INCOME RESEARCH + MANAGEMENT

LDI MONITOR

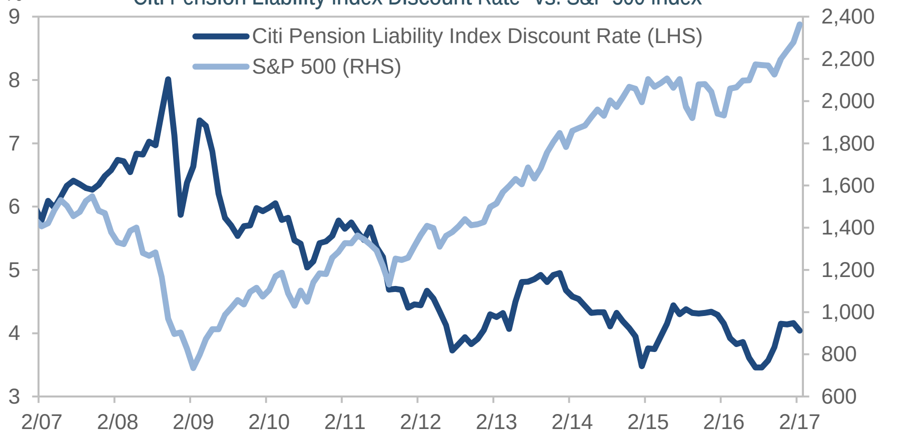
February 28, 2017

LDI Highlights

- Corporate pension funded status fell slightly for the first time in five months as discount rates experienced a sharp 12bps drop during February.[1]
    - Despite discount rates falling by the most since July 2016, a larger drop in funded status was avoided as equity markets realized robust returns with the S&P 500 Index gaining 3.7%.[4]
- Long corporate issuance reversed course during February after a near record-setting January, as volatility in long end yields and the prior months' supply glut kept issuers on the bench.
- Despite the heavy issuance to begin the year and the sharp drop in issuance during February, long corporate spreads have held in well, moving mostly sideways the past two months.

Rates Monitor	2/28/17	1/31/17	12/31/16
Citigroup Pension Discount Rate[2] (%)	4.04	4.16	4.14
Bloom Barc Long Credit Yield[3] (%)	4.43	4.55	4.55
Bloom Barc Long Corporate Yield[3] (%)	4.43	4.54	4.54
Bloom Barc Long BBB Corp Yield[3] (%)	4.80	4.92	4.93
30 Year Swap Rate[4] (%)	2.63	2.64	2.63
Long BBB Corp. Yield[3] – Citi Pension Discount Rate[2] (bps)	76	76	79

Citi Pension Liability Index Discount Rate[2] vs. S&P 500 Index[4]

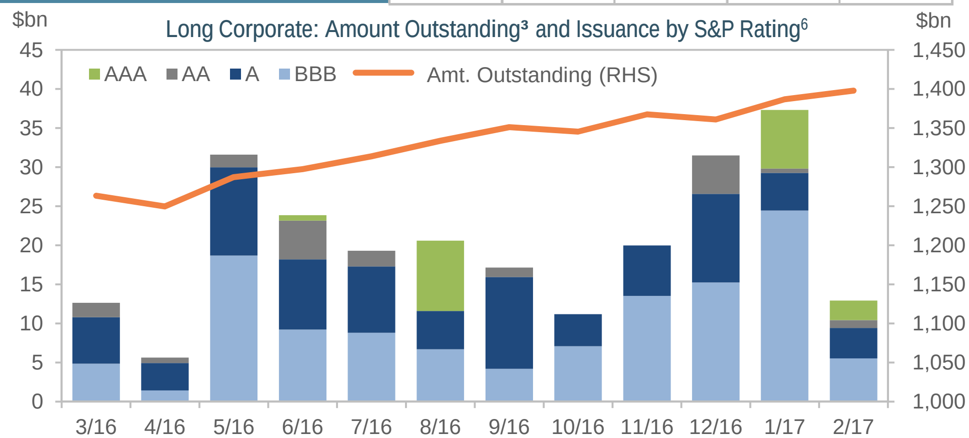


IR+M LDI Corner: A-or-Better or Sometimes Not

- We are often asked about the most appropriate benchmark for LDI clients at different stages of their LDI journeys. One typical consideration is whether to apply quality restrictions as sponsors begin to add more corporate bond exposure to their LDI portfolios.
- Plan liabilities are typically valued using discount rates based on AA-corporate bond yields. As such, sponsors often weigh the use of a broad investment-grade corporate bond portfolio versus higher-quality mandates, such as A-or-better corporate bond portfolios.
- When examining the BBB-corporate universe, we would argue that there are many opportunities to select high-quality bonds with favorable credit fundamentals. However, at times, the universe as a whole may exhibit volatility.
- When short-term volatility is the key concern, such as when approaching buy-out or risk transfer, incorporating A-or-better benchmarks may be a useful tool. However, for sponsors who still maintain significant volatility from equity allocations, using broader benchmarks can provide greater opportunity for active managers aiming to protect funded status.

Glidepath Monitor	2/28/17	1/31/17	12/31/16	2/28/16	2/28/14
Funded Status[1] (%)	81.5	81.6	81.0	78.4	85.3
Long Credit Rates[5] (%)	4.43	4.55	4.55	4.87	4.88
Long Credit Spreads[5] (bps)	164	168	167	257	158
Curve[3] (Long Cred - Int. Cred) (bps)	180	183	180	210	271
Curve[3] (Long G/C - Agg) (bps)	128	133	134	164	210

Long Corporate: Amount Outstanding[3] and Issuance by S&P Rating[6]



Trailing 12 Month Long Corporate New Issuance[6] (bn)

AAA	AA	A	BBB	*Total*
$19.7	$18.8	$85.4	$119.7	*$243.6*

[1]Milliman; [2]Citigroup; [3]Bloomberg Barclays; [4]Bloomberg; [5]Long rates and long spreads represented by Bloomberg Barclays Long Credit Index yield and spread; [6]JP Morgan