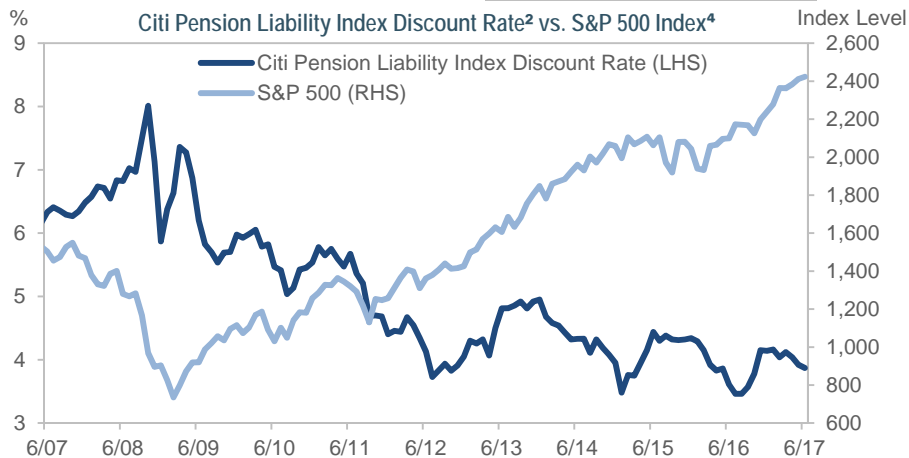


LDI Highlights

- Corporate pension funded status declined for the fourth consecutive month, driven lower by falling discount rates and muted equity market returns.¹
 - The measure fell 0.03% to 83.5%, the lowest level since Fall 2016.
- Demand remained strong for long corporate bonds during June, while primary issuance took a nosedive; both factors contributed to a 5bps drop in long corporate yields while spreads were 6bps tighter.³
 - Long corporate supply made up only 11% of the total during June, the lowest level since April of last year.⁶
- The 10s30s credit spread curve flattened modestly during June, as long credit spreads tightened to their lowest level since the fall of 2014.³

Rates Monitor	6/30/17	5/31/17	12/31/16
Citigroup Pension Discount Rate ² (%)	3.87	3.92	4.14
Bloom Barc Long Credit Yield ³ (%)	4.26	4.30	4.55
Bloom Barc Long Corporate Yield ³ (%)	4.24	4.29	4.54
Bloom Barc Long BBB Corp Yield ³ (%)	4.60	4.63	4.93
30 Year Swap Rate ⁴ (%)	2.54	2.42	2.63
Long BBB Corp. Yield ³ – Citi Pension Discount Rate ² (bps)	73	71	79

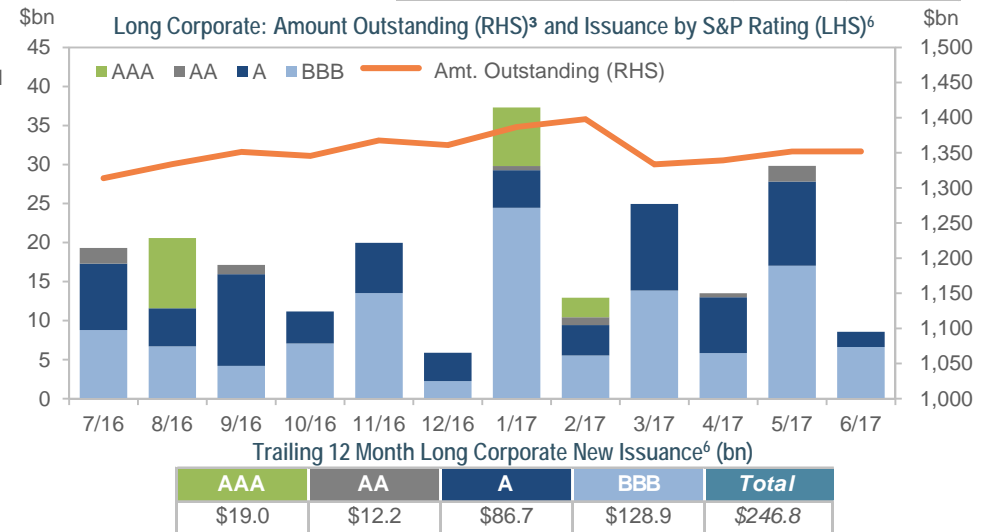

LDI MONITOR

June 30, 2017

IR+M LDI Corner: Benchmarks – One for All?

- As they look to reduce funded status volatility, plan sponsors may utilize a custom benchmark for their hedging portfolio. Customization may include managing against a blended benchmark, a custom key-rate profile, or directly against the liability cashflows.
- In a multi-manager framework, a plan sponsor may weigh the benefits of having all of their fixed income managers utilize the custom benchmark, versus having one serve as a completion manager and the others manage more standard portfolios.
- For early-stage plans with simpler blends, the first approach may provide a simpler solution that avoids asking one manager to utilize derivative instruments to move the total plan characteristics.
- As mandates become more complicated, such as managing against a custom key-rate or liability cashflow schedule, sponsors may find it more efficient (in terms of fees and performance monitoring) to employ the completion manager approach.

Glidepath Monitor	6/30/17	5/31/17	12/31/16	6/30/16	6/30/14
Funded Status ¹ (%)	83.5	83.8	83.3	76.7	84.2
Long Credit Rates ⁵ (%)	4.26	4.30	4.55	4.16	4.56
Long Credit Spreads ⁵ (bps)	157	164	167	215	148
Curve ³ (Long Cred - Int. Cred) (bps)	164	177	180	200	243
Curve ³ (Long G/C - Agg) (bps)	109	122	134	145	187



¹Milliman (Historical numbers revised as of 3/31/17); ²Citigroup; ³Bloomberg Barclays; ⁴Bloomberg; ⁵Long rates and long spreads represented by Bloomberg Barclays Long Credit Index yield and spread; ⁶JP Morgan
 All data in the above commentary is as of 6/30/17. 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.