IR+M INCOME RESEARCH + MANAGEMENT

LDI MONITOR

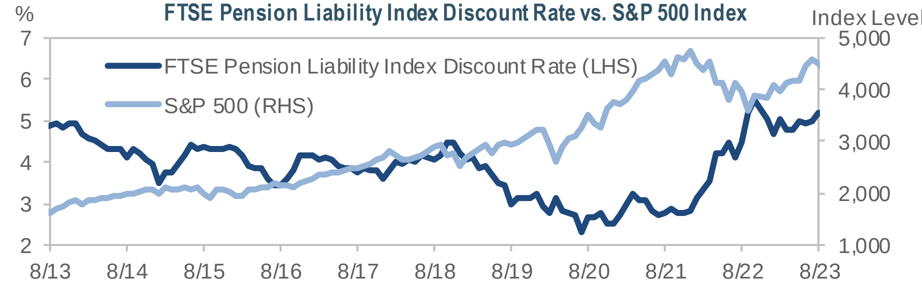
August 31, 2023

LDI Market Updates

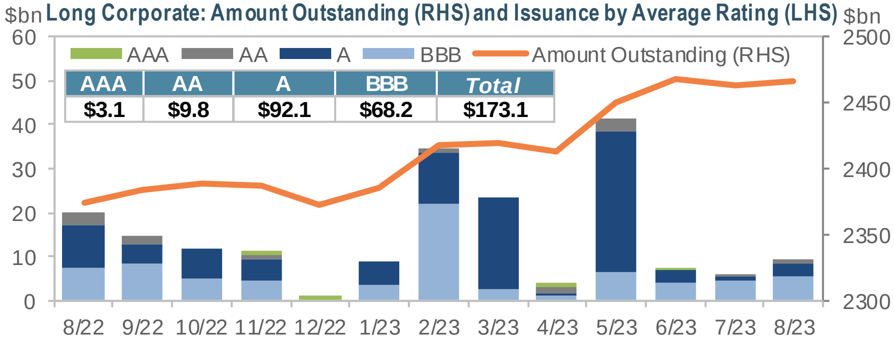
- Discount rates[1] increased by 0.17% in August, from 4.90% to 5.07%.
- The S&P 500 posted negative returns for the first time since February, declining 1.8% month-over-month in August. Long corporate spreads rose to 145bps before dropping back down to finish the month unchanged.
- The $74 billion of new issue supply priced in the investment-grade primary markets during August was below investor expectations. The long end accounted for just under $10 billion of the total issuance for the month.

Rates Monitor	08/23	07/23	MoM Change	12/22	YTD Change
IR+M Average Plan Discount Rate (%)	5.07	4.90	0.17	4.89	0.18
Bloomberg Long Corp Yield (%)	5.67	5.49	0.18	5.60	0.07
Bloomberg Long Corp A+ Yield (%)	5.37	5.19	0.18	5.26	0.11
Bloomberg Long Corp BBB Yield (%)	6.02	5.82	0.20	5.95	0.07
Long Corp Spreads (bps)	139	139	0	158	(19)
Curve (Long Corp - Int Corp) (bps)	32	40	(8)	42	(10)

FTSE Pension Liability Index Discount Rate vs. S&P 500 Index



Long Corporate: Amount Outstanding (RHS) and Issuance by Average Rating (LHS)

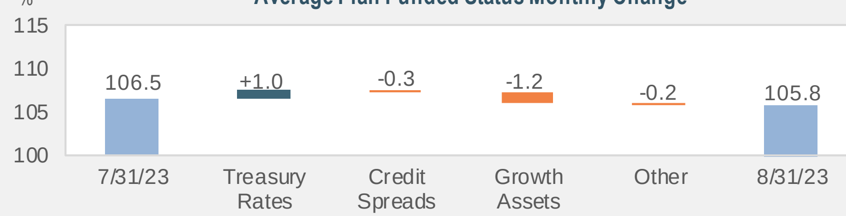


IR+M Funded Status Monitor

- Our sample Average Plan funded status decreased by 0.7% during August, closing at 105.8%, primarily due to a decline in risk assets partially offset by an increase in discount rates.

Funded Status (%)	08/23	07/23	MoM Change	12/22	YTD Change
Average Plan	105.8	106.5	(0.7)	100.4	5.4
End Stage Plan	107.5	107.8	(0.3)	105.2	2.3
Young Plan	96.8	97.8	(1.0)	92.1	4.7

Average Plan Funded Status Monthly Change



Other includes contributions, expenses, benefit accruals, and liability profile changes.

IR+M LDI Corner – Treasury Downgraded; LDI Unfazed

- On August 1, [Fitch downgraded the U.S. credit rating](#) from AAA to AA+. This downgrade also affected Government Sponsored Entities and agency-backed debt, all shifting to AA+. Using the "middle of 3" index rating methodology, the average rating for the sovereign dropped to AA+.
- As expected, Fitch did not enact a "sovereign ceiling", thereby enabling U.S.-domiciled AAA-rated debt in the corporate, municipal, and non-agency securitized sectors to retain their ratings.
- While widely considered a non-event in the markets, the proportion of AAA-rated securities in the Bloomberg Aggregate Index dropped from over 70% to below 5%, which may have implications for LDI investors who employ a credit hedging strategy. Despite the credit downgrade, we believe that U.S. Treasuries remain a favored choice for investors for the foreseeable future, continuing to serve as both a risk-free safe haven and a source of liquidity. Therefore, we continue to use Treasuries—and when appropriate, high-quality agency-backed securitized products—to enhance credit quality and help hedging assets better align with AA-rated liabilities.
- As some asset owners have a minimum credit quality threshold in investment guidelines for their hedging asset portfolio, we continue to work with our LDI clients and the nuances of their strategies to avoid forced sales of high-grade, low-risk securities.

[1]The single effective discount rate shown is for the IR+M Sample Average Plan, calculated from the FTSE Pension Discount Curve. Long corporate issuance sourced from Bloomberg. Long issuance figures exclude 10-year bonds. The table in the long issuance chart shows the 12-month running total investment grade issuance by rating, through 8/31/2023 in USD billions. Totals may not sum due to rounding.

IR+M DISCLOSURE STATEMENT

Disclosures:

Sources: Moody's PFaroe, FTSE Russell (formerly Citigroup), and Bloomberg. All data in the above commentary is as of 08/31/2023. Yields are represented as of the aforementioned date and are subject to change. The views contained in this report are those of Income Research & Management ("IR+M") and are based on information obtained by IR+M from sources that are believed to be reliable but IR+M makes no guarantee as to the accuracy or completeness of the underlying third-party data used to form IR+M's views and opinions. This report is for informational purposes only and is not intended to provide specific advice, recommendations, or projected returns for any particular IR+M product. Investing in securities involves risk of loss that clients should be prepared to bear. More specifically, investing in the bond market is subject to certain risks including but not limited to market, interest rate, credit, call or prepayment, extension, issuer, and inflation risk. "Bloomberg®" and Bloomberg Indices are service marks of Bloomberg Finance L.P. and its affiliates, including Bloomberg Index Services Limited ("BISL"), the administrator of the index (collectively, "Bloomberg") and have been licensed for use for certain purposes by IR+M. Bloomberg is not affiliated with IR+M, and Bloomberg does not approve, endorse, review, or recommend the products described herein. Bloomberg does not guarantee the timeliness, accurateness, or completeness of any data or information relating to any IR+M product. Moody's Analytics PFaroe® product used by IR+M includes market data and other information sourced from third parties under license. Certain licensors require Moody's Analytics to make disclosures to, or to obtain acknowledgements or agreements from, IR+M and parties receiving the information from IR+M, which is effected by the disclosures and disclaimers available at https://static.pfaroe.com/DisclosuresAndDisclaimers/index.html.

IR+M Funded Status Monitor Assumptions:

Detailed methodology and assumptions for the IR+M Funded Status Monitor can be found at:
https://www.incomeresearch.com/wp-content/uploads/2023/02/IRM-Funded-Status-Monitor-Whitepaper-2023.pdf

	End Stage	Average	Young
Target Liability Duration (Years)	7-9	10-12	13-15
Funded Ratio at Inception (i.e., 12/31/2019)	100.0%	89.8%	80.0%

Asset Allocations	End Stage	Average	Young
US All Cap Equity	8%	27%	38%
International Equity	2%	17%	22%
US REITS	0%	2%	5%
Private Equity	0%	4%	5%
Growth Assets Allocation	10%	50%	70%
Long Government Fixed Income	5%	10%	15%
Long Credit Fixed Income	30%	25%	15%
Intermediate Government Fixed Income	5%	5%	0%
Intermediate Credit Fixed Income	50%	10%	0%
Fixed Income Allocation	90%	50%	30%