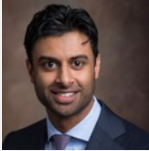




LDI Solutions

PENSION CURVE INSIDER

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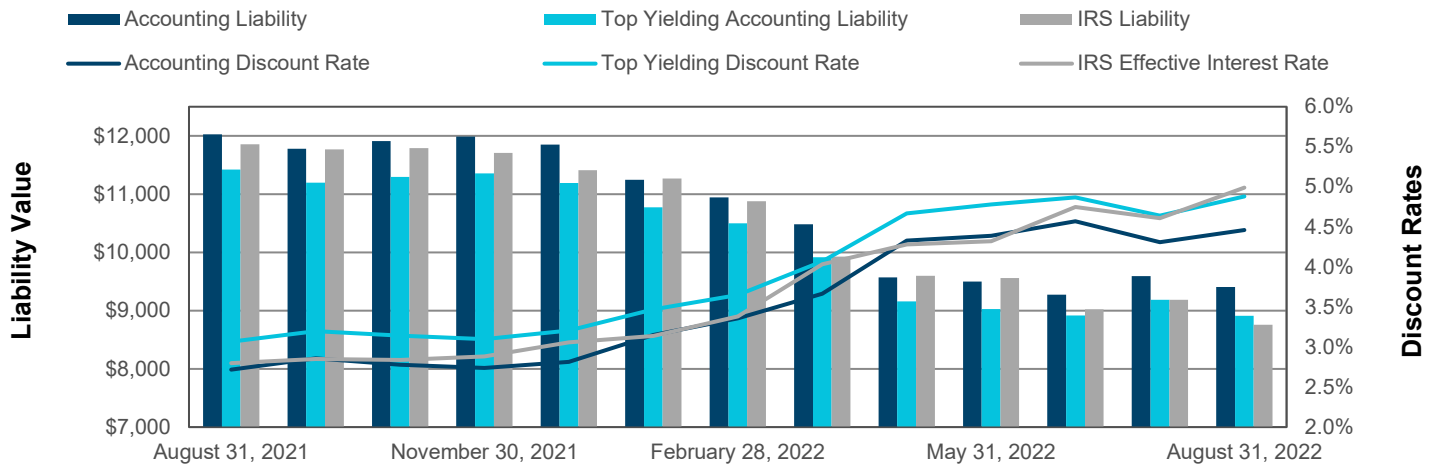
MONTHLY RECAP

Markets experienced significant volatility during the month of August, as investors worried that continued inflation would result in more restrictive central bank responses. Treasury rates shifted higher across the entire curve, and both fixed income and equity markets ended the month in negative territory. Despite the challenging broader market environment, corporate spreads remained anchored and ended the month marginally tighter.

Plan liability values decreased on a marked-to-market basis in August, reversing their rise during July. Discount rates for a sample plan liability increased by 15 basis points based on the AA-rated spot curve and 23 basis points using the top-yielding curve. At month end, the top-yielding curve provided 41 basis points of additional yield versus the broader AA-rated universe.

Issuance was muted during the month, with only two new bonds with \$1.5B of notional value entering the index. Two bonds exited the index due to ratings downgrades, and another three were removed due to index eligibility criteria. New entrants had a negligible upward impact on the short segment of the AA-rated spot curve, while exits pushed the medium-term segment of the curve lower.

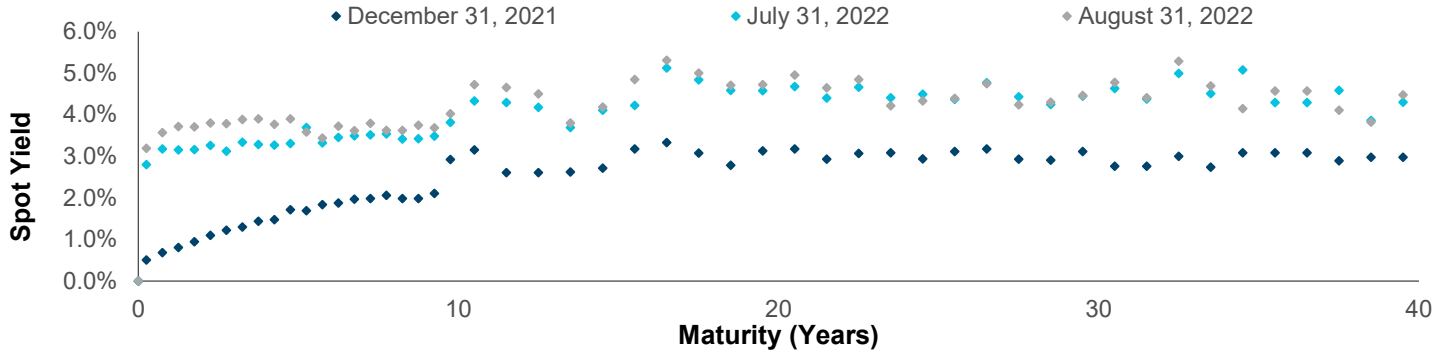
LIABILITY IMPACT



Yield Curve	Liability Value 8/31/22	Discount Rate 8/31/22	Liability Value 7/31/22	Discount Rate 7/31/22	Liability Value 12/31/21	Discount Rate 12/31/21
Accounting Yield Curve	\$9,405	4.46%	\$9,595	4.31%	\$11,849	2.82%
Top Yielding Accounting Curve	\$8,913	4.88%	\$9,184	4.64%	\$11,192	3.21%
IRS Yield Curve	\$8,756	4.99%	\$9,185	4.61%	\$11,411	3.06%

Sources: Bloomberg. Bloomberg Index Services Ltd. Copyright 2021, Bloomberg Index Services Ltd. Used with permission. IRS, and T. Rowe Price. Sample plan cash flows have a liability of \$10,000 at 4.0% discount rate.

ACCOUNTING CURVE



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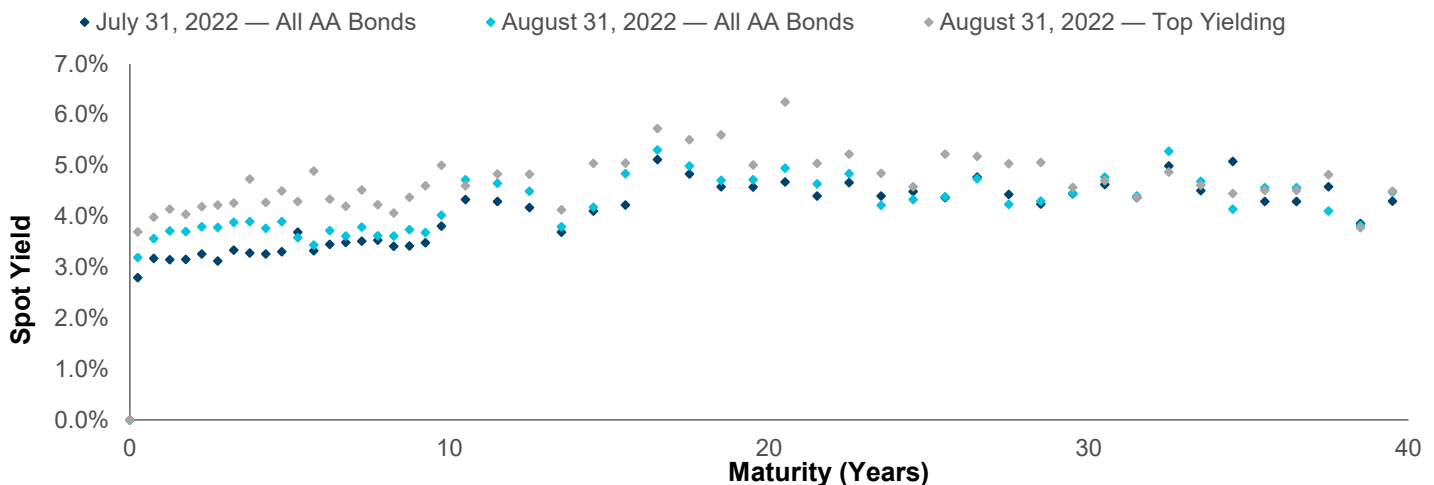
Issuer	Event	Curve Impact
Royal Bank of Canada	Downgrade (2 Bonds)	Royal Bank of Canada ("RBC"), the largest bank in Canada, was removed from the index following a downgrade by Fitch. The revised outlook follows downgrades over the previous months by both Moody's and Standard & Poor's. Two bonds with a market value of \$2.8B exited the index as a result, which had a minor downward impact on the intermediate segment of the curve.
Cooperative Rabobank U.A.	New Issue (1 Bond)	Cooperative Rabobank U.A., the New York subsidiary of the Dutch multinational Rabobank, issued a \$1B notional bond during the month. The new issue priced wide of similar short-dated bonds in the AA-rated universe but had only a negligible upward impact on the curve.
Colgate-Palmolive Company	New Issue (1 Bond)	Colgate-Palmolive Company, as U.S. multinational consumer goods company, came to market with a \$500M new issue. The new bond priced tighter than similar short-dated bonds in the AA-rated universe and had a marginal downward impact on the curve.

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	New Issues	Other Bonds Entering	Downgrades	Other Bonds Exiting
August 2022				
Count	2	5	2	3
Market Value (\$M)	\$1,492	\$6,505	\$92,101	\$5,537
Market Value (%)	0.26%	1.14%	0.02%	0.97%
2022 YTD				
Count	53	11	9	50
Market Value (\$M)	\$43,323	\$11,546	\$5,683	\$58,236
Market Value (%)	7.58%	2.02%	0.99%	10.2%

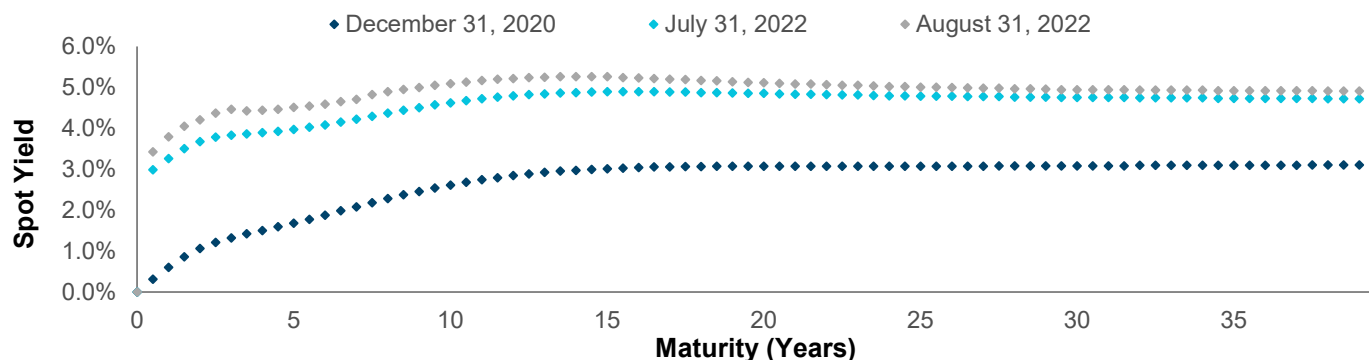
Sources: Bloomberg. Bloomberg Index Services Ltd. Copyright 2021, Bloomberg Index Services Ltd. Used with permission. T. Rowe Price.

TOP YIELDING ACCOUNTING CURVE



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IRS CURVE

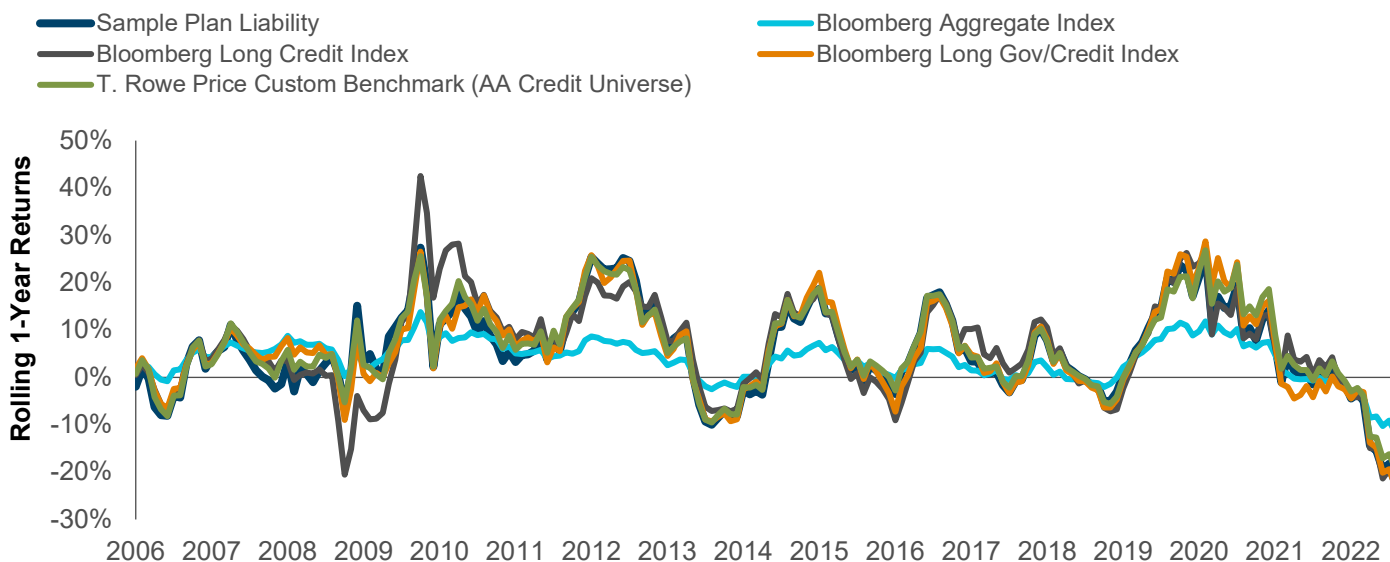


Sources: IRS and T. Rowe Price

Dates	AAA Corporate OAS (basis points)	AA Corporate OAS	A Corporate OAS	BBB Corporate OAS
July Monthly Average	106	77	117	181
August 1, 2022	118	71	11	174
August 15, 2022	108	68	102	160
August 30, 2022	103	62	109	170
August Monthly Average	108	66	107	167

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ONE-YEAR ROLLING RETURNS AND TRACKING ERROR



	August 2022 Return	YTD Total Return	Annual Tracking Error Relative to Liability	Average Monthly Return Difference from Liability
Hypothetical Sample Plan Liability	-1.64%	-18.70%	--	--
Bloomberg Aggregate Index	-2.83	-10.76	6.63	1.45
Bloomberg Long Credit Index	-4.37	-22.34	4.40	0.91
Bloomberg Long Gov/Credit Index	-4.39	-22.51	3.20	0.64
Hypothetical T. Rowe Price Custom Benchmark	-3.56	-18.54	2.07	0.34

Sources: Bloomberg Index Services Ltd., T. Rowe Price; Analysis by T. Rowe Price. Performance in graph and tables above shown from February 1, 2005 through August 31, 2022.

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 Bloomberg 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

Important Information

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The illustrations presented are hypothetical and used to demonstrate capabilities. Certain assumptions have been made for modelling 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 Bloomberg index universes. The modelling 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 modelled 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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