IR+M

INCOME RESEARCH + MANAGEMENT

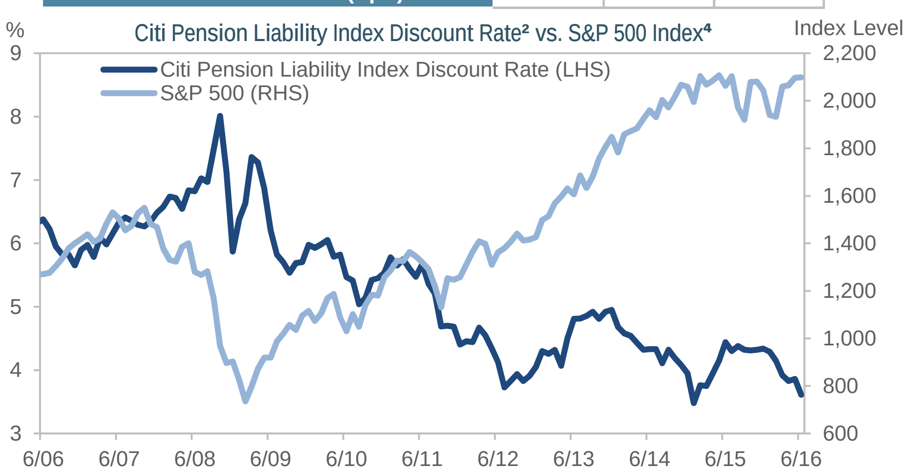
LDI MONITOR

June 30, 2016

LDI Highlights

- Sharply declining discount rates drove corporate pension funded status lower by 1.8%, closing the first half of 2016 at 75.7%, versus 81.7% at the end of 2015.[1]
    - Discount rates declined by 25bps while risk assets were mostly unchanged; the S&P 500 Index returned 0.09%.[2,4]
    - The measure reached its lowest level since the fall of 2012, when the Federal Reserve began it's third round of quantitative easing.
- Long corporate issuance comprised 30% of total issuance in June, the highest monthly percentage in over ten years.[6]
    - The uptick in long issuance was driven by deals from Oracle and Aetna, as both issued roughly $4bn across the 20-year and 30-year tenors.
- Despite volatility across financial markets driven by the Brexit vote, long credit spreads held in well, widening just 5bps during the month.[3]

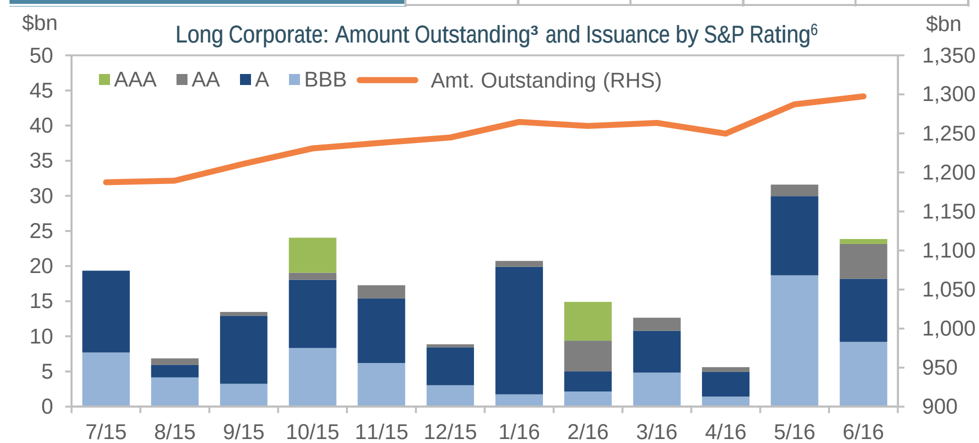
Rates Monitor	6/30/16	5/31/16	12/31/15
Citigroup Pension Discount Rate[2] (%)	3.61	3.86	4.34
Barclays Long Credit Yield[3] (%)	4.16	4.44	5.02
Barclays Long Corporate Yield[3] (%)	4.20	4.47	5.06
Barclays Long BBB Corporate Yield[3] (%)	4.69	4.98	5.60
30 Year Swap Rate[4] (%)	1.86	2.17	2.64
Long BBB Corp. Yield[3] – Citi Pension Discount Rate[2] (bps)	108	112	126



IR+M LDI Corner: Should your Benchmark be Benched?

- At the later stages of their LDI journeys, sponsors often customize duration limits and quality restrictions for their benchmarks. However, benchmark sector weightings are normally based on those of a traditional benchmark, such as long credit or long corporate.
- On the liability side, plan sponsors typically use discount curves consisting of AA-rated corporate bonds. The sector allocations from this small subset of issuers is highly concentrated and can be impractical when designing a benchmark.
- This sector allocation mismatch between traditional benchmarks and discount curves constitutes an active position versus plan liabilities. Moreover, where managers are passively tied to sector benchmark weightings, the active position is derived inefficiently.
- We believe that active positions should be based on bottom-up security analysis and an understanding of market inefficiencies. Sector allocations are just one of many places that active managers can seek to outperform traditional benchmarks in an LDI framework.

Glidepath Monitor	6/30/16	5/31/16	12/31/15	6/30/15	6/30/13
Funded Status[1] (%)	75.7	77.5	81.7	85.0	84.9
Long Credit Rates[5] (%)	4.16	4.44	5.02	4.90	5.16
Long Credit Spreads[5] (bps)	215	210	225	202	198
Curve[3] (Long Cred - Int. Cred) (bps)	200	201	210	234	264
Curve[3] (Long G/C - Agg) (bps)	145	147	161	181	211



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

AAA	AA	A	BBB	*Total*
$11.2	$19.2	$98.1	$70.7	*$199.2*

[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