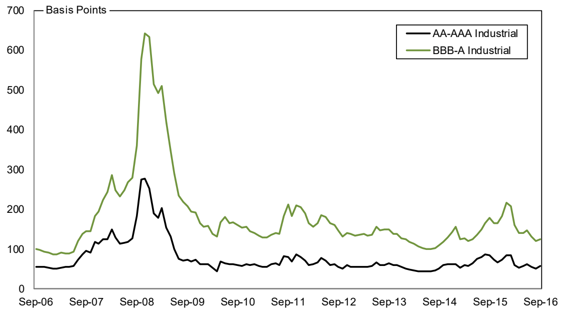
CORPORATE BOND MARKET

Corporate Bond Issuance[1]
2006 - 2016:Q3



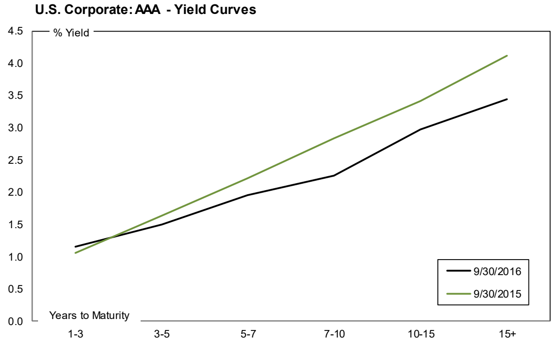
[1]Includes all nonconvertible debt, MTNs Yankee bonds, and TLGP debt, but excludes all issues with maturities of one year or less, CDs, and federal agency debt
Source: Thomson Reuters

U.S. Corporate Option Adjusted Spreads to U.S. Treasury - 1-10 Year
Sept. 2006 - Sept. 2016



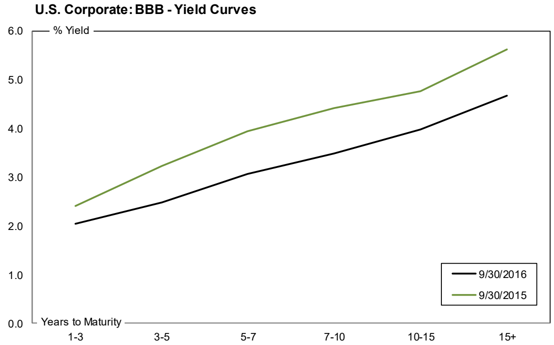
Source: Bank of America Merrill Lynch

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 $420.3 billion in 3Q'16, down 3.7 percent from the $436.5 billion issued in 2Q'16 but 34.5 percent above 3Q'15's issuance of $312.5 billion. The investment grade (IG) sector recorded a quarterly increase in issuance while high yield (HY) issuance recorded a quarterly decrease. The majority of the bonds issued in the third quarter were for general corporate purposes (61.7 percent of total issuance), followed by future acquisitions (16.1 percent), and indebtedness reduction (8.2 percent).

IG bond issuance increased to $352.6 billion in 3Q'16. IG bond issuance was up 0.1 percent from $352.1 billion in the previous quarter and up 31.2 percent y-o-y. The top three industries accounted for over 70 percent of 3Q'16 IG issuance: financial companies remained the leading IG debt issuance sector, accounting for nearly half ($166.2 billion) of all IG issuance, followed by the high technology sector with 13.1 percent ($46.2 billion) and the energy and power sector with 11.8 percent ($41.5 billion).

Issuance of HY bonds decreased to $67.8 billion in 3Q'16, 19.7 percent below the 2Q'16's total of $84.4 billion but up 54.6 percent from $43.8 billion issued in 3Q'15. Four sectors made up over 60 percent of total HY issuance in the third quarter: financials (28.2 percent, $19.1 billion), energy and power (12.5 percent, $8.5 billion), media and entertainment (12.4 percent, $8.4 billion), and materials (10.7 percent, $7.2 billion).

Bond Spreads and U.S. Default Rate

According to Bank of America-Merrill Lynch, option adjusted spreads for AA-AAA industrial bonds widened and spreads for BBB-A industrial bonds tightened in the third quarter of 2016. Spreads of IG bond finished the quarter at 57 bps, down 4 bps from 61 bps at end-June 2016 and down 27 bps from 84 bps at the end of 3Q'15. HY bond spreads tightened even more q-o-q, ending 3Q'16 at 123 bps, 22 bps below 145 bps in 2Q'16 and down 55 bps from 178 bps at the end of 3Q'15.

S&P's Global Fixed Income Research reported the number of U.S. defaulted issuers decreased to 27 issuers in the third quarter from 31 in 2Q'16 and up from only 16 in 3Q'15. The U.S. trailing 12-month speculative-grade corporate default rate increased to 5.0 percent in September 2016, up from 4.3 percent in June 2016 and is expected to increase to 5.6 percent by June 2017.[4]

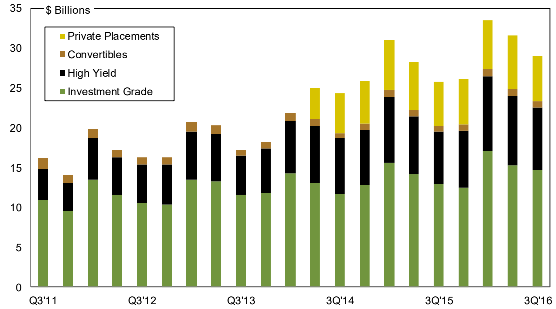
[4] Standard & Poor's Rating Services, The U.S. Speculative-Grade Corporate Default Rate, October 3, 2016.

S&P US Corporate Rating Actions

	2016:Q3	2016:Q2	2015:Q3	Q-o-Q	Y-o-Y
Upgrades	55	67	57	-17.9%	-3.5%
Downgrades	118	162	85	-27.2%	38.8%

Source: S&P Fixed Income Research

TRACE Average Daily Trading Volume - Corporate Bonds
2011:Q3 - 2016:Q3



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

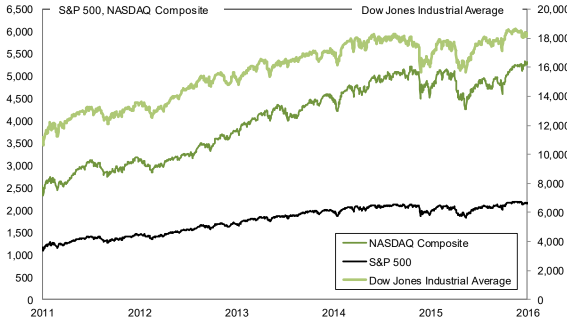
In 3Q'16, S&P Ratings Services downgraded 118 and upgraded 55 U.S. issuers, a ratio of downgrades to upgrades of 2.1. This was a decrease from the previous quarter when there were 162 downgrades versus 67 upgrades with a ratio of 2.4.

Trading Activity

According to the FINRA TRACE data, average daily trading volumes decreased for investment grade (IG) and high yield (HY) corporate bonds and convertible bonds (CV) while increased for private placements in 3Q'16. IG bonds average daily trading volume decreased to $14.7 billion in 3Q'16, down 4.2 percent from $15.3 billion q-o-q and up 13.6 percent from $12.9 billion y-o-y. HY bonds average daily trading volume was $7.9 billion in 3Q'16, an 9.2 percent decrease from $8.7 billion in the previous quarter and a 19.4 percent increase from $6.6 billion y-o-y. The average daily trading volume of convertible bonds (CVs) declined to $0.81 billion in 3Q'16, 10 percent below 2Q'16's $0.9 billion and 9.9 percent above $0.74 billion in 3Q'15. Private placements trading volume decreased by 16.0 percent to $5.63 billion in 3Q'16 and was up 1.1 percent from $5.57 billion in 3Q'15.

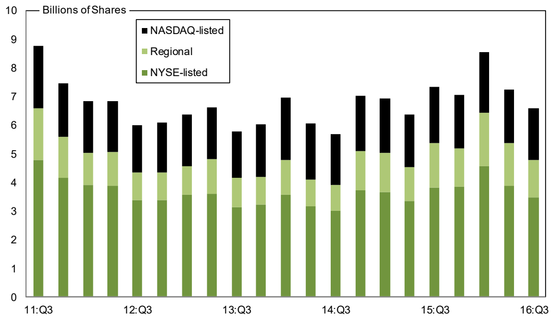
EQUITY AND OTHER MARKETS

Daily Closing Stock Prices
Sept. 2011 - Sept. 2016



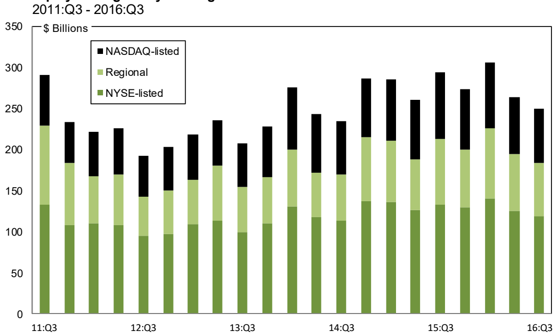
Source: Bloomberg

Equity Average Daily Share Volume
2011:Q3 - 2016:Q3



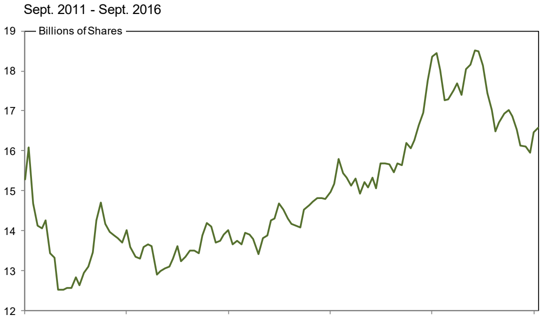
Source: Bats Global Markets

Equity Average Daily Trading Volume
2011:Q3 - 2016:Q3



Source: Bats Global Markets

NYSE Short Interest
Sept. 2011 - Sept. 2016



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

The U.S. equity market posted an increase trend in the third quarter of 2016. The S&P 500 closed the third quarter at 2,168.27, a 3.3 percent increase from the prior quarter and 12.9 percent increase y-o-y. The NASDAQ Composite Index finished 3Q'16 at 5,312.00, a 9.7 percent increase from 2Q'16 and a 15.0 percent increase y-o-y. The Dow Jones Industrial Average (DJIA) recorded a quarterly increase, ending 3Q'16 at 18,308.15, a 2.1 percent gain q-o-q and a 12.4 percent gain y-o-y.

Equity Average Daily Share and Dollar Volume

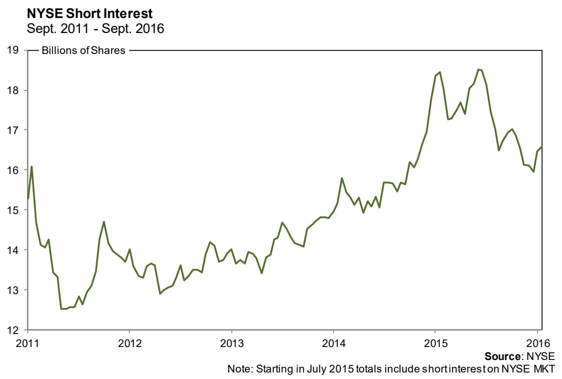
Equity average daily share volume decreased by 9.2 percent to 6.59 billion shares in 3Q'16 from 7.25 billion shares in 2Q'16, a 10.1 percent down from 7.32 billion in 3Q'15. The largest quarterly drop was observed in stocks listed on regional exchanges, whose average daily share volume dropped by 11.6 percent in 3Q'16 while NYSE-listed stock volume decreased by 10.3 percent and NASDAQ-listed stock volume declined by 5.1 percent.

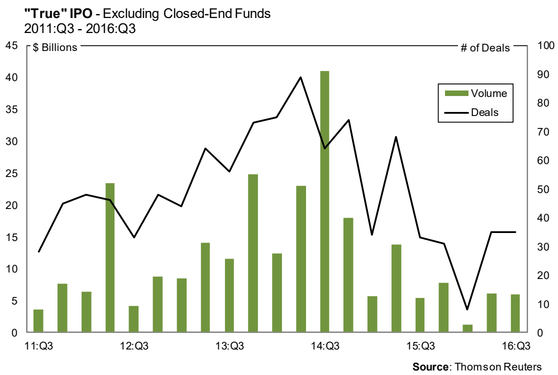
Equity average daily dollar volume decreased by 5.4 percent to $249.55 billion in 3Q'16 from $263.75 billion in 2Q'16 and down 15.0 percent from $293.71 billion in 3Q'15. Similar to trade volume, the largest quarterly drop was observed in stocks listed on regional exchanges, whose average daily dollar volume dropped by 6.2 percent in 3Q'16 while NASDAQ-listed stock volume decreased by 5.2 percent and NYSE-listed stock volume declined by 5.0 percent.

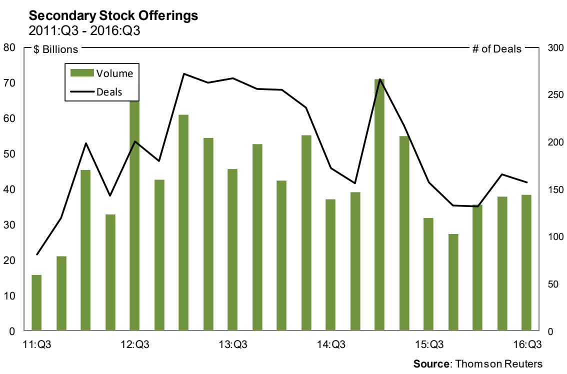
NYSE Short Interest

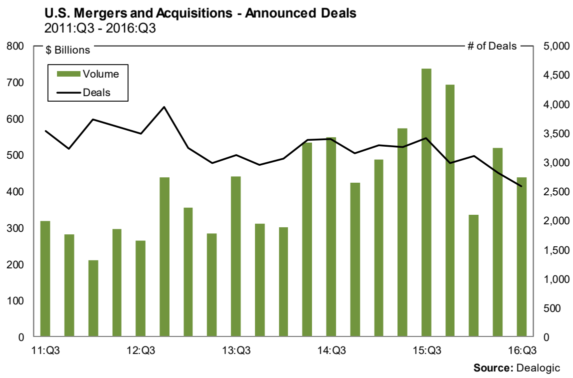
The number of shares sold short on the NYSE averaged 16.3 billion in 3Q'16, down 3.2 percent from 16.8 billion during the previous quarter and down 6.4 percent from 17.4 billion in 3Q'15. NYSE short interest was 9.2 percent above the five-year average of 14.9 billion; out of approximately 6,100 issues, a short position was shown in 5000 issues, in which 3953 issues show a short position of 5,000 shares or more.[5]

[5] NYSE, NYSE Arca and NYSE MKT Short Interest Reports, October 11, 2016.









Equity Underwriting Volume

Equity underwriting increased by 2.5 percent to $51.1 billion in the third quarter from $49.8 billion in 2Q'16 and was 12.3 percent above the $45.5 billion issued in 3Q'15. Equity underwriting volume in 3Q'16 was 23.1 percent below the five-year average of $66.32 billion. The number of equity underwriting deals rose to 215, down 6.5 percent q-o-q and up 1.4 percent y-o-y.

IPO Volume

"True" initial public offerings (IPOs), which exclude closed-end mutual funds, increased to $6.0 billion on 35 deals in 3Q'16. The IPO volume decreased by 2.1 percent from $6.1 billion on 35 deals in 2Q'16 but rose 12.5 percent from $5.3 billion on 33 deals in 3Q'15.

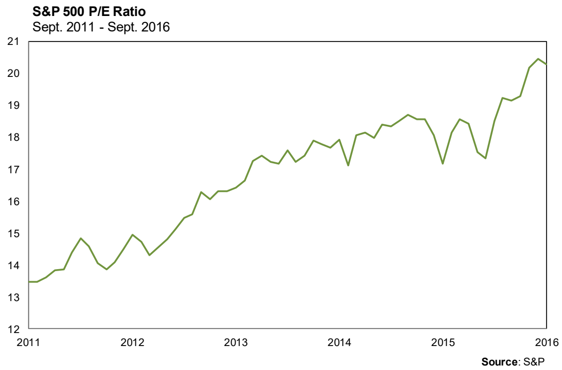
Secondary Offerings

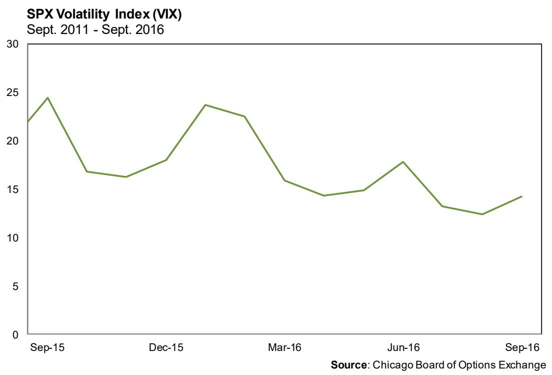
Secondary market issuance increased to $38.3. billion on 157 deals in 3Q'16, up from $37.9 billion on 166 deals in 2Q'16 (up 1.0 percent in dollar volume and down 5.4 percent in number of deals) and up from $31.7 billion on 157 deals in 3Q'15 (up 20.7 percent in dollar volume and unchanged in number of deals).

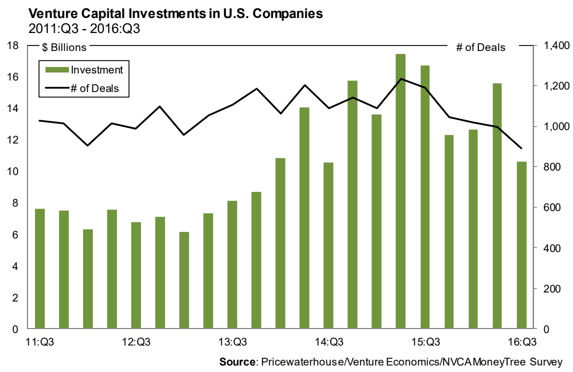
Announced M&A Volume

Announced U.S. mergers and acquisitions (M&A) volume stood at $439.7 billion in 3Q'16, a 15.4 percent decrease from the previous quarter's $519.5 billion and a 40.4 percent decrease y-o-y. M&A volume was 3.7 percent above the 5-year quarterly average of $424.04 billion. The number of deals decreased by 8.4 percent to 2,583 in 3Q'16 from 2,820 in 2Q'16, while the average deal size decreased by 7.6 percent to $170.2 million from $184.2 million in the previous quarter.

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) increased slightly to $124.2 billion in 3Q'16, up 1.8 percent from $122.0 billion in the previous quarter but down 30.6 percent from $179.1 billion in 3Q'15. The dollar amount U.S. companies invested in other countries through M&A ("US Outbound") increased in 3Q'16; American firms invested $41.1 billion in deals outside of the U.S., a 27.3 percent increase from $32.3 billion in 2Q'16 but down 36.9 percent from $65.2 billion invested in 3Q'15.







S&P P/E Ratio

The S&P 500's P/E ratio averaged 20.3 in 3Q'16, up 5.6 percent from the previous quarter's 19.2 and up 13.2 percent from 17.9 in 3Q'15. The S&P P/E ratio stood 20.7 percent above the 5-year average of 16.8 in 3Q'16 but 28.4 percent below the high of 28.4 in 1Q'00.[6]

CBOE VIX Index

The Chicago Board Options Exchange Volatility Index (VIX) decreased to an average of 13.2 in the third quarter from an average of 15.7 in 2Q'16. The index started off at a low in the beginning of August at 11.34 but then gradually increased to a high of 18.14 towards the end of September. The spread between high and low values for the VIX was smaller in 3Q'16 than in the previous quarter.

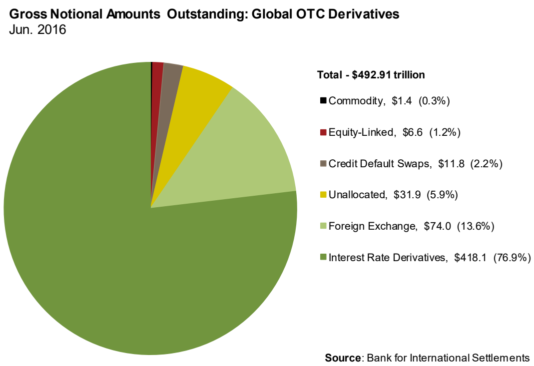
Venture Capital Volume

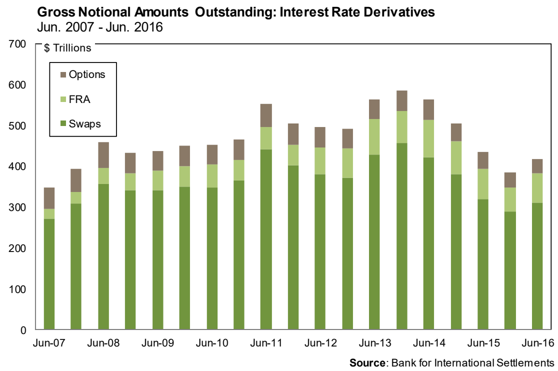
Venture capitalists invested $10.6 billion in 891 deals in the third quarter of 2016, according to the MoneyTree™ Report from PricewaterhouseCoopers LLP (PwC) and the National Venture Capital Association (NVCA), based on data provided by Thomson Reuters. Quarterly venture capital (VC) investment activity decreased by 31.7 percent in dollar terms and decreased by 10.8 percent in the number of deals compared to 2Q'16 when $15.6 billion was invested in 999 deals. In addition to the decrease, the third quarter of 2016 was the eleventh consecutive quarter of more than $10 billion of venture capital invested in a single quarter.

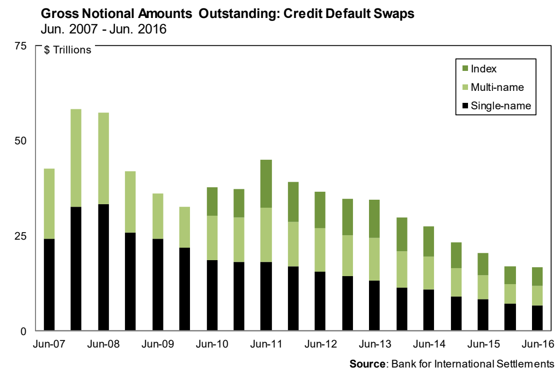
The software industry continued to receive the highest level of funding of all industries with $3.70 billion in 3Q'16, down 58.1 percent from 2Q'16. The biotechnology industry received second largest funding with $1.83 billion followed by the Consumer Products and Services industry with $1.25 billion.[7]

[6] SIFMA records start in January 2000.
[7] Q3 2016 MoneyTree Report Press Release, October 14, 2016.

GLOBAL OTC DERIVATIVES







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")[8], 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). 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 perscent 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[9] 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).

[8] Based on data from most recent report released, available at: http://www.bis.org/statistics/derstats.htm.
[9] Available at: http://www.bis.org/publ/otc_hy1611.pdf.

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