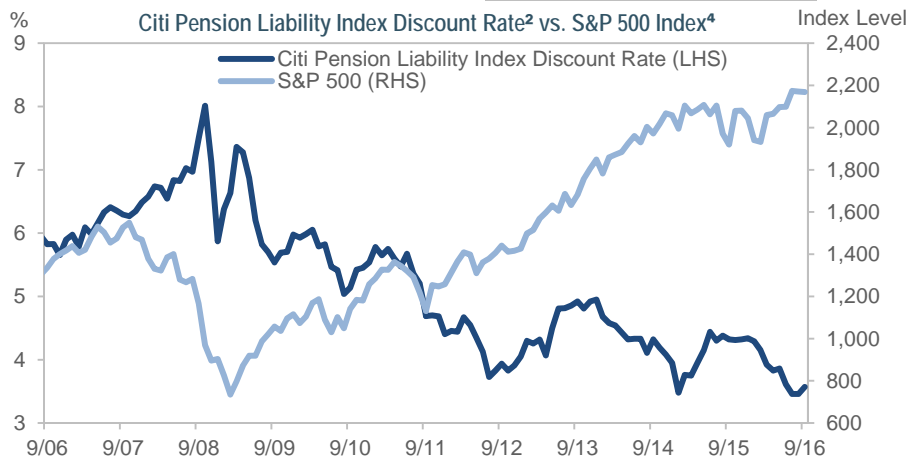


LDI Highlights

- Corporate pension funded status increased month-over-month for only the second time this year, rising 0.6% to 76.3%<sup>1</sup> on the heels of higher discount rates, while equity markets were largely unchanged.
  - Discount rates rose 11bps during September, the largest monthly increase since rising 29bps in June 2015.<sup>2</sup>
- The year-to-date spread compression between Long A-rated and Long BBB-rated corporate yields continued during September, tightening 28bps to 76bps after widening to a post-crisis high of 126bps back in February.<sup>3</sup>
- Year-to-date long A-rated issuance is up 29% over the same timeframe as last year, while long BBB-rated issuance is down 42% during this period; net long issuance is down roughly 6% over the same period.<sup>6</sup>
- The 10s30s credit spread curve flattened 6bps to 48bps during September, as intermediate spreads widened while long-end spreads were slightly tighter.<sup>3</sup>

Rates Monitor	9/30/16	8/31/16	12/31/15
Citigroup Pension Discount Rate <sup>2</sup> (%)	3.57	3.46	4.34
Bloom Barc Long Credit Yield <sup>3</sup> (%)	4.04	3.96	5.02
Bloom Barc Long Corporate Yield <sup>3</sup> (%)	4.07	3.99	5.06
Bloom Barc Long BBB Corp Yield <sup>3</sup> (%)	4.50	4.43	5.60
30 Year Swap Rate <sup>4</sup> (%)	1.73	1.70	2.64
Long BBB Corp. Yield <sup>3</sup> - Citi Pension Discount Rate <sup>2</sup> (bps)	93	97	126



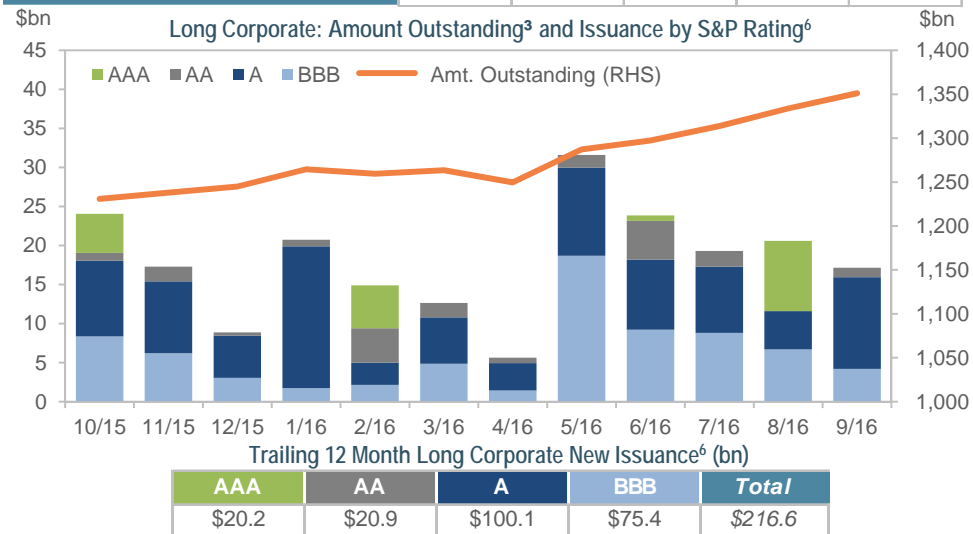
LDI MONITOR

September 30, 2016

IR+M LDI Corner: An Exercise In LDI

- When analyzing our own investment practices, we regularly look for inherent biases in both our actions and inactions. A good example is status quo bias, or more simply, an uneconomical aversion to making changes.
- Within our own portfolios, this can mean holding a security too long or maintaining a sector overweight or underweight that has worked well for us in the past. We often ask ourselves, “would we buy this security today if we didn’t already own it?”
- The same exercise can be helpful for plan sponsors responsible for investing LDI portfolios. For example, plan sponsors can ask whether they would mirror their current asset allocation and interest rate exposure if making the same investment decision today.
- Just as transaction costs impact the practicality of portfolio changes, the cost of adjusting embedded strategies can at times outweigh the benefits. However, taking a step back to look at the “ideal” pension strategy in today’s environment can help plan sponsors identify risks and make more informed decisions about future changes.

Glidepath Monitor	9/30/16	8/31/16	12/31/15	9/30/15	9/30/13
Funded Status <sup>1</sup> (%)	76.3	75.7	81.7	81.1	86.5
Long Credit Rates <sup>5</sup> (%)	4.04	3.96	5.02	4.92	5.25
Long Credit Spreads <sup>5</sup> (bps)	195	196	225	230	189
Curve <sup>3</sup> (Long Cred - Int. Cred) (bps)	188	182	210	231	284
Curve <sup>3</sup> (Long G/C - Agg) (bps)	136	129	161	178	230



<sup>1</sup>Milliman; <sup>2</sup>Citigroup; <sup>3</sup>Bloomberg Barclays; <sup>4</sup>Bloomberg; <sup>5</sup>Long rates and long spreads represented by Bloomberg Barclays Long Credit Index yield and spread; <sup>6</sup>JP Morgan  
 All data in the above commentary is as of 9/30/16. 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.