IR+M INCOME RESEARCH + MANAGEMENT

LDI MONITOR

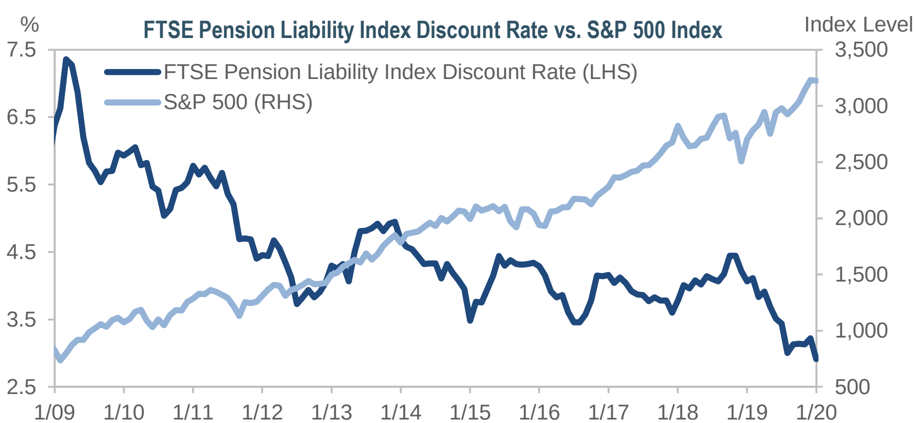
January 31, 2020

LDI Highlights

- Corporate pension funded status fell by 3.3% during January, closing the month at 85.7%
  - Discount rates decreased by over 30bps to 2.91% and reached the lowest level in the last 25 years
  - Equity market returns were unable to offset the negative impact of rates, as the S&P 500 Index fell slightly in January – by 0.04%
- Supply picked up and totaled almost $29 billion, and was well-received by investors as new issue concessions fell to historically low levels
- Fears over the economic impact of the coronavirus pushed long-corporate spreads 13bps wider to 149bps
- Over $5 billion of 20+ year Treasury bonds were stripped in January, and the 6-month moving average reached the highest pace since October 2018

Rates Monitor	1/31/20	12/31/19	12/31/18
FTSE Pension Liability Discount Rate (%)	2.91	3.22	4.22
Bloom Barc Long Corporate Yield (%)	3.35	3.60	4.91
Bloom Barc Long Corporate A+ Yield (%)	2.98	3.25	4.40
Bloom Barc Long Corporate BBB Yield (%)	3.70	3.94	5.36
30 Year Swap Spread (bps)	-33	-30	-17

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

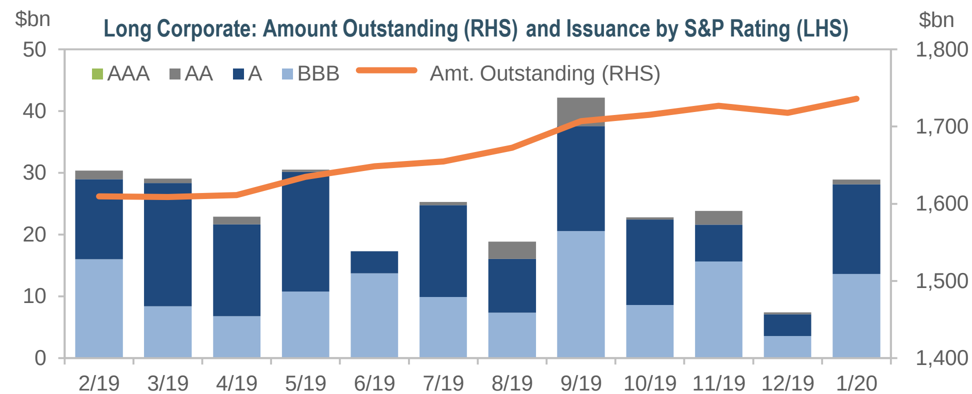


IR+M LDI Corner: Time For An Annual Check-up

- We believe it is important for investment managers, plan sponsors and consultants to regularly review the appropriateness of the LDI strategy, at least annually, as new, up-to-date information is made available
  - The completion of fiscal year-end reporting provides an opportune time to do so, as actuarial valuations and assumptions are updated
  - Additionally, the evaluation of upcoming budget and business decisions, such as funding policies and M&A activity, could impact the plan investment strategy
- Updated assumptions and demographics could not only affect liabilities, by materially extending or shortening the duration of liabilities, but could also influence hedging assets due to any potential changes in funded status, progress/regression along glide paths, and desired credit exposure
- A coordinated approach from the actuary, sponsor, consultant and LDI manager can ensure the latest assumptions are appropriately reflected in the investment portfolio

Glidepath Monitor	1/31/20	12/31/19	12/31/18	12/31/15
Funded Status (%)	85.7	89.0	89.4	81.7
Long Corporate Spreads (bps)	149	136	200	227
Curve (Long Corp - Int. Corp) (bps)	73	66	69	88

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*
$0.0	$15.4	$149.2	$134.8	$299.4

Sources: Milliman (Historical numbers revised as of 3/31/19), FTSE Russell (formerly Citigroup), Bloomberg Barclays, Bloomberg, and JPMorgan