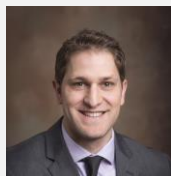




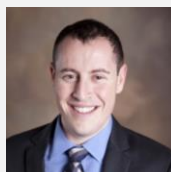
LDI Solutions

PENSION CURVE INSIDER

June 2018



Aaron Stonacek, FSA, CFA
Solutions Analyst
aaron_stonacek@troweprice.com
(410) 577-8128



Justin Harvey, ASA, CFA
Solutions Strategist
justin_harvey@troweprice.com
(410) 345-6847

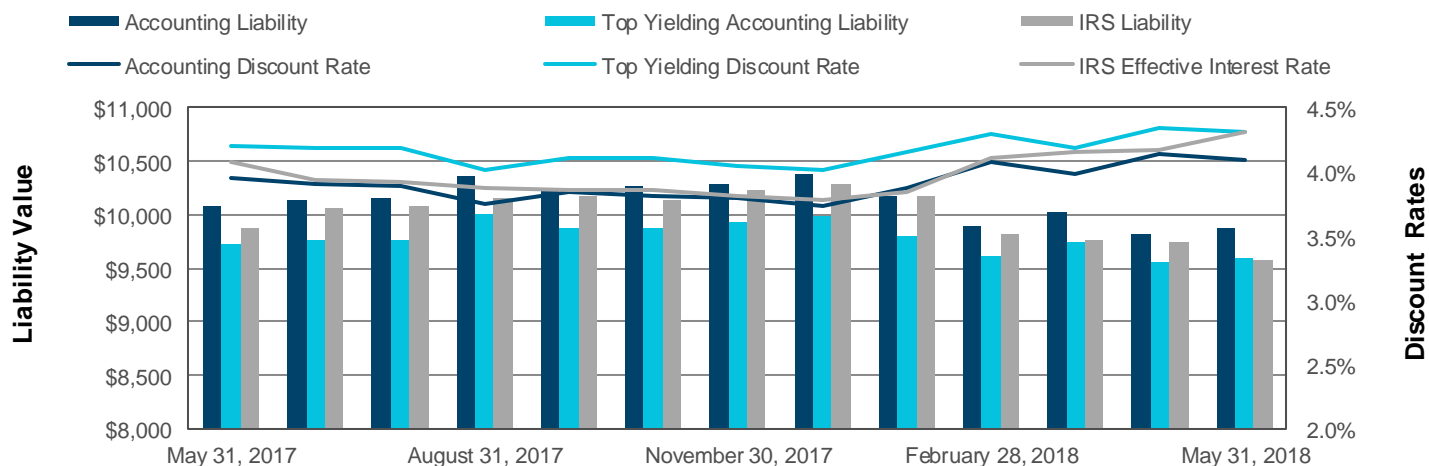
MONTHLY RECAP

Discount rates ticked down in May as the Treasury curve continued flattening. As a result, both the AA-rated spot curve and the top-yielding curve declined from prior month-end. The short end of the treasury curve rose, while mid to long durations dropped meaningfully, in the range of 10-15 basis points over the month. Investment grade spreads remained stable month over month.

Discount rates now sit 15 basis points higher than a year ago, using the broad AA discount rate curve. Top yielding AA-rated bonds are 10 basis points higher than May 2017, and provide about 20 basis points of additional yield relative to the broader market.

Index turnover during May remained active as over 3.5% of index market value changed eligibility. Entries into the AA index made up the majority of the month's turnover, totaling nearly \$20B while removals accounted for just \$3.2B. Statoil's upgraded bonds had a particularly large effect on the AA-rated curve, totaling nearly \$9.5B in market value and spanning maturity between 1 and 25 years, impacting the curve the most at the 9-year point. Removals were not as prevalent during May, however Ontario's downgrade included a 4-year maturity worth nearly \$2B.

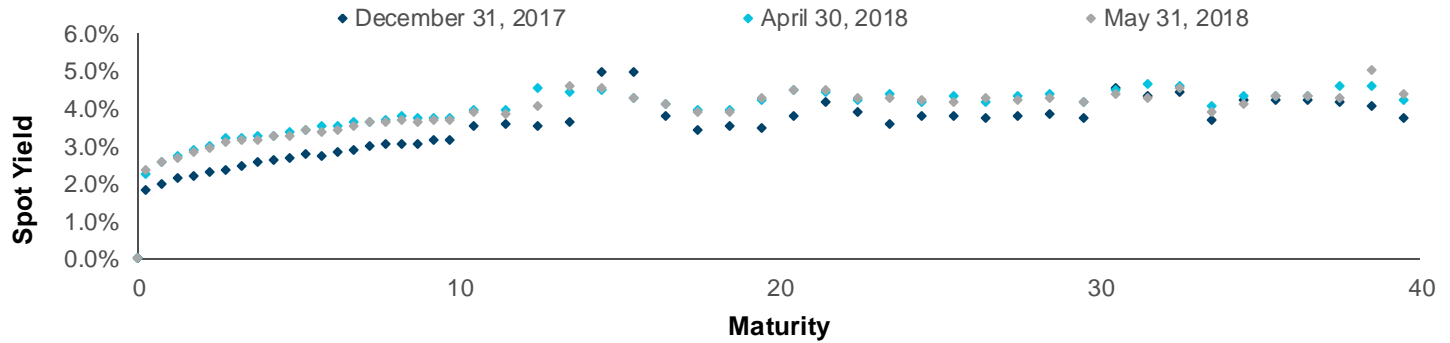
LIABILITY IMPACT



Yield Curve	Liability Value 5/31/18	Discount Rate 5/31/18	Liability Value 4/30/18	Discount Rate 4/30/18	Liability Value 12/31/17	Discount Rate 12/31/17
Accounting Yield Curve	\$9,873	4.10%	\$9,815	4.14%	\$10,386	3.73%
Top Yielding Accounting Curve	\$9,601	4.31%	\$9,555	4.34%	\$9,994	4.01%
IRS Yield Curve	\$9,570	4.31%	\$9,753	4.17%	\$10,310	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

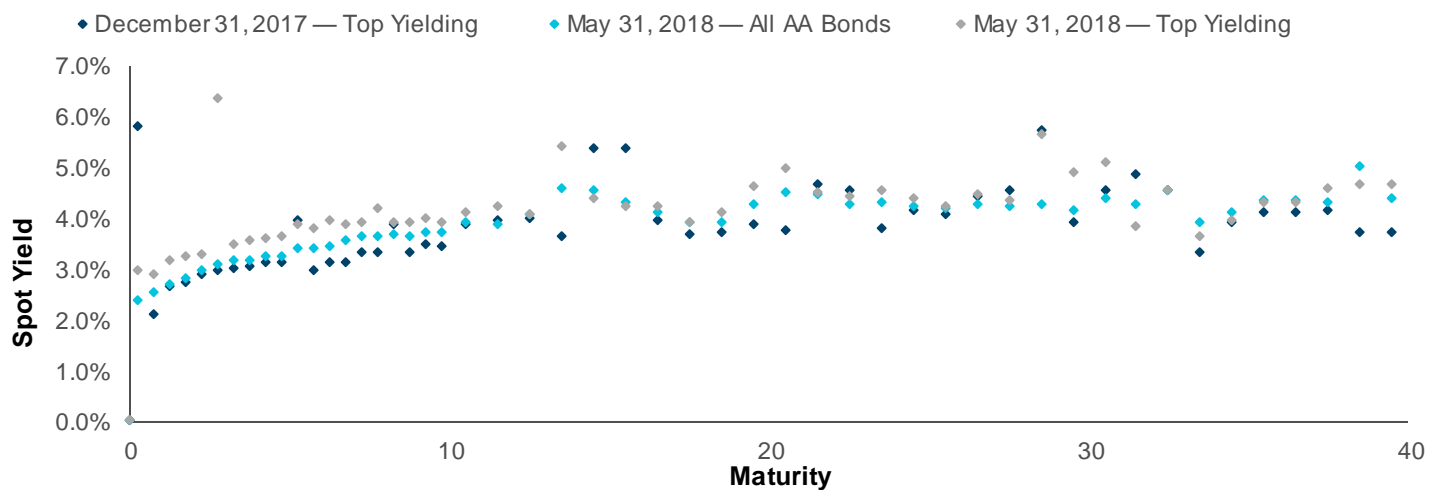
Issuer	Event	Curve Impact
Statoil	Upgrade (12 bonds)	Statoil was upgraded during May as 12 bonds entered the AA-rated index. The upgrade amounted to \$9.5B in market value, or about 1.5% of the AA-rated index. Spanning 1-25 year maturities, the largest impact on the curve was at the 9-year mark, pushing the curve up 4 basis points.
Kaiser Foundation Hospitals	Upgrade (4 bonds)	Kaiser Foundation Hospitals also had 4 bonds upgraded during the month, amounting to \$3.2B in market value. Maturities of the issues ranged from 4-29 years, with the largest impact hitting the AA-rated curve at the 29-year point, as fewer bond issues exist at the longer end of the curve.
Province of Ontario	Downgrade (1 bond)	The Canadian Province of Ontario was the lone removal from the AA-rated index during May that had a meaningful impact on the curve. The single issue was due to mature in 2022 and had a market value of nearly \$2B, accounting for almost all the month's exiting market value.

Sources: Barclays POINT and T. Rowe Price

	New Issues	Other Bonds Entering	Downgrades	Other Bonds Exiting
May 2018				
Count	8	18	2	2
Market Value (\$M)	\$5,608	\$13,609	\$2,365	\$964
Market Value (%)	0.91%	2.22%	0.39%	0.16%
2018 YTD				
Count	41	23	20	14
Market Value (\$M)	\$34,591	\$15,964	\$19,085	\$17,042
Market Value (%)	5.51%	2.60%	3.14%	2.73%

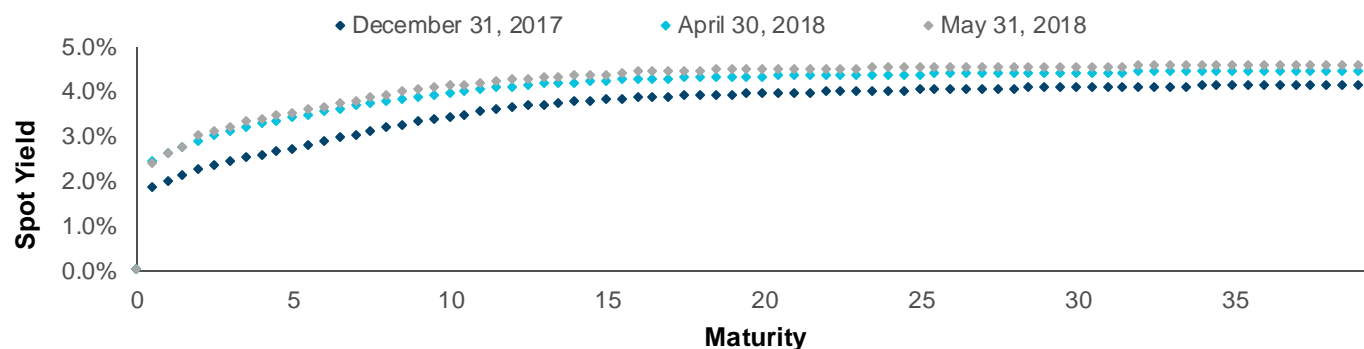
Sources: Barclays POINT and T. Rowe Price

TOP YIELDING ACCOUNTING CURVE



Sources: Barclays POINT and T. Rowe Price

IRS CURVE

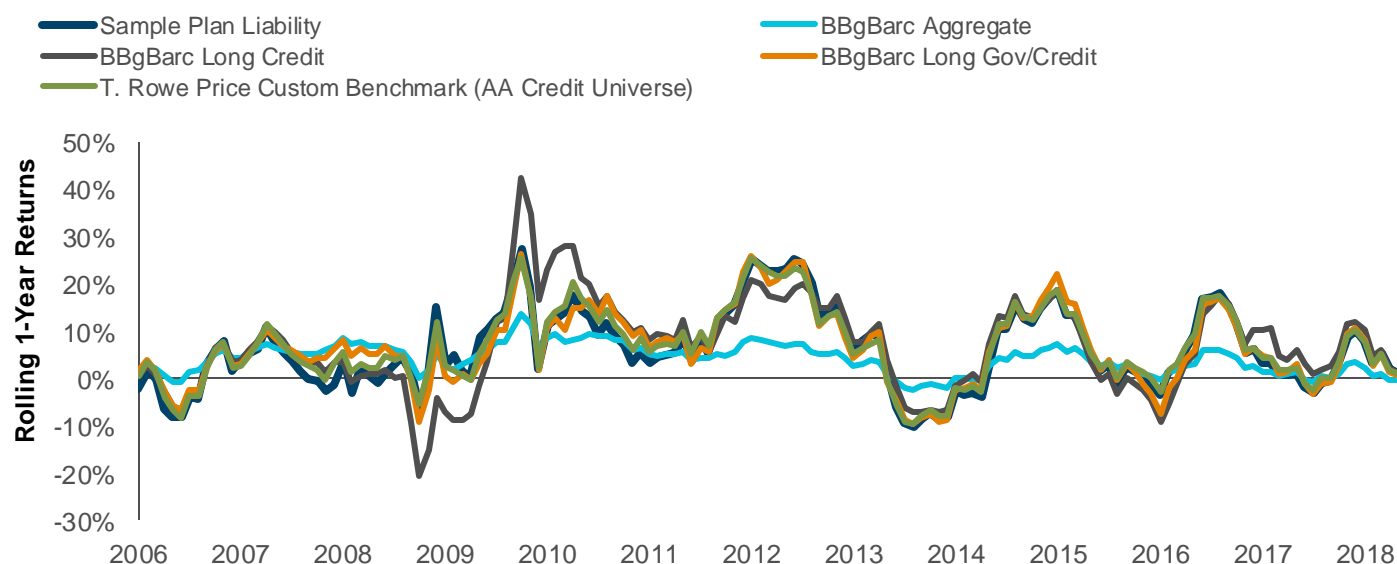


Sources: IRS and T. Rowe Price

Dates	AAA Corporate OAS	AA Corporate OAS	A Corporate OAS
April Monthly Average	46	58	86
May 1, 2018	48	58	87
May 15, 2018	45	55	85
May 31, 2018	48	59	91
May Monthly Average	47	56	87

Sources: Barclays POINT and T. Rowe Price

ONE-YEAR ROLLING RETURNS AND TRACKING ERROR



	May 2018 Return	YTD Total Return	Annual Tracking Error Relative to Liability	Average Monthly Return Difference from Liability
Hypothetical Sample Plan Liability	0.90%	-3.48%	NA	NA
BBgBarc Aggregate	0.71%	-1.50%	6.59%	1.44%
BBgBarc Long Credit	0.46%	-5.26%	4.57%	0.92%
BBgBarc Long Gov/Credit	1.14%	-4.37%	3.19%	0.66%
Hypothetical T. Rowe Price Custom Benchmark	0.95%	-3.69%	2.07%	0.32%

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 May 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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