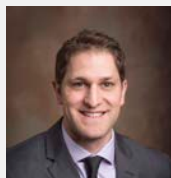




LDI Solutions

PENSION CURVE INSIDER

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MONTHLY RECAP

Discount rates ticked down in March despite Fed policy pushing up the short end of the curve. The AA-rated spot curve moved down 9 basis points while the top-yielding curve dropped 11 basis points. Spreads continued the trend from February, widening across all IG qualities. Treasury yields flattened in March, as short tenors rose by as much as 13 basis points, while longer maturities fell by as much as 17 basis points.

Spreads across investment-grade qualities widened significantly, with single-A's moving the most. Alternatively, discount rates fell and now sit 14 basis points lower than a year ago, using the broad AA discount rate curve. Top yielding AA-rated bonds are 19 basis points lower than March 2017, and provide 20 basis points of additional yield relative to the broader market.

March saw a pickup in index turnover within the AA-rated index as over 2% of index market value changed eligibility during the month. Entries into the AA index totaled \$5.5B while removals accounted for \$8B. Downgraded bonds had the largest effect on the AA-rated curve, totaling \$2.2B in market value. Of these, New York's MTA bonds impacted the curve 22-year mark while Duke Energy's downgrade moved the curve 9 basis points at the 30-year mark. The \$4.5B in new issues had little impact on the AA-rated index during the month.

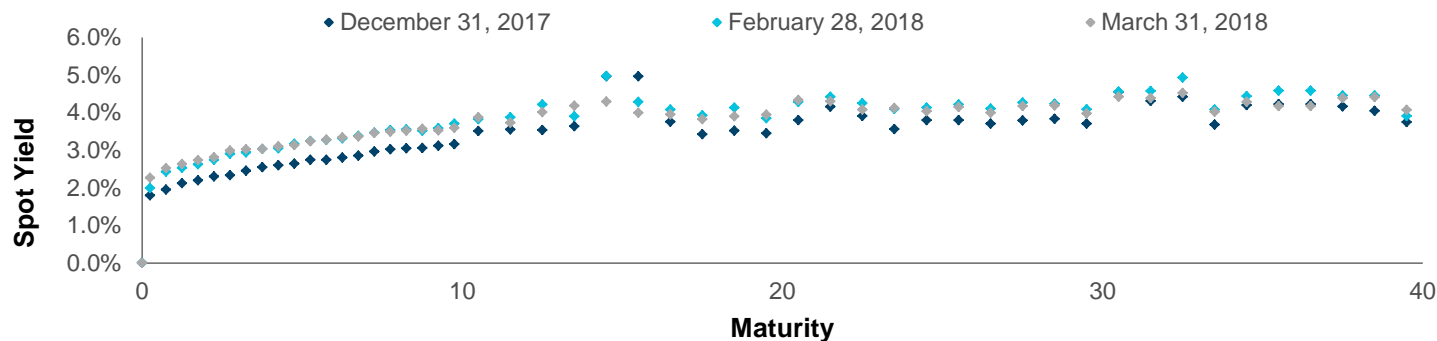
LIABILITY IMPACT



Yield Curve	Liability Value 3/31/18	Discount Rate 3/31/18	Liability Value 2/28/18	Discount Rate 2/28/18	Liability Value 12/31/17	Discount Rate 12/31/17
Accounting Yield Curve	\$10,024	3.99%	\$9,901	4.08%	\$10,386	3.73%
Top Yielding Accounting Curve	\$9,748	4.19%	\$9,610	4.30%	\$9,994	4.01%
IRS Yield Curve	\$9,763	4.16%	\$9,828	4.11%	\$10,283	3.76%

Sources: Barclays POINT, IRS, and T. Rowe Price. Sample plan cash flows have a liability of \$10,000 at 4.0% discount rate.

ACCOUNTING CURVE



Sources: Barclays POINT and T. Rowe Price

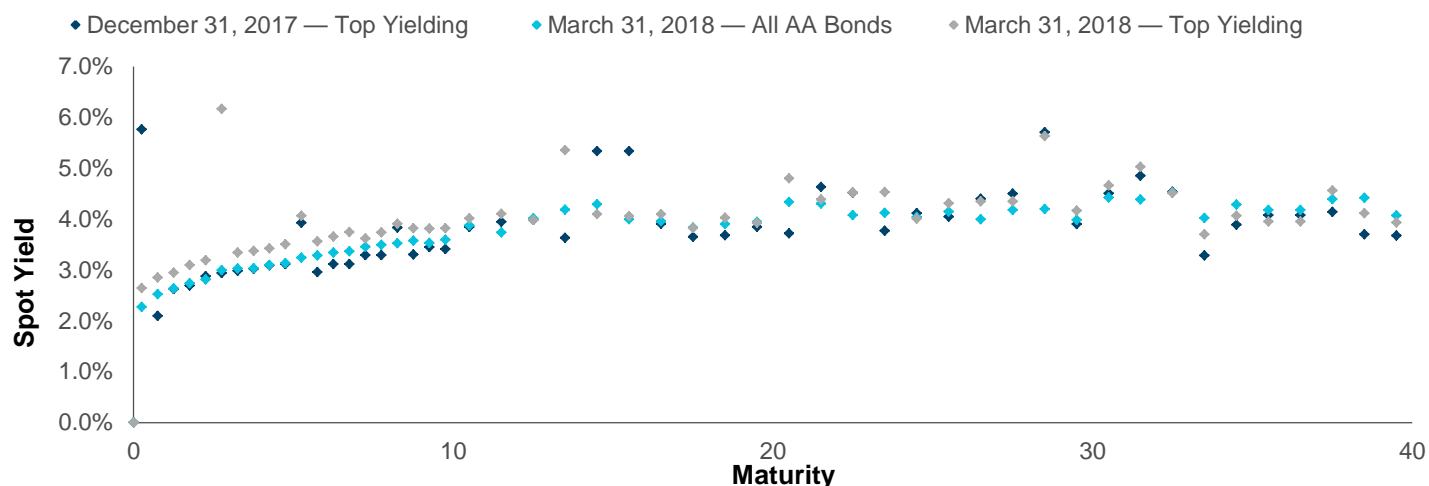
Issuer	Event	Curve Impact
New York MTA	Downgrade (3 bonds)	New York's Metropolitan Transportation Authority was downgraded by S&P to A-plus during March. S&P cited a spike in operating expenses and debt servicing, hurting MTA's AA status. 3 bonds were included in the downgrade amounting to \$1.7B in market value. The impact on the AA-rated curve was an increase at the 22-year mark of 5 basis points.
Duke Energy	Downgrade (1 bond)	Duke Energy was also downgraded during March as its \$506M 30-year bond was moved from AA to single-A. Despite only accounting for 6% of the month's exiting market value, the downgrade shifted the AA-rated curve down 9 basis points, as few AA rated bonds are available at beyond 30 years.

Sources: Barclays POINT and T. Rowe Price

	New Issues	Other Bonds Entering	Downgrades	Other Bonds Exiting
March 2018				
Count	4	1	4	5
Market Value (\$M)	\$4,516	\$1,020	\$2,194	\$5,869
Market Value (%)	0.72%	0.16%	0.35%	0.94%
2018 YTD				
Count	22	2	4	10
Market Value (\$M)	\$22,882	\$1,359	\$2,194	\$11,658
Market Value (%)	3.59%	0.22%	0.35%	1.84%

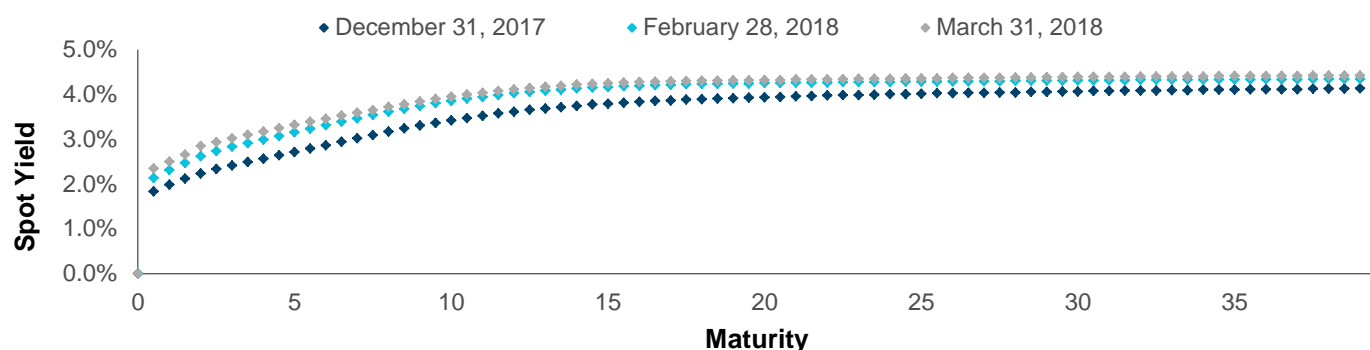
Sources: Barclays POINT and T. Rowe Price

TOP YIELDING ACCOUNTING CURVE



Sources: Barclays POINT and T. Rowe Price

IRS CURVE

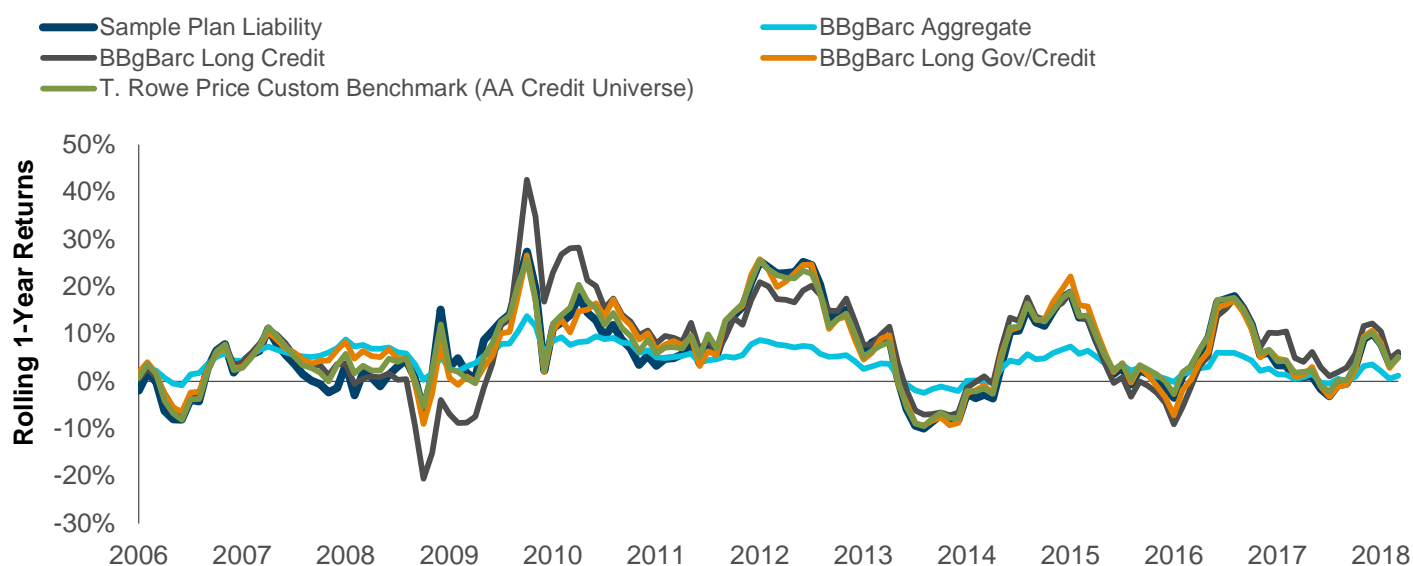


Sources: IRS and T. Rowe Price

Dates	AAA Corporate OAS	AA Corporate OAS	A Corporate OAS
February Monthly Average	41	50	73
March 1, 2018	47	55	80
March 15, 2018	46	59	86
March 30, 2018	48	62	89
February Monthly Average	47	59	85

Sources: Barclays POINT and T. Rowe Price

ONE-YEAR ROLLING RETURNS AND TRACKING ERROR



	March 2018 Return	YTD Total Return	Annual Tracking Error Relative to Liability	Average Monthly Return Difference from Liability
Hypothetical Sample Plan Liability	1.54%	-2.61%	NA	NA
BBgBarc Aggregate	0.64%	-1.46%	6.62%	1.45%
BBgBarc Long Credit	0.75%	-3.83%	4.59%	0.93%
BBgBarc Long Gov/Credit	1.65%	-3.58%	3.21%	0.67%
Hypothetical T. Rowe Price Custom Benchmark	1.39%	-3.09%	2.09%	0.33%

Sources: Bloomberg Index Services Ltd., T. Rowe Price; Analysis by T. Rowe Price. Performance shown in graph and tables above shown from February 1, 2005 through March 31, 2018.

Past performance cannot guarantee future results. Custom Benchmark returns do not reflect the deduction of management fees. Please refer to the disclosure at the end of the article for important additional information.

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GLOSSARY

IRS Yield Curve: Plan sponsors of qualified defined benefit pension plans use this yield curve to determine funding requirements per IRS regulations. These funding requirements are disclosed on form 5500 annually. Yields on AAA, AA, and A corporate securities determine the yield curve for discounting purposes. The yield curve is not a marked-to-market curve representing any single date, but rather an average yield over the course of the entire month. For more information on the IRS methodology, please see treasury.gov/resource-center and irs.gov/Retirement-Plans.

Accounting Yield Curve: US GAAP requires pension plan sponsors to disclose pension obligations using “fixed-income debt securities that receive one of the two highest ratings given by a recognized ratings agency”. As a proxy for bonds useable for accounting purposes, we use the constituents of BBgBarc AA credit universe to develop the accounting yield curve shown. Please see fasb.org for more information.

Top Yielding Curve: Since the US GAAP rules allow the use of a fairly broad range of securities for accounting purposes, some plan sponsors use an optimized yield curve approach to value their pension liabilities on the disclosure dates. Bonds trading at higher yields than other bonds of similar maturity tend to be used for this purpose. To quantify the effectiveness of this approach, T. Rowe Price developed a yield curve using the highest yielding bonds designed to meet SEC requirements at each node.

Annual Tracking Error Relative to Liability: Calculated as the standard deviation of return differences between a fixed income index and a set of cash flows discounted using the accounting yield curve. The liability return has two components: an interest cost component analogous to roll return on a bond, and yield change component analogous to price return on a bond. The table shows annualized ex-post tracking error.

Average Monthly Return Difference: Similar to the tracking error metric, this metric demonstrates how closely a fixed income benchmark tracks a set of liability returns. We calculate this measure by simply averaging the difference in returns over the period shown.

Sample Plan Liability: Pension plan sponsors must account for the cost of their retirement plan on their financial statements. The amount of this liability can fluctuate over time based on several factors, including benefits earned, benefits paid out, mortality experience, and most significantly, interest rates. The Sample Plan is intended to be a representative defined benefit pension plan and does not reflect the cash flows from any specific plan.

T. Rowe Price Custom Benchmark: An index of fixed income securities created using T. Rowe Price proprietary methodology that attempts to replicate interest rate exposures embedded in a pension plan’s liability structure.

To learn more, please visit troweprice.com

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The illustrations presented are hypothetical and used to demonstrate capabilities. Certain assumptions have been made for modeling purposes and with the benefit of hindsight and are unlikely to be realized. The specific issuers and bond issues mentioned in this document had significant impact on liability curves calculated using BBgBarc index universes. The modeling used for plan and benchmark development has certain inherent limitations. Benchmark construction may not reflect all material economic and market factors that could have impacted implementation or weighting decisions if the modeled plan actually existed during the time period presented. Actual T. Rowe Price Custom Benchmark characteristics, including (among other things) yield, annualized return, liability-relative tracking error and average monthly returns difference relative to plan liability may differ substantially from the hypothetical scenario presented.

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