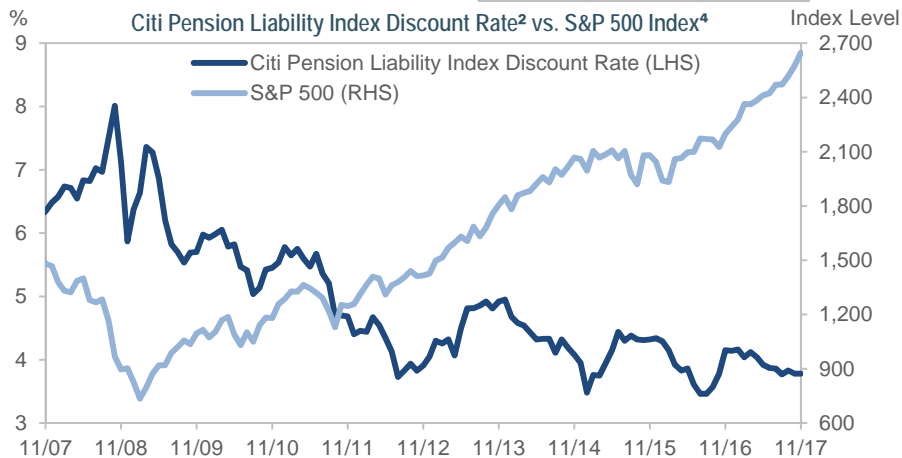


LDI Highlights

- Corporate pension funded status ended November 0.5% higher at 85.2% driven higher by robust equity returns; this marks only the third time in the past three years that the measure has ended the month above 85%.¹
 - Discount rates were unchanged month-over-month, but experienced volatility throughout November; long corporate yields rose, fell, and rose again by 7bps, 13bps, and 6bps, respectively.³
- Long corporate issuance crossed \$20 billion for the fifth consecutive month, a streak that has only occurred three times since 2000.⁶
 - While the primary market is likely to slow in December, year-to-date long issuance now sits at \$261 billion, surpassing the 1-year record of \$241 billion set in 2015.

Rates Monitor	11/30/17	10/31/17	12/31/16
Citigroup Pension Discount Rate ² (%)	3.78	3.78	4.14
Bloom Barc Long Credit Yield ³ (%)	4.15	4.15	4.55
Bloom Barc Long Corporate Yield ³ (%)	4.15	4.15	4.54
Bloom Barc Long BBB Corp Yield ³ (%)	4.50	4.49	4.93
30 Year Swap Rate ⁴ (%)	2.60	2.59	2.63
Long BBB Corp. Yield ³ - Citi Pension Discount Rate ² (bps)	72	71	79

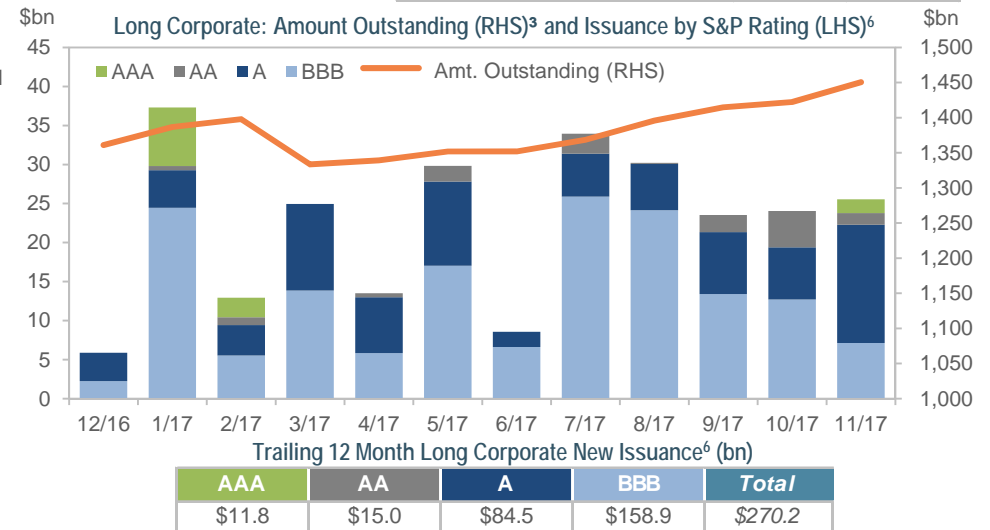

LDI MONITOR

November 30, 2017

IR+M LDI Corner: Time of Reflection

- As we approach the holiday season, we reflect on what we have seen and learned in the LDI space over the last year. While next month our LDI Monitor will provide an in-depth review of the LDI space, one clear theme from 2017 has emerged: unlike your favorite winter scarf, one size definitely doesn't appear to fit all corporate pension plans.
- This year, plan sponsors took different approaches to de-risking, reflecting the unique goals and challenges affecting their pension plans. With rate movements providing little benefit to funded status, some sponsors capitalized on equity movements while others increased contributions to reduce PBGC premiums. We worked with plans contemplating insurance buyouts, and others exploring long-term, in-house hedging solutions.
- In 2018, with the potential for tax reform, PBGC premiums approaching 4%, and macro uncertainty, we believe it's prudent to revisit the unique circumstances of each plan and consider the full range of LDI solutions available.

Glidepath Monitor	11/30/17	10/31/17	12/31/16	11/30/16	11/30/14
Funded Status ¹ (%)	85.2	84.7	83.3	82.3	82.8
Long Credit Rates ⁵ (%)	4.15	4.15	4.55	4.62	4.45
Long Credit Spreads ⁵ (bps)	144	144	167	180	177
Curve ³ (Long Cred - Int. Cred) (bps)	136	153	180	191	222
Curve ³ (Long G/C - Agg) (bps)	89	101	134	140	169



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 11/30/17. 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.