IR+M INCOME RESEARCH + MANAGEMENT

LDI MONITOR

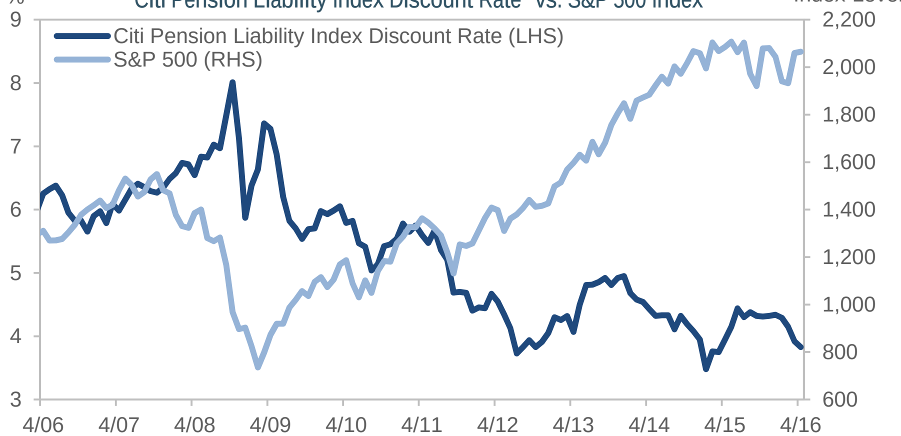
April 30, 2016

LDI Highlights

- Corporate pension funded status continued its downward trend during April, declining 1% to 77%, the lowest level since December 2012.[1]
  - Falling discount rates drove the measure lower for the fourth consecutive month and are now 51bps lower year-to-date; equity returns were slightly positive.
- Long corporate issuance slowed during the month, with only $5.6 billion coming to market.[6]
  - Year-to-date, long corporate issuance as a percent of total corporate issuance is down 6% from the average over the past two years.
- The 10s30s credit spread curve flattened 4bps during April to 46bps, 1bp above the year-to-date low experienced at the end of January.[6]

Rates Monitor	4/30/16	3/31/16	12/31/15
Citigroup Pension Discount Rate[2] (%)	3.83	3.92	4.34
Barclays Long Credit Yield[3] (%)	4.42	4.56	5.02
Barclays Long Corporate Yield[3] (%)	4.44	4.59	5.06
Barclays Long BBB Corporate Yield[3] (%)	4.94	5.15	5.60
30 Year Swap Rate[4] (%)	2.21	2.16	2.64
Long BBB Corp. Yield[3] – Citi Pension Discount Rate[2] (bps)	111	123	126

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

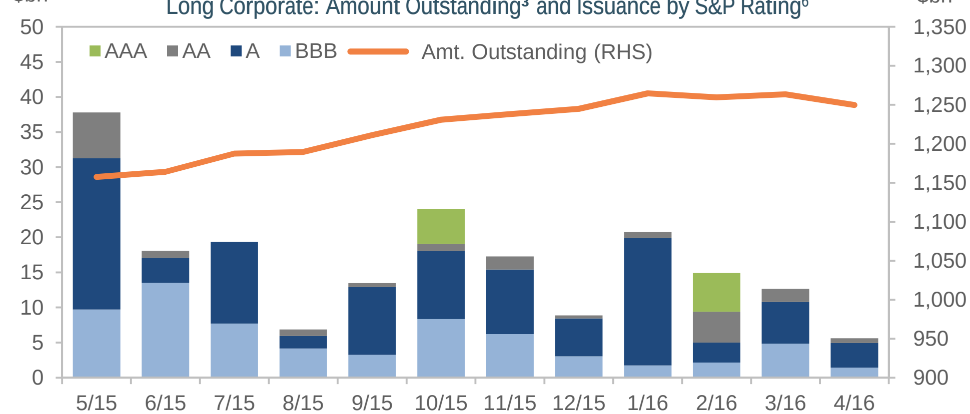


IR+M LDI Corner: The Changing Tides of Long Corporate Supply

- As plan sponsors continue to link their prospective purchases of long corporate bonds to future interest rate increases and/or improvements in funded status, it becomes increasingly important to understand how the supply/demand dynamic may evolve.
- While corporate issuance has been at record-level highs the last few years, this year has seen a significant reduction in long supply. Looking forward, the factors that may fuel long-corporate demand, may also act to dampen future supply.
- During periods of high yields, issuers may be less incentivized to issue longer dated bonds due to higher borrowing costs. Similarly, if funded status improvements are driven by equity performance, M&A related issuance could decline as focus turns to organic growth.
- We believe that plan sponsors who approach implementation with some flexibility to take advantage of favorable supply/demand dynamics ahead of a potential spike in demand, will give themselves the best chance of successfully achieving their LDI goals.

Glidepath Monitor	4/30/16	3/31/16	12/31/15	4/30/15	4/30/13
Funded Status[1] (%)	77.1	78.1	81.7	82.3	79.2
Long Credit Rates[5] (%)	4.42	4.56	5.02	4.41	4.29
Long Credit Spreads[5] (bps)	205	223	225	186	178
Curve[3] (Long Cred - Int. Cred) (bps)	206	210	210	217	252
Curve[3] (Long G/C - Agg) (bps)	152	157	161	164	192

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*
$10.5	$20.1	$103.0	$66.1	*$199.7*

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