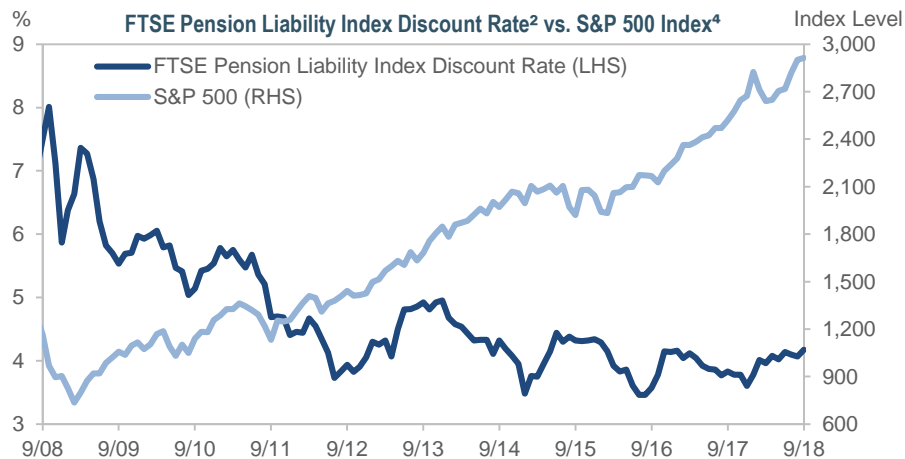


LDI Highlights

- Corporate pension funded status rose by 1.2% during September to close the month at 94.5% -- its highest level in 10 years.<sup>1</sup>
  - The rise was driven by a jump in long Treasury yields, which led to a 10bps increase in discount rates.<sup>2</sup>
  - The S&P 500 Index posted a return of 0.6% during September.<sup>4</sup>
- Supply picked up in September, at over \$28 billion, with approximately 60% derived from BBB-rated issuers.<sup>5</sup>
- Long corporate spreads rallied with the increase in Treasury yields, narrowing 12bps during September to close the month at 153bps.<sup>3</sup>
- Corporate spread curves flattened after steepening during August, as the difference between long corporate and intermediate corporate spreads narrowed to 69bps.<sup>3</sup>

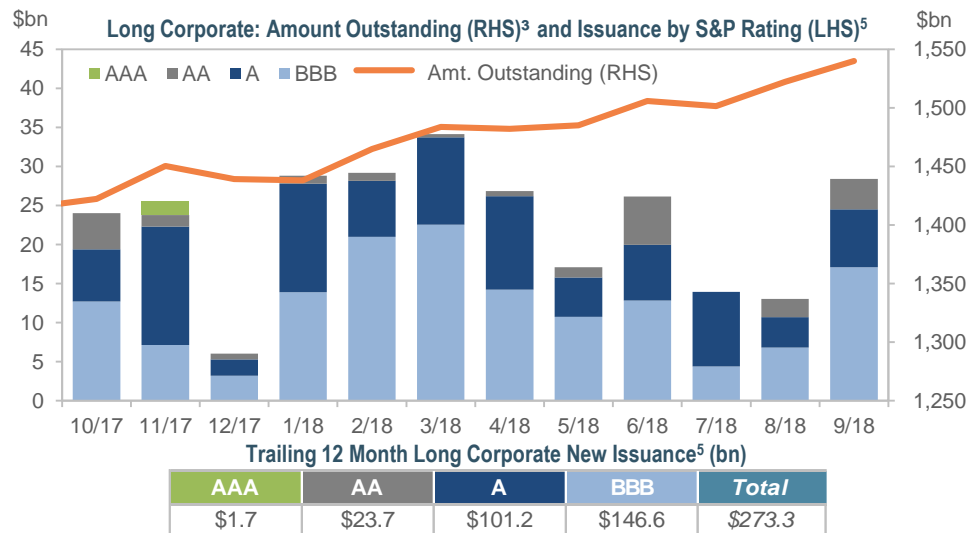
Rates Monitor	9/30/18	8/31/18	12/31/17
FTSE Pension Liability Discount Rate <sup>2</sup> (%)	4.17	4.07	3.60
Bloom Barc Long Corporate Yield <sup>3</sup> (%)	4.68	4.60	4.02
Bloom Barc Long Corporate A+ Yield <sup>3</sup> (%)	4.36	4.26	3.69
Bloom Barc Long BBB Corp Yield <sup>3</sup> (%)	5.00	4.95	4.37
30 Year Swap Spread <sup>4</sup> (bps)	-7	-5	-20



IR+M LDI Corner: Three Topics Reframed

- Active vs. Passive - As with equities, active bond management is often thought of a way to generate excess returns with potential additional risk (offense). However, active bond management is also about protecting against downgrades that don't affect plan liabilities. In a de-risking context, this can be thought of as defensive alpha.
- Actuarial Precision – Valuing pension plans can be analogous to providing a very precise answer to a very broad question. We often liken it to measuring a football field by pacing the first 99 yards and then measuring the last yard with a ruler. In LDI, we need to take pause, remember the big picture and ensure that solutions are framed in the appropriate degree of accuracy.
- Leverage – For many sponsors, leverage can have a negative connotation. However, pension plans employ leverage at a fundamental level by allocating from hedging assets to growth assets. Essentially, plans leverage debt to pensioners in hopes of achieving excess returns. Framed in this way, duration extension within the fixed income portfolio can actually be thought of as deleveraging the overall plan.

Glidepath Monitor	9/30/18	8/31/18	12/31/17	12/31/14
Funded Status <sup>1</sup> (%)	94.5	93.3	87.6	81.5
Long Corporate Spreads <sup>3</sup> (bps)	153	165	137	186
Curve <sup>3</sup> (Long Corp - Int. Corp) (bps)	69	75	64	79



<sup>1</sup>Milliman (Historical numbers revised as of 3/31/18); <sup>2</sup>FTSE Russell; <sup>3</sup>Bloomberg Barclays; <sup>4</sup>Bloomberg; <sup>5</sup>JPMorgan

All data in the above commentary is as of 9/30/18. 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.

### Third Quarter 2018 Corporate Issuance: Largest Long-Dated USD Investment Grade Deals

- As absolute long corporate yields moved higher, and the tax deadline approached, there was strong demand for long credit and STRIPS.
  - Long-end issuance comprised 20% of total issuance during 3Q18, which was equal to the longer-term average and in line with the second quarter.
- For the longest deals, an increase in risk appetite and all in yields led to decreasing new issue concessions and higher oversubscription levels. Lighter than average supply in July and August created a scarcity value technical that helped absorb some large transactions from United Technologies, Cigna, Nestle and Pfizer.

Ticker	Issuer Name	Maturity	Issue Date	Average Rating	Amount Issued (\$bn)	Yield at Issue (%)	Spread at Issue (bps)	Concession to Outstanding (bps)	Order Book (\$bn)	Oversubscription Level (times)
CI	Halfmoon Parent (Cigna)	20	9/17/2018	BBB	2.2	4.81	177	18	7.9	3.6
		30	9/17/2018	BBB	3.0	4.91	187	18	12.2	4.1
NESNVX	Nestle	20	9/24/2018	AA-	1.3	3.98	85	4	4.0	3.2
		30	9/24/2018	AA-	2.1	4.08	95	6	6.8	3.2
UTX	United Technologies	20	8/16/2018	BBB+	0.8	4.50	145	16	5.0	6.7
		30	8/16/2018	BBB+	1.8	4.65	160	22	10.0	5.7
C	Citigroup	30	7/23/2018	BBB+	2.5	4.65	170	34	6.1	2.4
BRK	Berkshire Hathaway	30	8/15/2018	AA	2.4	4.23	110	8	5.5	2.3
EDF	Electricite de France	20	9/21/2018	A-	0.7	5.10	190	12	1.3	1.9
		30	9/21/2018	A-	1.3	5.20	200	12	2.2	1.7
ABBV	AbbVie	30	9/18/2018	BBB+	1.8	4.94	183	7	6.5	3.7
PFE	Pfizer	20	9/7/2018	AA-	0.7	4.11	105	17	1.8	2.6
		30	9/7/2018	AA-	1.0	4.21	115	18	2.6	2.6
ICE	Intercontinental Exchange	30	8/13/2018	A	1.3	4.29	120	7	4.7	3.8
SBUX	Starbucks	30	8/10/2018	BBB+	1.0	4.56	145	10	3.6	3.6
BRKHEC	Berkshire Hathaway Energy	30	7/25/2018	BBB+	1.0	4.45	135	10	2.8	2.8

Source: Bloomberg and JPMorgan

All data in the above commentary is as of 9/30/18. This is not a recommendation to purchase or sell any of the securities listed. 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.