



LDI Solutions

# PENSION CURVE INSIDER

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## MONTHLY RECAP

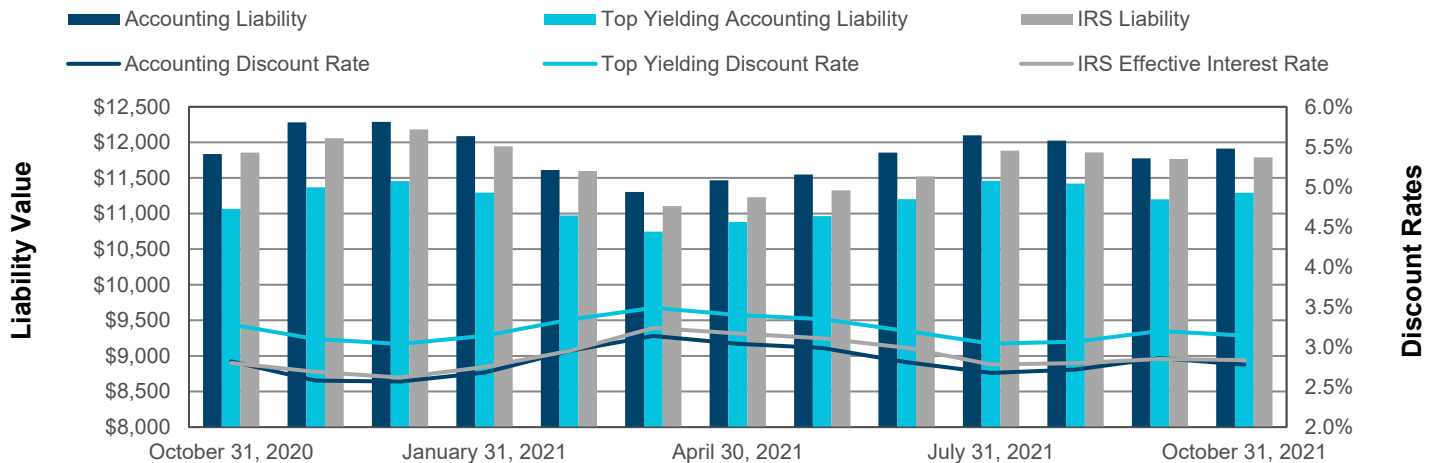
Intermediate-term Treasury yields rose during the month of October, while corporate spreads remained stable through the month. The discount rate based on the AA-rated spot curve for a sample plan liability decreased by 8 basis points, with a similar decrease of 6 basis points for the top yielding curve.

On a marked-to-market basis, plan liability values increased slightly as discount rates declined. Rates based on the AA-curve remain well below their calendar year peak in March. With relatively stable spreads through the month, the top-yielding curve provided 36 basis points of additional yield versus the broader AA-rated universe.

October experienced a jump in issuance inactivity, with seventeen new bonds from 10 issuers added to the AA-rated index. About a third of the new issues were longer-dated bonds, with maturities of 20 years or more. Curve impact from new issues was minimal.

Otherwise, the index saw limited turnover. No bonds entered or departed the universe due to credit-ratings changes, though a handful of bonds exited due to tenders and maturation.

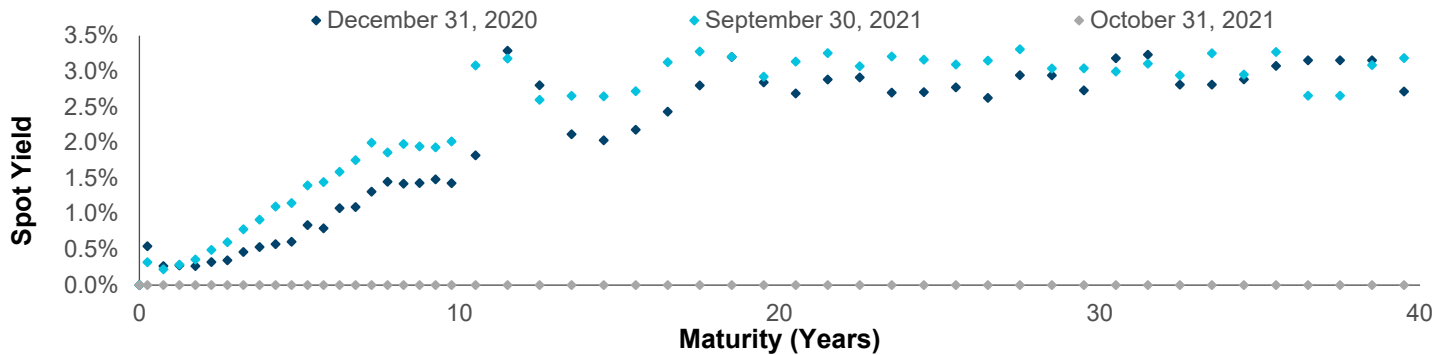
## LIABILITY IMPACT



Yield Curve	Liability Value 10/31/21	Discount Rate 10/31/21	Liability Value 9/30/21	Discount Rate 9/30/21	Liability Value 12/31/20	Discount Rate 12/31/20
<b>Accounting Yield Curve</b>	\$11,913	2.78%	\$11,776	2.86%	\$12,288	2.57%
<b>Top Yielding Accounting Curve</b>	\$11,293	3.14%	\$11,199	3.20%	\$11,456	3.04%
<b>IRS Yield Curve</b>	\$11,789	2.84%	\$11,765	2.96%	\$12,182	2.62%

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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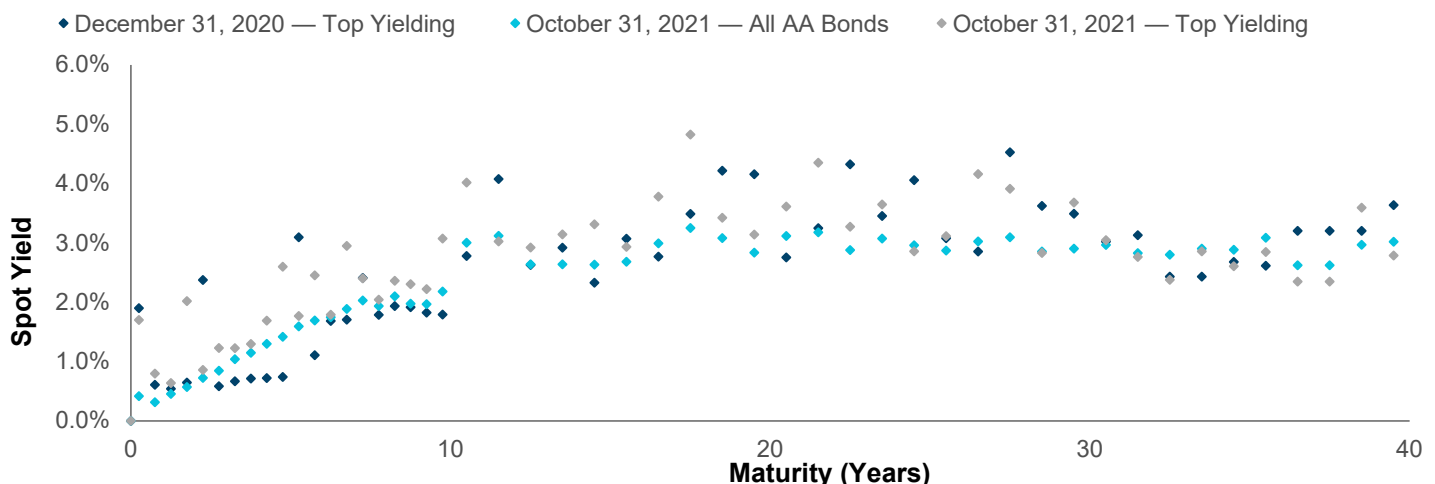
Issuer	Event	Curve Impact
<b>TSMC Arizona</b>	New Issue (3 Bonds)	TSMC Arizona, a subsidiary of Taiwan Semiconductor Manufacturing Company, issued three bonds totaling \$3.25B notional during the month of October. The bonds were spread out over ten-to-thirty-year maturities.  The semiconductor manufacturer raised funds for a fabrication plant in Phoenix, Arizona, which is currently under construction. The issues traded tighter than bonds of similar maturity in the AA-credit universe and represented \$3.4B of market value at month end.
<b>The Korea Development Bank</b>	New Issues (3 Bonds)	The Korea Development Bank (KDB Bank) issued three bonds during October, with maturities ranging from 2025 to 2031 and a month end market value of \$1.5B. Funds from the ESG-focused notes are intended for climate-oriented projects.
<b>Chevron</b>	Exits (4 Bonds)	At the start of October, Chevron announced a tender offer to purchase up to \$2.0B of four outstanding bonds. The energy company had purchased about \$1.2B by the end of the month, bringing each issue below the AA index's minimum outstanding value for inclusion.

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	New Issues	Other Bonds Entering	Downgrades	Other Bonds Exiting
<b>October 2021</b>				
<b>Count</b>	17	--	--	8
<b>Market Value (\$M)</b>	\$9,517	--	--	\$4,595
<b>Market Value (%)</b>	1.37%	--	--	0.66%
<b>2021 YTD</b>				
<b>Count</b>	89	41	36	17
<b>Market Value (\$M)</b>	\$82,866	\$66,452	\$33,905	\$20,510
<b>Market Value (%)</b>	11.90%	9.55%	4.88%	2.95%

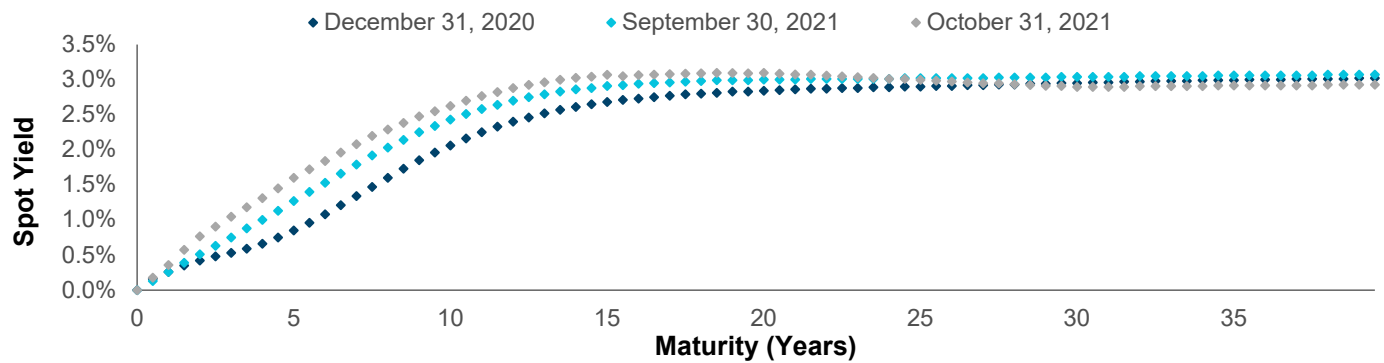
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### TOP YIELDING ACCOUNTING CURVE



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### IRS CURVE

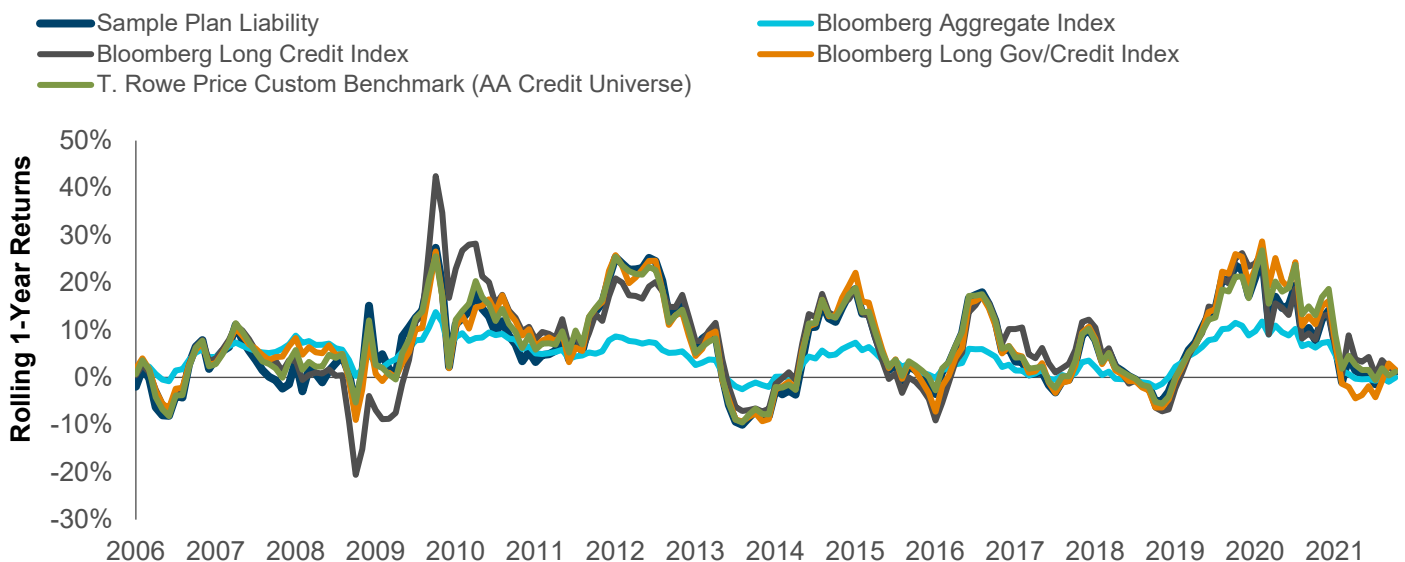


Sources: IRS and T. Rowe Price

Dates	AAA Corporate OAS (basis points)	AA Corporate OAS	A Corporate OAS	BBB Corporate OAS
<b>September Monthly Average</b>	65	46	66	104
<b>October 1, 2021</b>	63	44	65	103
<b>October 15, 2021</b>	63	45	66	103
<b>October 30, 2021</b>	60	48	69	106
<b>October Monthly Average</b>	63	45	67	104

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### ONE-YEAR ROLLING RETURNS AND TRACKING ERROR



	October 2021 Return	YTD Total Return	Annual Tracking Error Relative to Liability	Average Monthly Return Difference from Liability
<b>Hypothetical Sample Plan Liability</b>	1.36%	-1.20%	NA	NA
<b>Bloomberg Aggregate Index</b>	-0.03%	-1.58%	6.61%	1.44%
<b>Bloomberg Long Credit Index</b>	1.48%	-1.22%	4.38%	0.90%
<b>Bloomberg Long Gov/Credit Index</b>	1.63%	-3.00%	3.19%	0.64%
<b>Hypothetical T. Rowe Price Custom Benchmark</b>	1.17%	-0.65%	2.02%	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 October 31, 2021.

**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](https://treasury.gov/resource-center) and [irs.gov/Retirement-Plans](https://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](https://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](https://troweprice.com)

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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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