LDI MONITOR

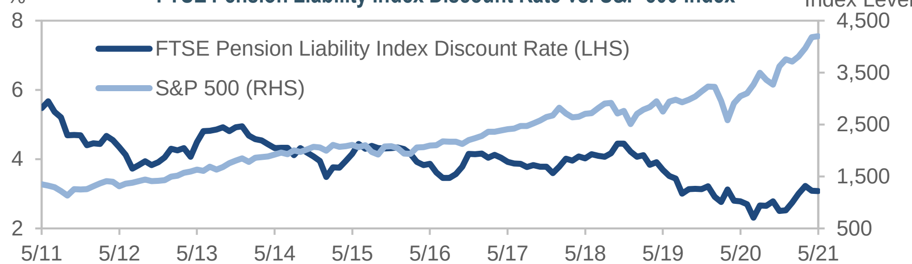
May 31, 2021

LDI Market Updates

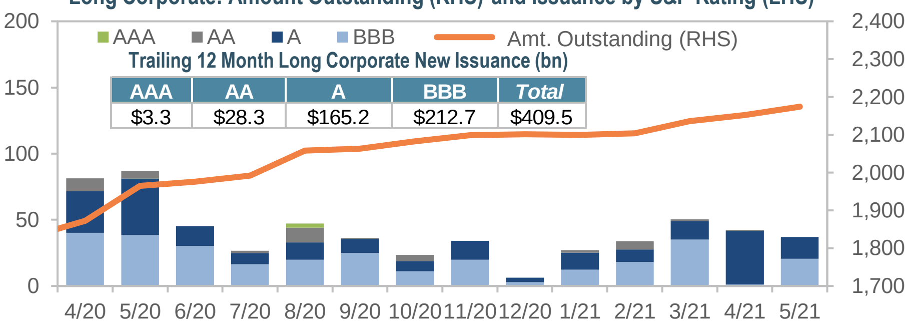
- Discount rates decreased in May by 0.03%, to 2.77% from 2.80%.
- Despite periods of volatility, risk assets ended the month on a high note, with the S&P 500 Index closing 0.7% below the all-time high achieved mid-month.
- Long corporate spreads tightened 5bps, from 126bps to 121bps, the tightest level since 2007.
- Issuance of long-duration corporate bonds totaled roughly $37 billion, less than half of May 2020's total but ahead of historical averages.

Rates Monitor	05/21	04/21	MoM Change	12/20	YTD Change
IR+M Average Plan Discount Rate (%)	2.77	2.80	(0.03)	2.22	0.55
Bloom Barc Long Corp Yield (%)	3.30	3.35	(0.05)	2.78	0.52
Bloom Barc Long Corp A+ Yield (%)	3.05	3.09	(0.04)	2.49	0.56
Bloom Barc Long Corp BBB Yield (%)	3.53	3.60	(0.07)	3.07	0.46
Long Corp Spreads (bps)	121	126	(5)	140	(19)
Curve (Long Corp - Int Corp) (bps)	60	60	0	72	(12)

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



Long Corporate: Amount Outstanding (RHS) and Issuance by S&P Rating (LHS)



Trailing 12 Month Long Corporate New Issuance (bn)

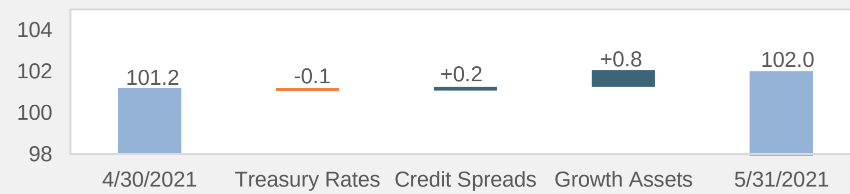
AAA	AA	A	BBB	*Total*
$3.3	$28.3	$165.2	$212.7	$409.5

IR+M Funded Status Monitor

- Our sample Average Plan funded status increased by 0.8% during May, closing at 102.0%; despite slightly lower discount rates, positive growth asset returns pushed its funded status higher month-over-month.

Funded Status (%)	05/21	04/21	MoM Change	12/20	YTD Change
Average Plan	102.0	101.2	0.8	91.8	10.2
End Stage Plan	107.2	106.7	0.5	102.8	4.4
Young Plan	95.0	94.3	0.7	80.0	15.0

Average Plan Funded Status Monthly Change



IR+M LDI Corner: No Longer Comparing 20-somethings To Those In Their 30's

- Effective May 1st, dealers began to quote all relevant new and old corporate bonds versus the 20-year Treasury. Although this was a good first step, more progress is needed before market depth drastically improves.
- In May 2020, the 20-year Treasury bond was issued for the first time since 1986 and was widely expected to improve corporate bond price transparency for longer-duration bonds. Long bonds used to trade relative to either the 10-year or 30-year Treasury, with neither being a perfect reference in many cases.
- Market adoption was slower-than-expected; less than 10% of 20-year corporates priced vs. the 20-year Treasury between May and December 2020. Most continued to price vs. the 30-year Treasury, and investors could often earn more credit spread when the 20-year corporate yields were compared to the newly available 20-year Treasury than with 30-year corporates.
- The trend reversed in 2021, as over 90% of 20-year deals used the 20-year Treasury benchmark. However, the lack of depth was still evident in May, as the 10- and 30-year Treasury yields fell by 2-3bps, while the 20-year rate rose by 2bps. We expect temporary dislocations during periods of volatility as the market develops, such as wider bid/ask spreads relative to other long Treasuries.

IR+M DISCLOSURE STATEMENT

Disclosures:

Sources: Milliman, FTSE Russell (formerly Citigroup), Bloomberg Barclays, Bloomberg, and JPMorgan. All data in the above commentary is as of 5/31/21. Yields are represented as of the aforementioned date and are subject to change. The views contained in this report are those of IR+M and are based on information obtained by IR+M from sources that are believed to be reliable. This report is for informational purposes only and is not intended to provide specific advice, recommendations for, or projected returns of any particular IR+M product. No part of this material may be reproduced in any form, or referred to in any other publication, without express written permission from Income Research & Management. BLOOMBERG® is a trademark and service mark of Bloomberg Finance L.P. and its affiliates (collectively "Bloomberg"). BARCLAYS® is a trademark and service mark of Barclays Bank Plc (collectively with its affiliates, "Barclays"), used under license. Bloomberg or Bloomberg's licensors, including Barclays, own all proprietary rights in the Bloomberg Barclays Indices. Neither Bloomberg nor Barclays approves or endorses this material, or guarantees the accuracy or completeness of any information herein, or makes any warranty, express or implied, as to the results to be obtained therefrom and, to the maximum extent allowed by law, neither shall have any liability or responsibility for injury or damages arising in connection therewith.

IR+M Funded Status Monitor Assumptions:

Detailed methodology and assumptions for the IR+M Funded Status Monitor can be found at:
http://www.incomeresearch.com/wp-content/uploads/2021/01/IRM-Funded-Status-Monitor-2021.pdf.

	End Stage	Average	Young
Target Liability Duration (Years)	8-10	12-14	15-17
Funded Ratio at Inception (i.e., 12/31/2019)	100.0%	89.8%	80.0%

Asset Allocations	End Stage	Average	Young
US Equity	12%	27%	38%
International Equity	3%	17%	22%
US REITS	0%	2%	5%
Private Equity	0%	4%	5%
Growth Assets Allocation	15%	50%	70%
Long Government Fixed Income	5%	10%	10%
Long Credit Fixed Income	30%	25%	10%
Intermediate Government Fixed Income	5%	5%	5%
Intermediate Credit Fixed Income	45%	10%	5%
Fixed Income Allocation	85%	50%	30%