



“[VIX], Whisper your secret to me, Can I guess what it will be?” ~by H W. Petria, 1894

Monetary policy has succeeded in stabilizing growth and boosting asset prices. Volatility has been suppressed as a result of the Fed, as well as the impact of banking regulations. The low level of the VIX is a cautionary event, but how much attention should investors give it?

By Chris Mier, CFA / Strategist

On July 21st, the VIX Index closed at 9.36, a daily low not seen since the market closed at 9.31 back on December 22, 1993—almost one-quarter of a century ago. This is a generational event, deserving of attention, and ignored at one’s own peril. Let’s hold off on the ceremony for now, though. Only time will tell what secret the VIX, and extremely low market volatility, has in store for us.

The VIX is thought of as a market sentiment tool, but that’s only true to the extent that market prices reflect sentiment. The VIX falls into the Fed’s “market-based” indicator basket, not its “survey-based” one. As Bloomberg says, “the VIX reflects a market estimate of future volatility based on the weighted average of the implied volatilities for a wide range of option contract strike prices and is calculated based upon actual options prices.” The VIX is not a survey.

There are many reasons the VIX is where it is today. Some prominent factors are an accommodative Federal Reserve policy, European Central Bank policies that are becoming more compatible with the Fed’s monetary policy stance, strong corporate earnings, the growth of VIX related exchange-traded products and numerous equity market-specific metrics, like low sector correlation. In

the historically low VIX, we are not witnessing the death of pessimism, more likely just a temporarily induced coma.

The Fed normally prefers dull markets to exciting ones. But increasingly, Fed commentary is finding financial stability concerns in the low volatility quantified by the VIX. The discussion at the June FOMC meeting covered the growing angst of some members about the implications of the low VIX. Complacency about risk, incentives to reach for yield, leverage-based risk strategies, and somnolence while hidden market bubbles grow suggest growing threats regarding the maintenance of financial market stability in the US and globally.

The VIX is not standing alone. The MOVE, its bond cousin, is also near the lows set in May of 2013. Federal Reserve financial stress indicators, like that of both the Kansas City Fed and the St. Louis Fed are singing the same song. Do we listen to it or ask to be strapped to the mast, like Odysseus?

Financial institutions are being impacted by the low volatility, with falling revenue from proprietary trading and from diminished client securities trading volume. The impact of banking regulations is being felt. This is good news for those who find security in the tighter

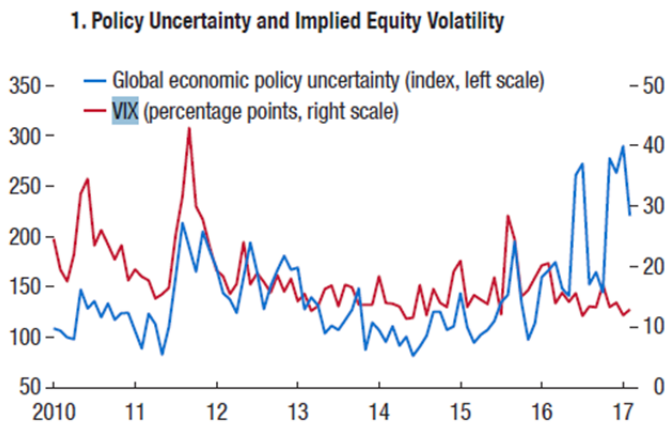
In this Issue

“[VIX], Whisper your secret to me, Can I guess what it will be?”	1
Economic and Interest Rate Forecast—July 2017	3
Market Review <i>Data Diffusion / ADS Index</i>	4
Preliminary Estimates of State Pension Plan FY 2017 Returns	5
Municipal Market Update	7
Measuring Quality: Value-Based Healthcare Reimbursements and Alternative Payment Models	8
Market Review <i>Historical Monthly Bond Price Changes</i>	11
Market Review <i>The Yield Curve</i>	12
Market Conditions	14
Loop Capital Markets Upcoming Negotiated Calendar	15

“[VIX], Whisper your secret to me, Can I guess what it will be?” ~by H W. Petria, 1894

restrictions placed on the activities of large financial institutions, but bad for those firms that have historically relied on more freedom to take risk to support their earnings growth. Less prop trading has helped lower both volatility and trading revenue for investment banks. Goldman Sachs' recently reported a decline in trading revenue, which led to a 6 point drop in their stock price on July 18th, highlighting the impact of banking regulations. It also suggests that Goldman, JPM and others will not be shy about attempting to unwind the restrictions. Goldman specifically referenced the VIX and low volatility as the culprit in their revenue problem.

Figure 1. The VIX is not responding to increased policy uncertainty



Source: International Monetary Fund

What are the dangers of a low VIX reading?

Low volatility, complacency about financial market risks and sustained, but unrealized, optimistic expectations can be reversed rapidly and quickly translated into adjustments in financial market valuations. A shift towards protectionism could impede global growth and hurt capital flows. Earnings reports from banks, like Goldman Sachs and others may motivate increased pressure to roll back financial reforms.

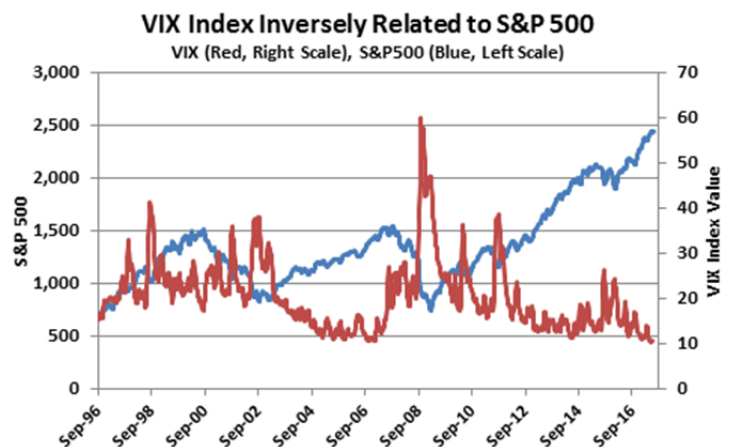
In the corporate sector balance sheets are healthy. It is unclear if the future direction of policy will succeed in inducing more investment and expansion of output, or instead translate into more leverage and increased financial risk-taking. The US faces declining credit quality on a number of fronts—primarily with respect to auto loans, and student loans. Tax reforms could induce tax-advantaged arbitrage and more leverage. The ongoing low-growth low-yield environment could maintain, or further encourage, a mentality to reach further for yield which could exacerbate financial instability. Additionally, there are the factors beyond the scope of policy to contend with. The economy continues to face secular trends that are not likely to go away anytime

soon. The aging of the population, longevity risk, and low productivity are likely to maintain downward pressure on growth, interest rates, and volatility.

While global financial integration has become an increasingly important factor in the variation of domestic financial conditions, accounting for 20% to 40% according to the Global Financial Stability Report of the IMF (June 2017), the fear of a loss of domestic control could disrupt further integration. The Trump Administration seems particularly oriented towards reacting against any apparent loss of domestic control. With Janet Yellen likely to retire as Chair of the Fed in 2018, concerns may mount that the next Chair may be less interested in placing a high priority on global financial market stability, increasing the risk of it growing. In the previous chart, global policy uncertainty and the VIX have been moving in opposite directions since late 2016. If there is a strong relationship between these two variables, the current gap is more likely to be resolved through movement in the VIX.

The low VIX reading, combined with input from the Kansas City Financial Stress Index, and the existence of low risk premiums all suggest that low volatility may not last as financial markets respond to the Fed's reduction in accommodation. Any number of domestic or global events could result in a rapid repricing of risk. Investors should carefully watch the progress of key Trump Administration policies as they wind through Congress for hints of rapid reversals in optimism and market sentiment. While we believe that it is too early to break out the recession risk models just yet, as some have done, financial stability must be put on the table as a primary concern for the balance of 2017 and 2018. Adverse developments that give rise to increasing volatility could upend even the modest economic growth assumptions for 2019.

Figure 2. The VIX vs. the S&P 500



Economic and Interest Rate Forecast—July 2017

Factors Supportive of Lower Rates

Retail sales declined 0.2% in June, the second consecutive month of declines, which suggests that consumer spending has not rebounded after a slow first quarter.

Vehicle sales were 16.4 million (annualized) in June, falling for the fourth consecutive month despite heavy discounts and looser financing terms. The U.S. auto industry is facing a downturn after reaching a record 17.55 million new vehicles sold in 2016.

New home sales rose 2.9% in May, after falling 7.9% in April. The shortage of affordable new homes is keeping entry-level buyers out of the market, causing the decline in housing starts.

The default rate in auto loans and student loans is increasing.

Factors Supportive of Higher Rates

The U.S. added 222K jobs in June vs. 178K consensus forecast, while May reading was revised up by 14K. Strong job growth confirms that the economy is in good health. Wage growth was muted, with average hourly earnings up 0.2% in June.

Industrial production rose 0.4% last month, helped by the recovering oil and gas sector, while May reading was revised up. Capacity utilization increased as well, indicating that the recovery in manufacturing sector is well underway.

The Eurozone economy is growing steadily, especially in former laggards such as France and Italy, with factories ramping up production at the fastest pace in 6 years.

Fed appears poised, at a minimum, to either tighten rates one more time in 2017 or to initiate balance sheet normalization. Assuming stable growth, the Fed may follow through with both actions, as they have indicated.

Figure 1 Economic and Interest Rate Forecast—July 2017

	1Q'16	2Q'16	3Q'16	4Q'16	1Q'17	2Q'17	3Q'17	4Q'17	1Q'18	2Q'18	3Q'18	4Q'18	Avg'16	Avg'17	Avg'18
Economic Forecasts															
Real GDP	0.8	1.4	3.5	2.1	1.4	2.8	2.6	2.4	2.1	2.7	2.3	2.4	1.6	2.3	2.4
Core PCE Deflator	1.6	1.6	1.7	1.7	1.7	1.6	1.6	1.8	2.0	2.1	2.2	2.1	1.7	1.7	2.1
Unemployment Rate*	4.9	4.9	4.9	4.7	4.7	4.4	4.3	4.2	4.2	4.1	4.0	4.1	4.9	4.4	4.1
Nonfarm Payrolls (chg in 1000s)	588	493	716	443	498	581	475	460	450	430	415	400	2,240	2,014	1,695
S&P 500	1,951	2,075	2,162	2,185	2,327	2,398	2,465	2,496	2,527	2,559	2,591	2,623	2,093	2,421	2,575
Short-Term Interest Rates*															
Fed Funds Target (%)	0.37	0.37	0.40	0.45	0.70	0.95	1.16	1.21	1.41	1.46	1.66	1.69	0.40	1.01	1.56
3-Month LIBOR (%)	0.62	0.64	0.79	0.92	1.07	1.21	1.31	1.31	1.51	1.56	1.74	1.74	0.74	1.22	1.64
7-Day SIFMA (%)	0.08	0.40	0.55	0.66	0.69	0.84	0.90	1.00	1.00	1.10	1.15	1.25	0.42	0.86	1.13
Treasury Interest Rates*															
2-Year Treasury (%)	0.83	0.77	0.72	1.00	1.24	1.29	1.40	1.48	1.63	1.67	1.82	1.84	0.83	1.35	1.74
3-Year Treasury (%)	1.02	0.91	0.84	1.23	1.51	1.47	1.60	1.67	1.82	1.86	2.01	2.03	1.00	1.56	1.93
5-Year Treasury (%)	1.36	1.24	1.12	1.61	1.94	1.81	1.92	1.97	2.13	2.17	2.32	2.34	1.33	1.91	2.24
7-Year Treasury (%)	1.68	1.53	1.39	1.93	2.25	2.07	2.14	2.21	2.36	2.40	2.55	2.57	1.63	2.17	2.47
10-Year Treasury (%)	1.91	1.74	1.56	2.13	2.44	2.26	2.38	2.46	2.61	2.65	2.80	2.82	1.84	2.39	2.72
30-Year Treasury (%)	2.72	2.57	2.28	2.83	3.05	2.90	2.95	3.03	3.16	3.19	3.32	3.34	2.60	2.98	3.25
Municipal Interest Rates*															
30-Year MMD (%)	2.76	2.42	2.15	2.86	3.08	2.86	2.89	2.95	3.06	3.07	3.17	3.17	2.55	2.95	3.12
Muni Yield Curve Slope (%)	2.31	1.85	1.60	2.02	2.21	2.02	1.92	1.88	1.99	1.90	1.95	1.85	1.95	2.01	1.92

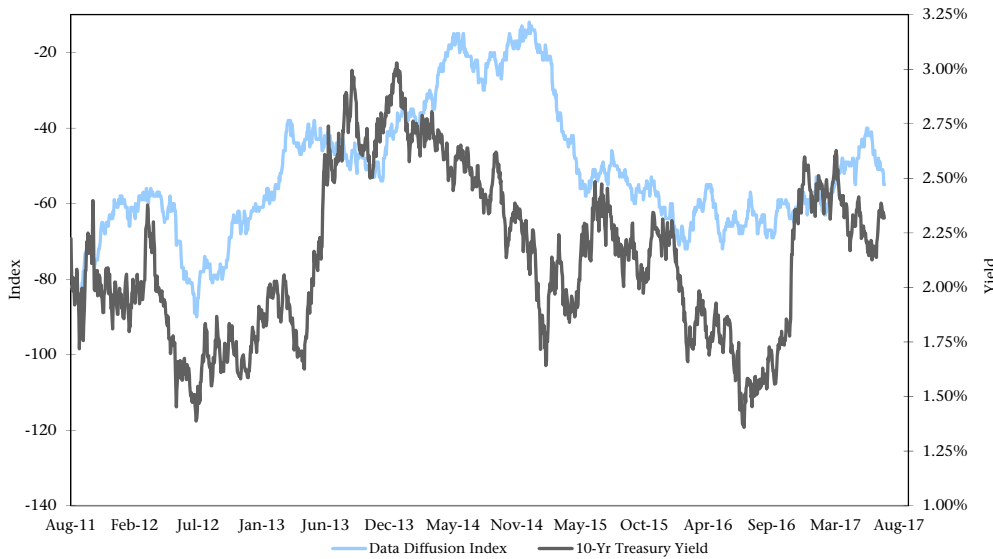
P: Preliminary Data

* 3-month average

Source: Loop Capital Markets' Analytical Services Division and Short-Term Desk. Black Text: Actual Blue Text: Forecast as of July 14, 2017

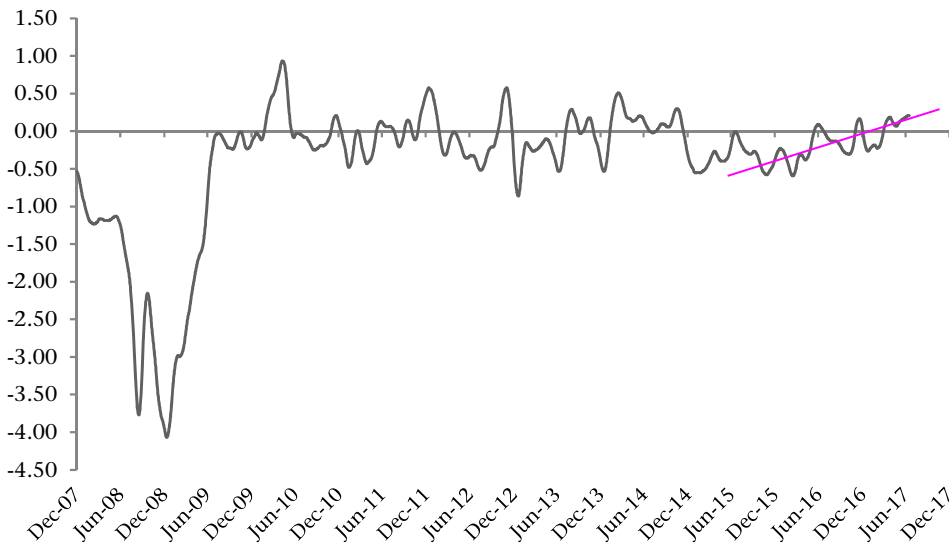
Market Review *Data Diffusion / ADS Index*

Figure 2 Data Diffusion Index vs. 10-Yr Treasury Yield



Source: FRED, Loop Capital Markets

Figure 3 Aruoba-Diebold-Scotti Business Conditions Index (12/31/2007—7/15/2017)



Source: Federal Reserve Bank of Philadelphia

Since the end of February, as economic data came in better than expected, Treasury yields declined, and vice versa. This counterintuitive dynamic indicates that yield moves were not driven by economic fundamentals during this period.

Data Diffusion Index: We calculate the Data Diffusion Index based on 30 different weekly and monthly economic releases, such as construction spending, capacity utilization and new home sales. If the number came above the consensus estimate (which is positive for economic growth) the index would increase by one, and vice versa. The Treasury yield is expected to track the data diffusion index (the yields would increase as the economy exceeds expectations and vice versa).

The index has been trending up over the last 18 months and has turned positive at the end of Q1 2017. The comparison is relative to trend growth of about 2%, represented by the flat line.

Reading the ADS Index: The index is designed to track real business conditions at high frequency. Its underlying (seasonally adjusted) economic indicators (weekly initial jobless claims; monthly payroll employment, industrial production, personal income less transfer payments, manufacturing and trade sales; and quarterly real GDP) blend high and low-frequency information and stock and flow data.

Preliminary Estimates of State Pension Plan FY 2017 Returns

By Ivan Gulich / Senior Vice President

Investment earnings have accounted for 63% of state and local public pension sources of revenue, on average, from 1986 through 2016, with employers and employees contributing the remaining 25% and 12% of the total, respectively.¹ Considering the overwhelming impact that market returns have on pension plans, and taking into account the delays in disclosing this information, we thought it would be helpful to create a model to estimate FY 2017 pension asset returns for state pension plans.

Our dataset consists of 80 large state pension plans for which 2016 data is available.² These plans account for 82% of aggregate state pension plan assets and liabilities. Asset classes for these plans include domestic and international equities and fixed income instruments, real estate, alternative investments, cash and short term instruments and other. We have allocated alternative investments reported by individual plans across hedge funds, private equity and commodities using average allocations across the entire public pension sector. Fixed income assets were allocated across Treasuries, domestic and international corporate bonds.

The following are FY 2017 total returns for indices that we have selected to represent respective asset classes:

#	Asset Classes	Benchmark	Bloomberg Tickers	FY 2017 Total Return
1	US Equity--Broad	Russell 3000	RAY	18.5%
2	US Large Caps	S&P 500	SPTR	17.9%
3	Global Equity	MSCI ACWI	MXWD	19.4%
4	US Treasury	S&P U.S. Treas. Bond Index	SPBDUSBT	-1.9%
5	US Treasury Bills	Money Market Funds	VMMXX	0.7%
6	US IG Corporates	S&P IG Corp. Bond Index	SPUSCIG	1.7%
7	Global Corp. Ex-US	S&P Int. Corp. Bond Index	SPBDICBT	3.7%
8	Hedge Funds	Hedge Fund Index	HFRXGL	6.0%
9	Commodities	CRY Commodity Index	CRYTR	-8.7%
10	U.S. REIT	Bloomberg REIT Index	REIT	0.2%
11	U.S. Private Equity	Private Equity Index	PRIVEXD	36.8%

Source: Bloomberg

Equities and private equity were the best performing asset classes in FY 2017. Using these inputs and portfolio allocations and subtracting administrative costs resulted in following estimates of returns net of fees for major pension funds:

#	PlanName	FY 2017 Net Return	
		Actual	Estimated
1	Alaska PERS		14.6%
2	Alaska Teachers		14.6%
3	Arizona Public Safety Personnel		14.4%
4	Arizona SRS		13.6%
5	Arkansas PERS		14.4%
6	California PERF	11.2%	11.6%
7	California Teachers	13.4%	13.8%
8	Connecticut SERS		12.8%
9	DC Police & Fire		12.7%
10	DC Teachers		12.7%
11	Delaware State Employees		11.3%
12	Florida RS		13.9%
13	Georgia ERS		12.5%
14	Georgia Teachers		12.9%
15	Idaho PERS	12.4%	12.6%
16	Illinois SERS		13.1%
17	Illinois Teachers		12.0%
18	Illinois Universities		13.3%
19	Indiana PERF		11.1%
20	Indiana Teachers		11.1%
21	Iowa PERS		10.7%
22	Iowa Municipal Fire and Police		11.7%
23	Kansas PERS		12.2%
24	Kentucky ERS		11.9%
25	Kentucky Teachers		14.2%
26	Louisiana SERS		14.1%
27	Louisiana Teachers		12.8%
28	Maine State and Teacher		12.6%
29	Maryland PERS		12.6%
30	Maryland Teachers		12.6%
31	Massachusetts SRS		13.1%
32	Massachusetts Teachers		13.1%
33	Michigan Public Schools		13.6%
34	Michigan SERS		13.7%
35	Minnesota GERF		13.0%
36	Minnesota State Employees		13.0%
37	Minnesota Teachers		13.0%
38	Minnesota Police and Fire Ret. Fund		13.0%
39	Mississippi PERS		13.9%
40	Missouri DOT and Highway Patrol		12.0%
41	Missouri State Employees		11.5%
42	Montana PERS		12.8%
43	Montana Teachers		12.8%
44	Nebraska Schools		12.6%
45	New Hampshire Retirement System		13.0%

¹ US Census Bureau, Annual Survey of Public Pensions, State & Local Data

² Source: Public Plans Data (Center for State & Local Government Excellence, Center for Retirement Research at Boston College and NASRA)

(Continued)

#	PlanName	FY 2017 Net Return	
		Actual	Estimated
46	New Jersey PERS		13.9%
47	New Jersey Police & Fire		14.1%
48	New Jersey Teachers		13.9%
49	New Mexico PERA		12.6%
50	New Mexico Educational		15.0%
51	New York State Teachers		13.2%
52	NY State & Local ERS		13.0%
53	NY State & Local Police & Fire		13.0%
54	North Carolina Local Government		12.1%
55	North Carolina Teachers & State Emp.		12.1%
56	North Dakota PERS		13.3%
57	North Dakota Teachers		13.4%
58	Ohio School Employees		13.4%
59	Ohio Teachers		14.1%
60	Oklahoma PERS		12.6%
61	Oklahoma Teachers	15.3%*	13.5%
62	Oklahoma Police Pension System		12.7%
63	Oregon PERS		12.5%
64	Pennsylvania School Employees		12.4%
65	Rhode Island ERS		12.7%
66	South Carolina Police		9.9%
67	South Carolina RS		9.9%
68	South Dakota RS		9.6%
69	Texas ERS		12.6%
70	Texas LECOS		12.6%
71	Texas Teachers		14.7%
72	Vermont State Employees		12.7%
73	Vermont Teachers		12.7%
74	Virginia Retirement System		12.2%
75	Washington LEOFF Plan 2		12.8%
76	Washington PERS 2/3		12.8%
77	Washington School Empl. Plan 2/3		12.8%
78	Washington Teachers Plan 2/3		12.8%
79	West Virginia PERS		14.8%
80	West Virginia Teachers		14.6%

* Gross return

These are rough estimates generated using index returns and uniform assumptions with respect to asset allocation, not calculations based on detailed analysis of actual pension portfolios.

CalPERS³ and CalSTRS⁴ recently reported FY 2017 returns that are 0.4 percentage points lower than our respective estimates. The return net of fees reported by Idaho Public Employee Retirement System⁵ is also close to predicted value, while the return for Oklahoma Teachers is off by more than 1 percentage point.⁶

³ Robin Respaut: *CalPERS says annual return jumps to 11.2 percent from 0.6 percent*, Reuters, July 14, 2017

⁴ *CalSTRS Reports 13.4 Percent Net Investment Return for FY 16-17*, CalSTRS, July 20, 2017

⁵ Rob Kozlowski: *Idaho Public Employee fund returns 12.7% gross in fiscal year*, Pensions & Investments, July 19, 2017

⁶ Meaghan Kilroy: *Oklahoma Teachers terminates Advisory Research, reports 15.3% return for fiscal year*, Pensions & Investments, July 19, 2017

Notwithstanding the inaccuracies in our forecasts, we can estimate that state pension plans outperformed their investment rate of return targets by around 5 percentage points, on average, in FY 2017. Using this information we can estimate how this will impact pension plan funded ratios for FY 2017, more than a year before actual results are released.

Excess portfolio returns boost pension plan assets as follows:

(Portfolio Return—Assumed Rate of Return) x Pension Assets

Since liabilities are not affected by market returns, all else equal, excess portfolio gains improve funded ratios by:

(Portfolio Return—Assumed RoR) x Assets / Liabilities

This **improvement in funded ratio** due to excess returns is mathematically equivalent to:

{FY 2017} Excess Portfolio Return x {FY 2016} Funded Ratio

It follows that well-funded pension plans invested in riskier assets will improve the most during market rallies, and vice versa.

We estimate that funded ratio for an average pension plan, all else equal, will rise by about 3.5 percentage points in FY 2017 due to strong portfolio performance.

On the other hand, a pension plan with 40% funded ratio and excess return of 5% will experience only 2 percentage point improvement. Significant net outflows could offset this gain, in which case such plan may not see any improvement, or even experience a slight decrease in funded ratio in FY 2017.

Excess FY 2017 portfolio returns range, according to our estimates, between about 2% and 7%, depending on the pension plan. Since funded ratios vary widely as well, we can expect FY 2017 portfolio gains to impact state pension plans fairly unevenly.

It should also be noted that just achieving target investment returns, all else equal, should marginally improve funded ratios in FY 2017, since gradual amortization of the funding gap is embedded in actuarial calculations underlying pension accounting.

In addition to reviewing the actual data coming out now for FY 2016 (released by about 35 states so far), analysts may find it useful to also consider this information, which, while only an estimate, is at least much more timely.

Municipal Market Update

By David Guerrieri | Partner

Market Conditions

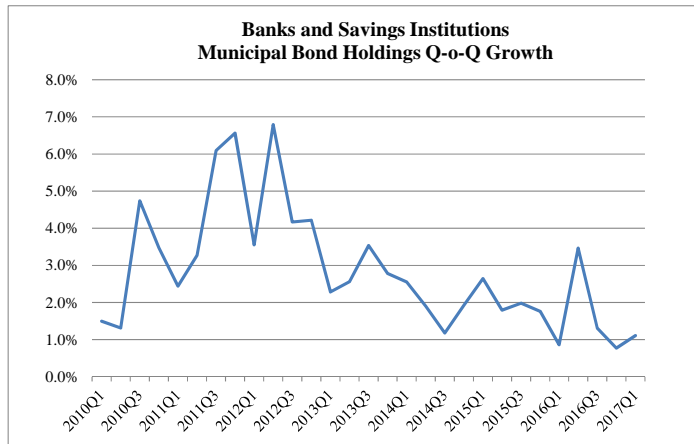
The S&P Municipal Bond Investment Grade Index gained 3.25% year-to-date, while muni high-yield index gained 5.03%.

New issue volume is meeting forecast expectations, but remains about 12.7% lower YTD compared to the same period in 2016.

Lipper fund flows have experienced -75% decrease YTD vs. 2016. Alternative data from ICI, which arguably captures more funds, also shows significant decline in inflows:

6/30/2016 \$33.6 billion inflows
 6/30/2017 \$14.9 billion inflows

FDIC data indicates that bank portfolio growth continues to wane:



There is no evidence of any impact of proposed tax reform in market data. The assumption that the threat of tax reform is embedded in market structure is not corroborated by Muni/Treasury ratios, which have declined substantially:

	10-Yr M/T Ratio	30- Yr M/T Ratio
12-mo average	93.0%	99.0%
3-mo average	87.9%	98.0%
As of 7/20/17	85.0%	95.9%

Source: Thomson/Reuters

Municipal Bond Trading Volume

Increase in yields Q4 2016 lead to tax swapping/rebooking of higher yields by professional investors, which drove volume increase in Q4 2016 and Q1 2017:

All Trades >1mm

Q3 2016 227B
 Q4 2016 315B
 Q1 2017 293B
 Q2 2017 266B

Source: Bloomberg

Muni trading volume has declined on a quarterly basis since recent peak in Q4 2016.

Illinois GO Trading Volume

Passage of Illinois budget led to a substantial increase in GO trading volume:

Daily average volume 4.6.17 to 7.5.17

>1mm 77MM/day
 250 to 1mm (no option for all sizes up to 1MM) 9MM/day

Daily average volume 7.6.17 to 7.10.17

>1mm 154MM/day
 250 to 1MM 13MM/day

Measuring Quality: Value-Based Healthcare Reimbursements and Alternative Payment Models

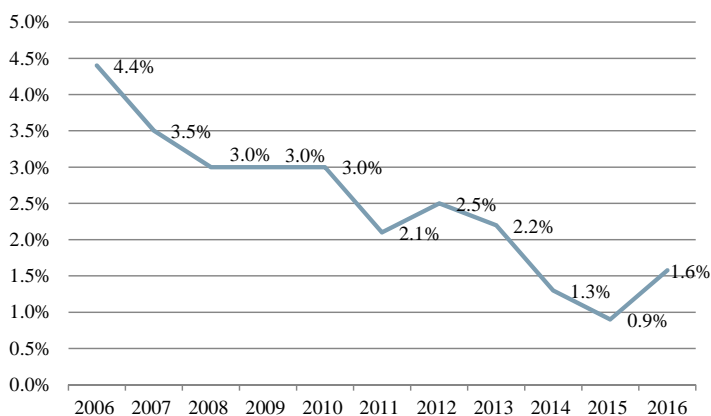
By Rachel Barkley | Vice President

Going forward, the healthcare sector will be influenced by demographic trends and government legislation (including legislation currently known, still being debated and future unknowns). Both private and public insurance providers are transitioning their reimbursement models, which will also have a considerable impact on service delivery. Service providers are adapting through a mixture of increasing in scale, forming partnerships across the continuum of care and with nontraditional providers, and investing in technology to meet these challenges.

Hospital prices particularly have reduced their annual growth rates in recent years. Part of this is driven by insurers increasingly moving from volume-based care (fee-for-service) to value-based reimbursements. This can move the needle on hospital and health provider delivery, as it focuses healthcare providers on providing service for the lowest cost.

The Medicare Access and CHIP Reauthorization Act of 2015 (MACRA) also is changing the payment model for physicians. MACRA repealed the Sustainable Growth Rate (SGR) Formula that determined Medicare Part B reimbursement rates for physicians, replacing it with a value-based model. Various reimbursement structures will be available: the Merit Based Incentives Payment System (MIPS), which bases reimbursement on the quality of care, resources use, clinical practice improvement and meaningful use of electronic health record (EHR) technology and Advanced Alternative Payment Models (APMs). MIPS reimbursement rates include positive and negative adjustments from the neutral rate, ranging from +/-4% in 2019 to +/-9% in fiscal 2022, based on a performance score. The first performance period for MIPS is calendar 2017. Performance data will be submitted in March 2018 and users will receive feedback from Medicare before reimbursement adjustments begin in 2019. Advanced APM participants, which use EHR and have physicians bear additional risk for financial losses, will be eligible for a 5% incentive payment beginning in 2019.

Annual % Change in Hospital Prices



Sources: U.S. Bureau of Labor Statistics

Medicare VBR

Public insurance providers have led the charge into VBRs, particularly through the Center for Medicare Services (CMS), which is part of the U.S. Department of Health and Human Services (HHS). A portion of these were enacted as part of the ACA, including the Medicare Shared Services Program and value-based payments to hospitals.

The implementation of VBRs by Medicare has been rapid, with the percentage of cases tied to VBR rising from 20% in 2014 to 30% in 2016. The Department of Health and Human Services wants to increase this to 85% going forward.

MACA MIPS Reimbursement Rate Timeline



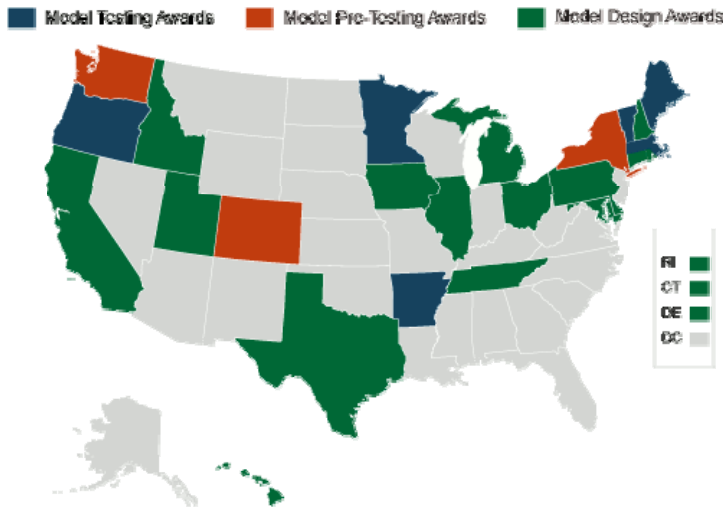
Medicaid VBR

CMS's State Innovation Model (SIM) partners with state to facilitate health care payment and delivery system reforms. Associated programs aim to improve service quality, lower costs and improve overall health of the service area. Since beginning in 2013, the program has had two rounds, awarding a total of \$990MM to support programs across 34 states, three territories and Washington, D.C. Funding is used to plan, design, implement and test strategies.

As of September 2016, Medicaid programs in 39 states contracted with risk-based managed care organizations (MCOs) to provide services, with more than half of Medicaid beneficiaries now receiving coverage through an MCO. In recent years, states have

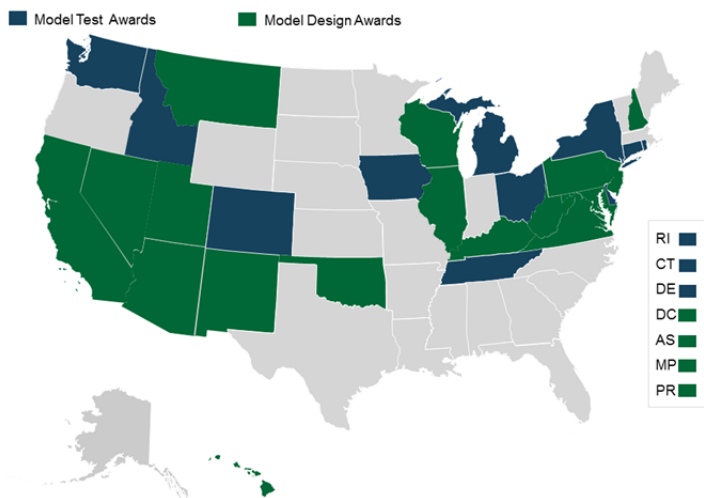
begun to leverage MCO contracts to implement VBR models, with some of these initiatives stemming from SIM initiatives.

SIM Round One Awards



Source: Centers for Medicare & Medicaid Services

SIM Round Two Awards



Source: Centers for Medicare & Medicaid Services

Five main approaches have been used to facilitate this:

1. **MCOs adopt a standardized VBR model.** Both Minnesota and Tennessee have adopted this strategy.
2. **MCOs make a certain % of provider payments through approved VBR protocols.** These models vary by state, with some states increasing the percentage of VBR payments that are made each year. Arizona,

Pennsylvania and South Carolina operate under this model.

3. **MCOs move toward using more complicated VBR systems.** New York State uses such a model, its VBP Roadmap, which calls for 80%-90% of payments associated with VBR and 35% of payments including risk-based payments by 2020.
4. **MCOs participate in multi-payer VBR initiative.** Tennessee uses this, having adopted a uniform payment model for its MCO contracts.
5. **MCOs participate in VBR pilot programs.** New Mexico and Minnesota operate under this approach.

There has also been some movement by states to institute value-based payment models for community health centers (CHCs). CHCs provide primary care to roughly 24.3 million low-income patients across the country through 1,400 CHC centers. As CHCs provide care regardless of a patient's ability to pay, they currently receive a fixed reimbursement that is linked to the cost of care for Medicare recipients as well as federal funding for uninsured patients. Under the prospective payment system, which is the current CHC model, CHCs receive a flat rate for Medicaid patient visits. This payment system makes patient volume the number one driver of CHC revenues, which can detract from an incentive to change patient delivery models.

Some states, however, are beginning to change this, moving CHCs to a value-based payment system. Oregon began a pilot program that gave CHCs a capitated rate for all Medicaid patients. CHCs that introduced alternative patient service provisions, including group visits, electronic care and visits with non-billable team members, have the capacity to lower costs while receiving the same payment levels from the state. California is also set to begin a similar pilot program in January 2018.

Private Insurers

Private insurers have followed the lead of public providers, moving to VBR systems. Among the largest insurance providers, Aetna has implemented accountable care organizations (ACOs) and now has 40% of its medical spending linked to value based contracts with a goal of increasing this to 75% by 2020. Cigna, United Health and Humana have all instituted bundle payments for certain surgeries, including hip and knee replacements.

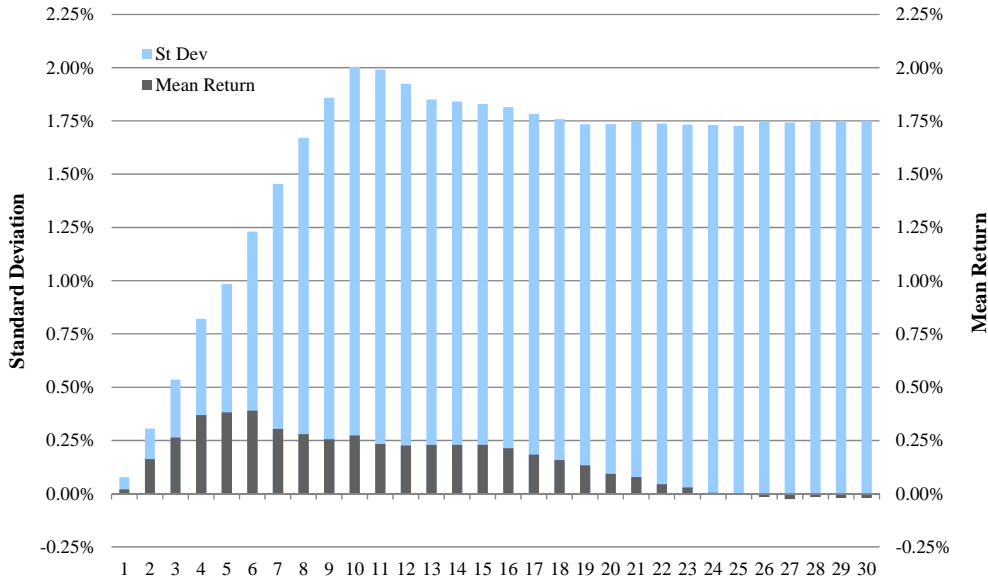
This move toward value-based reimbursements can result in providers moving from siloed provision to a network care model, which can increase scale and allow for servicing patients on

multiple levels. Adventist Health Northern California is an example of a system moving to provide a continuum of care, increasing its footprint by affiliating with rural health clinics and acute care providers. Catholic Health Initiatives has been expanding its continuum of care services for a number of years, having set a goal in 2011 to have 65% of its net patient revenues derived from non-inpatient hospital care by 2020.

Healthcare systems' ability to adapt to new payment models, through efficiencies, growth of services, or other measures, will play a pivotal role in determining their viability going forward.

Market Review *Historical Monthly Bond Price Changes*

Figure 4 Muni Benchmark Callable Scale — Average Bond Price Changes (July)



Sources: Loop Capital Markets

Figure 5 Muni Benchmark Callable Scale — Average Bond Price Changes (July)

AAA MMD - MONTHLY PRICE CHANGE

Maturity	5	10	15	20	25	30
Jul-01	0.75%	1.33%	1.32%	1.16%	1.23%	1.23%
Jul-02	1.06%	1.50%	1.40%	0.85%	1.00%	1.08%
Jul-03	-2.64%	-6.25%	-4.93%	-4.60%	-4.81%	-4.74%
Jul-04	0.53%	1.28%	1.43%	1.26%	0.70%	0.86%
Jul-05	-0.93%	-1.66%	-1.18%	-0.79%	-0.63%	-0.71%
Jul-06	0.58%	1.19%	1.03%	1.11%	1.19%	1.26%
Jul-07	0.58%	0.80%	0.71%	0.63%	0.55%	0.55%
Jul-08	1.25%	0.88%	-0.08%	-0.31%	-0.16%	-0.08%
Jul-09	1.45%	1.78%	1.12%	0.79%	0.16%	-0.23%
Jul-10	1.22%	1.80%	1.29%	0.64%	0.40%	0.40%
Jul-11	0.54%	0.65%	0.88%	0.56%	0.08%	0.00%
Jul-12	0.64%	1.65%	2.72%	2.79%	2.53%	2.61%
Jul-13	0.59%	-0.89%	-2.29%	-2.67%	-2.74%	-2.89%
Jul-14	-0.09%	0.00%	-0.08%	-0.08%	-0.08%	-0.16%
Jul-15	0.36%	0.74%	1.06%	1.05%	1.29%	1.29%
Jul-16	0.23%	-0.41%	-0.74%	-0.90%	-0.81%	-0.81%
Mean	0.38%	0.27%	0.23%	0.09%	-0.01%	-0.02%
St Dev	0.98%	2.00%	1.83%	1.74%	1.73%	1.75%

Source: Loop Capital Markets

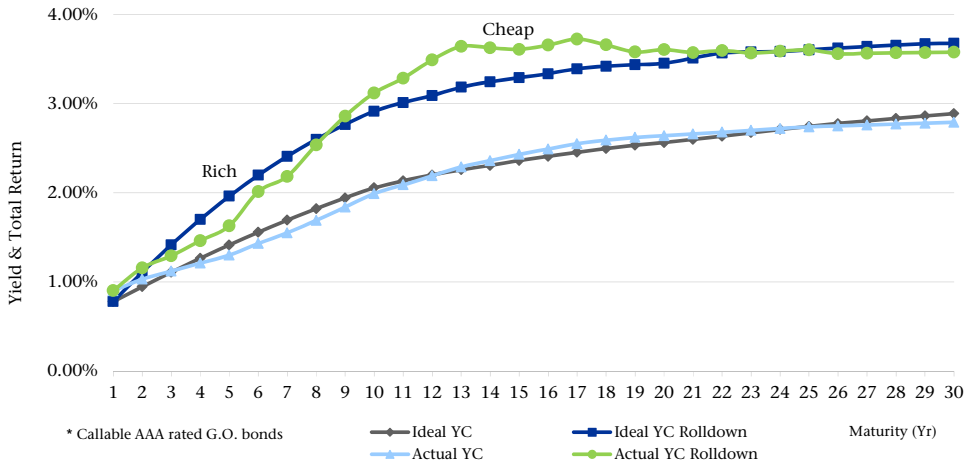
We show historical bond price changes for each point on the muni benchmark callable curve during the month of July for the last 16 years.

The returns in July were positive about 3/4 of the time on the front end of the curve, while on the long end they were flat, on average.

The 10 to 12-year range was most volatile, with standard deviation of monthly bond price changes of about 2%.

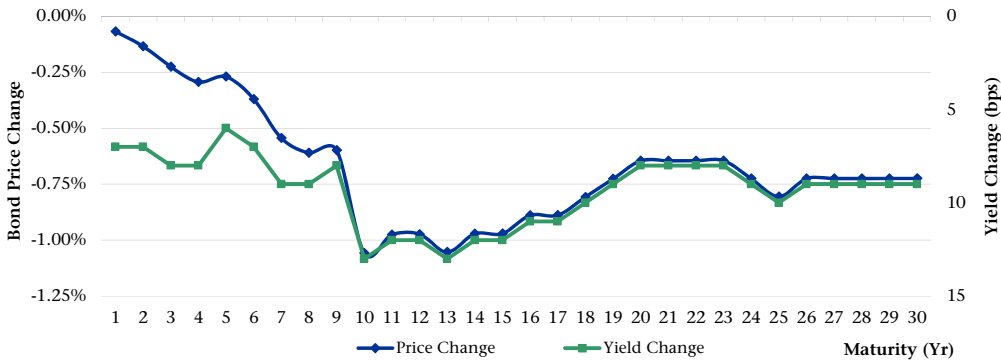
Market Review *The Yield Curve*

Figure 6 1-Year Forward Roll-down—Muni Benchmark Curve* (July 14, 2017)



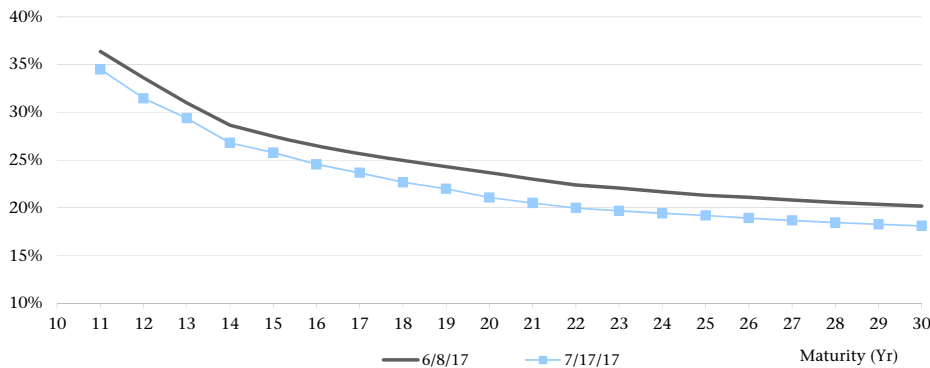
Source: Loop Capital Markets | *Callable AAA-rated G.O. bonds

Figure 7 Monthly Price Change — AAA GO Bonds* (6/16/17 — 7/14/17)



Source: Loop Capital Markets | *Price Change Only

Figure 8 Implied Municipal Volatilities



Source: Loop Capital Markets | *10-year call

The yield curve shows rich (3 to 8-yr, 26+ yr) and cheap (10 to 20-yr) points on the AAA MMD curve, based on one year holding period returns and assuming no change in the yield curve. 17-yr maturity offers the highest expected total return.

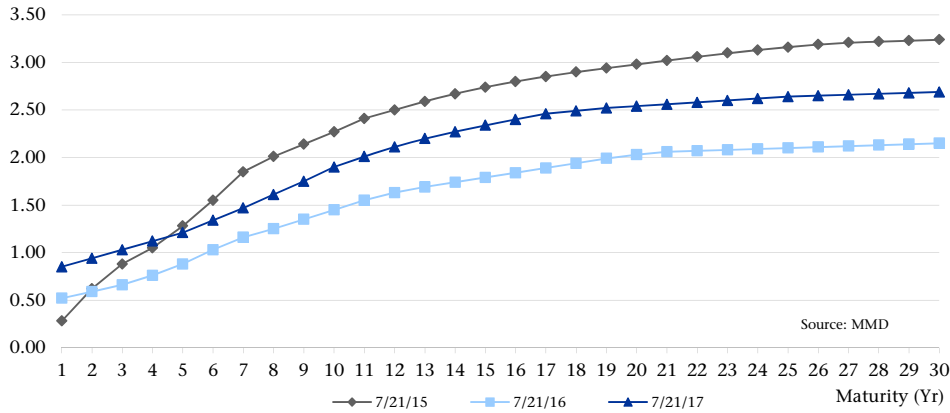
Actual returns will depend on the level and shape of the yield curve a year from now.

Yields rose 12 bps, on average, in the 10 to 17 year range, which performed the worst from June 16 through July 14. On the long end of the curve yields rose 9 bps, resulting in a somewhat unusual shape of the graph.

Muni and Treasury curves have steepened 2 bps and 10 bps, respectively, during this period.

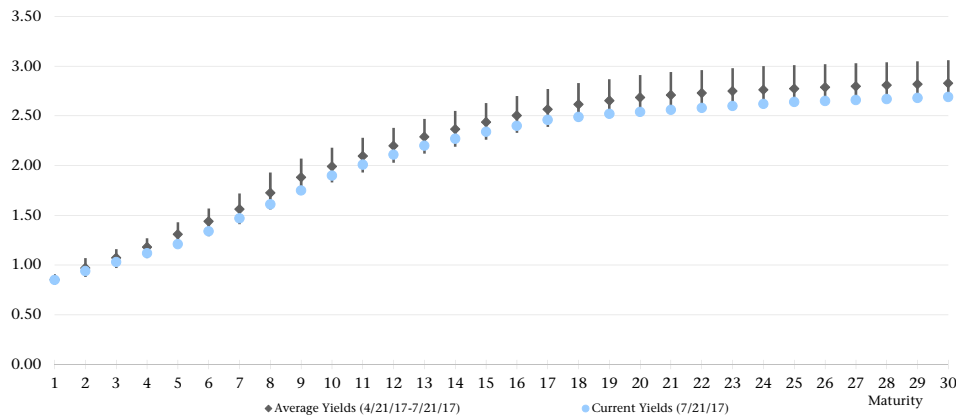
Implied volatilities declined from June 8 through July 17 as yields rose across the curve. Since non-callable bonds depreciate faster in rising interest rate environment than their callable counterparts, the price differential between the two, and the respective implied volatilities, declined as a result.

Figure 9 Current vs. Historical Municipal Yield Curves (%)



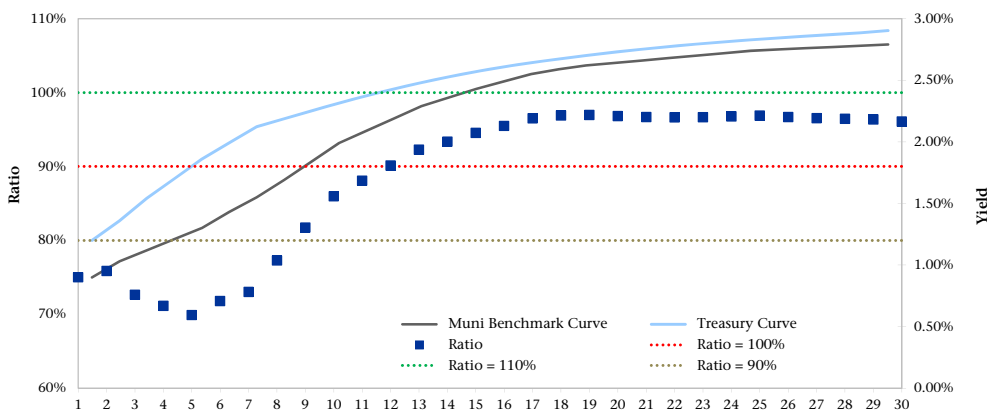
Yields are about 52 bps higher, on average, than they were a year ago, which negatively impacted refundings.

Figure 10 3-Month Average Benchmark Muni Curve Yield



Muni yields are below their 3-month averages across the curve.

Figure 11 Muni and Treasury Yield Curves and Ratios



The 2 curves are convex/concave in the 2 to 10-yr range, which resulted in an unusual shape of the ratio curve in this area.

The ratios dropped below 100% on the long end of the curve.

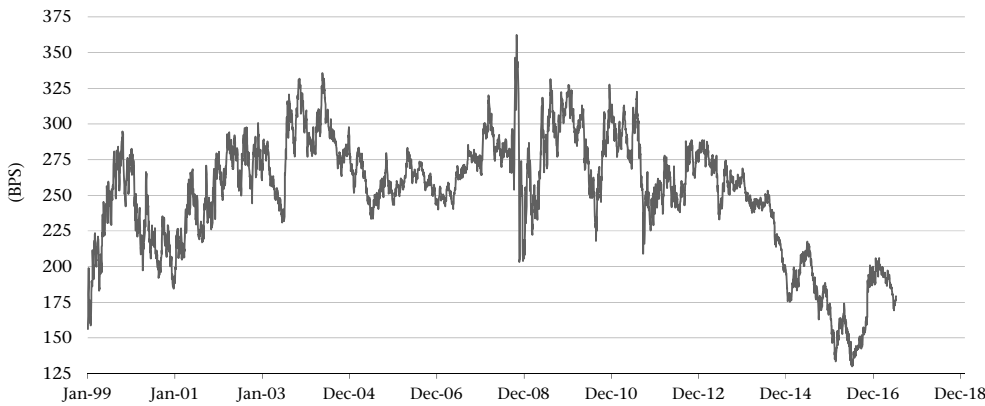
Market Conditions

Figure 12 2 to 30-Yr Muni Spread (bps)



The slope of the curve declined 44 bps since peaking in mid-March. The pace of flattening will depend on future Fed policy, which appears dovish at this point in time.

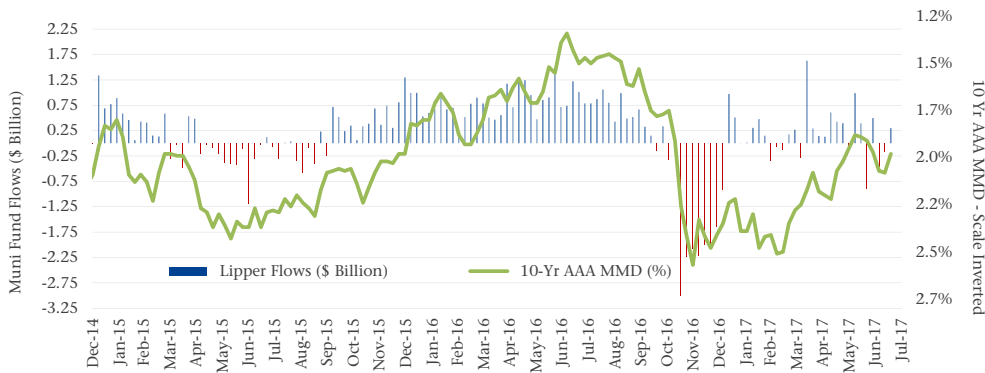
Figure 13 Declining Inflation Expectations



Fed's five-year forward breakeven inflation rate, derived from TIPS and regular Treasury yields, is about 1.80%.

Source: FRED

Figure 14 Lipper Weekly Municipal Mutual Fund Flows (\$ Billion)



Muni fund flows have oscillated between positive and negative values in recent weeks. The 4-week average is positive \$41 million.

Source: Lipper

Loop Capital Markets Upcoming Negotiated Calendar

Date	Par Amount (\$ mil)	Issue	Loop Capital's Role
7/24/17	125.0	Connecticut HFA Housing Mortgage Finance Program Bonds 2017 Series D	Selling Group
7/26/17	800.0	The City of New York General Obligation Bonds Fiscal 2018 Series A	Co-Senior Manager
7/26/17	75.0	Greensboro Combined Enterprise System Revenue and Refunding Bonds	Co-Manager
7/31/17	400.0	Washington Metropolitan Transportation Authority Gross Transit Revenue Bonds	Co-Senior Manager
8/1/17	109.3	State of California Department of Water Resources Water System Floating Rate Note	Sole Senior Manager
8/1/17	205.0	City of San Antonio General Improvement Bonds	Co-Senior Manager
8/3/17	265.0	New Jersey Health Care Facilities Financing Authority Revenue Bonds (Inspira Health)	Co-Manager



Fake News Item #371:

In a recent poll, Americans ranked Liechtenstein, New Zealand and Iceland as the top 3 nations they would like a future presidential candidate to collude with.

Analytical Services Division

Loop Capital Markets' Analytical Services Division (ASD), established in 2002, publishes a variety of reports that provide clients with relevant and timely information about the bond market and investor demand. The ASD is one of the largest analytics groups dedicated to investment banking, providing analytics and commentary on the economy, monetary policy, and a variety of public finance issues.

Chris Mier, CFA, Managing Director

312.356.5840 | christopher.mier@loopcapital.com

Ivan Gulich, CFA, Senior Vice President

312.913.2204 | ivan.gulich@loopcapital.com

Rachel Barkley, Vice President

312.913.2297 | rachel.barkley@loopcapital.com

Vania Petkova, Vice President

312.913.2229 | vania.petkova@loopcapital.com

Loop Capital, founded in 1997, is a highly client-focused investment bank, brokerage and advisory firm that provides capital solutions for corporate, governmental and institutional entities across the globe.

Loop Capital Markets and its affiliates serve clients in corporate and public finance, financial advisory services, taxable, tax-exempt and global equity sales and trading, analytical services, and financial consulting services.

Headquartered in Chicago, the firm has over 170 professionals in 22 offices across the country.

Find more information at www.loopcapital.com.



Loop Capital® is a registered trademark of Loop Capital Holdings, LLC. Securities and investment banking services are offered through Loop Capital Markets LLC. Loop Capital Markets LLC is a registered broker-dealer and a member of the Financial Industry Regulatory Authority (FINRA), the Municipal Securities Rulemaking Board (MSRB) and the Securities Investor Protection Corporation (SIPC). Swap related services are offered through Loop Capital Strategies, LLC. Loop Capital Strategies is an Introducing Broker registered with the Commodity Futures Trading Commission (CFTC) and member of the National Futures Association (NFA). Loop Capital prepared this product for informational purposes only. This product and the information herein (collectively "Information") is not a research report and it should not be construed as such. The Information has been gathered from sources believed to be reliable, but is not guaranteed and is not a complete summary of all available data. Any historical price(s) or value(s) are also only as of the date indicated and from any source that may be noted. Loop Capital is under no obligation to update opinions or other information. Any opinions expressed by Loop Capital represent our present opinions as of the date of this Information and are subject to change without further notice. The Information, including proposed terms and conditions, are indicative and for discussion purposes only. Finalized terms and conditions of any transaction or engagement are subject to further discussion and negotiation and will be evidenced by a formal agreement. Any reproduction, redistribution or transmission of the Information, in whole or in part, without the prior written permission of Loop Capital is prohibited. Except as required to comply with applicable law or regulation, Loop Capital makes no warranty whatsoever (including but not limited to, warranties as to quality, accuracy, performance, timeliness, continued availability or completeness) as to the Information contained herein. This product may not be posted to a website without prior approval by Loop Analytical Services Division. The Information contained is not an offer to buy or sell or a solicitation of an offer to buy or sell any security or instrument or to participate in any trading strategy. Loop Capital does not provide accounting, tax or legal advice; however, you should be aware that any proposed indicative transaction could have accounting, tax, legal or other implications that should be discussed with your advisors and or counsel. The Information should not be relied upon for the maintenance of your books and records or for any tax, accounting, legal or other purposes. Subject to applicable law, you may disclose any aspects of any potential transaction or structure described herein that are necessary to support U.S. federal income tax benefits. The fact that Loop Capital has made the Information or other information available to you constitutes neither a recommendation that you enter into or maintain a particular transaction or position nor a representation that any transaction is suitable or appropriate for you. Transactions involving derivative or other products may involve significant risk and you should not enter into any transaction unless you fully understand the risks and have independently determined that such transaction is appropriate for you. Loop Capital shall have no liability, contingent or otherwise, to you or to any third parties, or any responsibility whatsoever, for the correctness, quality, accuracy, timeliness, pricing, reliability, performance or completeness of the Information, data or formulae provided herein or for any other aspect of the performance of the Information. In no event will Loop Capital be liable for any damages (including special, indirect, incidental or consequential damages) which may be incurred or experienced on account of your use of the information provided herein or this website, even if Loop Capital has been advised or the possibility of such damages. Loop Capital will have no responsibility to inform you of any difficulties experienced by Loop Capital or any third parties with respect to the use of the Information or to take any action in connection therewith. Loop Capital and its affiliates, officers, directors, and employees, including persons involved in the preparation of this website, may from time to time have "long" or "short" positions in and buy or sell, the securities, derivatives (including options) or other financial products thereof, of entities mentioned herein. In addition, Loop Capital and/or its affiliates may have served as manager or co-manager of an offering of securities by any such entity. Further information may be obtained upon request. Unless otherwise agreed in writing between you and Loop Capital, Loop Capital is acting solely as a principal/underwriter in an arm's length commercial transaction in which Loop Capital has financial and other interests that differ from yours. Loop Capital is not acting as a municipal advisor, financial advisor or fiduciary and the information provided should not be construed as "advice" within the meaning of Section 15B of the Securities Exchange Act of 1934.