

**LDI Market Updates**

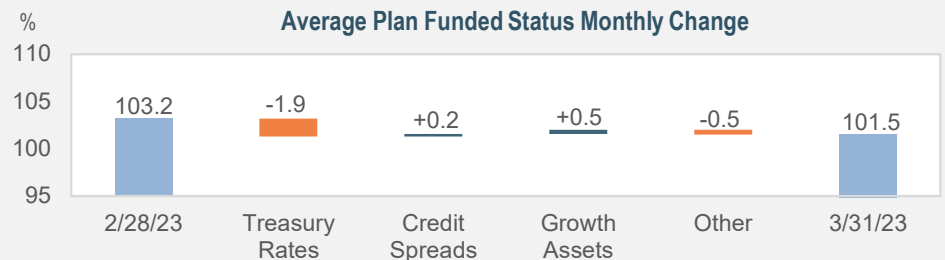
- Discount rates decreased by 0.31% in March, from 4.96% to 4.65%
- Despite significant market volatility resulting from the collapse of Silicon Valley Bank, fixed income and growth assets both posted positive returns; the Bloomberg Long Corporate index yield fell 30bps and the S&P 500 rose by 3.5%
- The market volatility resulted in a temporary halt in the primary market and investment grade issuance totaled just \$100 billion in March, typically one of the busiest months of issuance; the long end saw \$23.3 billion of new bonds

Rates Monitor	03/23	02/23	MoM Change	12/22	YTD Change
IR+M Average Plan Discount Rate (%)	4.65	4.96	(0.31)	4.89	(0.24)
Bloomberg Long Corp Yield (%)	5.29	5.59	(0.30)	5.60	(0.31)
Bloomberg Long Corp A+ Yield (%)	4.97	5.25	(0.28)	5.26	(0.29)
Bloomberg Long Corp BBB Yield (%)	5.63	5.93	(0.30)	5.95	(0.32)
Long Corp Spreads (bps)	160	158	2	158	2
Curve (Long Corp - Int Corp) (bps)	33	51	(18)	42	(9)

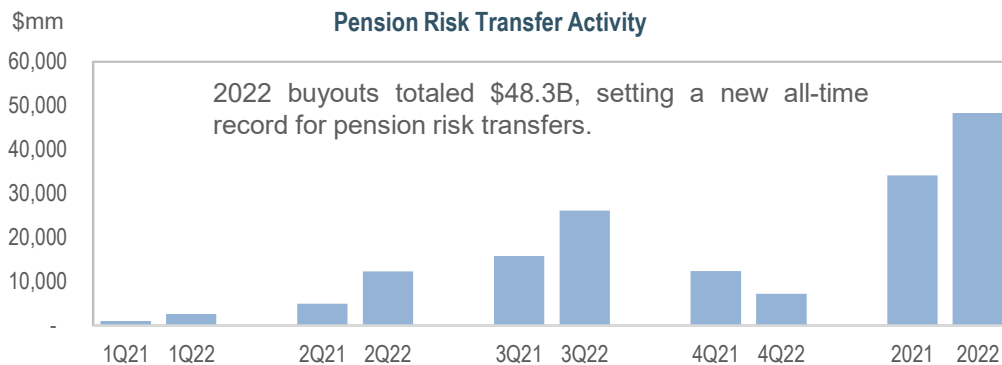
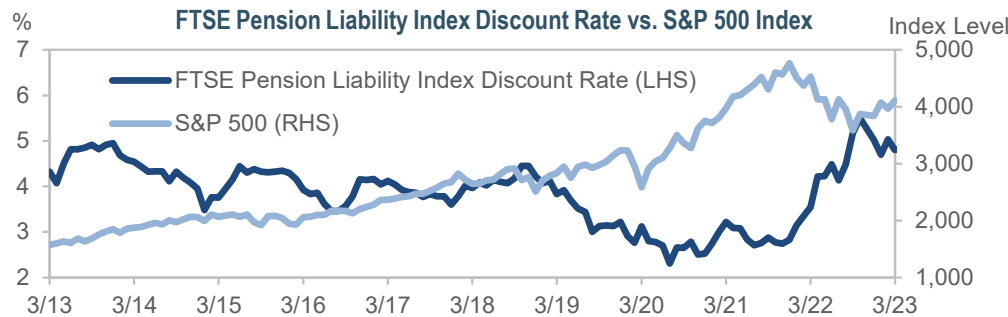
**IR+M Funded Status Monitor**

- Our sample Average Plan funded status decreased by 1.7% during March, closing at 101.5% due to a decrease in discount rates

Funded Status (%)	03/23	02/23	MoM Change	12/22	YTD Change
Average Plan	101.5	103.2	(1.7)	100.4	1.1
End Stage Plan	106.1	106.7	(0.6)	105.2	0.9
Young Plan	92.7	94.9	(2.2)	92.1	0.6



Other includes contributions, expenses, benefit accruals, and liability profile changes.

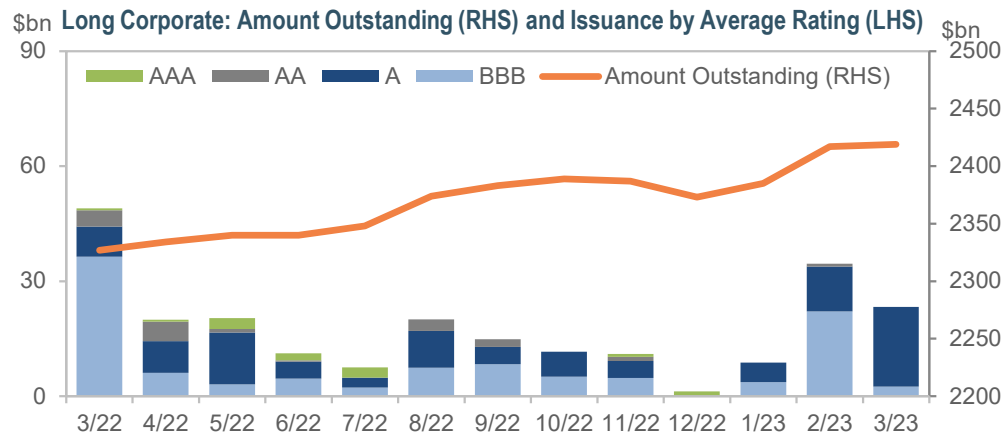


**IR+M LDI Corner – The Impact of Banking Unrest on Longs**

- The failure of Silicon Valley Bank (SVB) on March 10<sup>th</sup> has spurred continued market volatility and led to fears of contagion, especially across the financial sector. While Long Corporate was not immune, it was more insulated than shorter segments on the credit curve, such as Intermediate Corporate.
- This is largely because Long Corporate has a much lower exposure to the Financial Sector versus other maturities. As of 3/31, the Bloomberg Long Corporate Index had a 16.6% allocation to Financials, of which only 8.3% was banks. In contrast, the Bloomberg Intermediate Corporate Index had a 41.7% and 31.0% allocation to Financials and Banks, respectively. The lower exposure also correlates with a lesser impact to spreads. Specifically, the Bloomberg Long Corporate Index spreads widened by 25bps, from 150 to 175bps during the peak of market volatility from 3/6 to 3/15. Over that same period, the Bloomberg Intermediate Corporate Index widened by 45bps, from 92 to 137bps.
- Across all our strategies, IR+M has been underweight US regional banks as their smaller debt footprints resulted in much tighter credit spreads due to market technicals (i.e., scarcity value). IR+M's banking strategy has mainly been focused on owning the US money-center banks owing to greater regulatory requirements resulting in higher capitalization, large liquidity positions and enhanced Federal Reserve oversight. Further, these banks are well diversified across business lines and funding sources.

### First Quarter 2023 Corporate Issuance

- The new issue market started strong in the first two months of 2023 before market volatility from bank stress led to a historically quiet March
  - Issuers priced over \$67 billion in long bonds for the quarter making it the quietest 1Q total since 2017
  - A notably busy February was followed by a historically quiet March as market sentiment drove new issue supply
- The \$23 billion of long-end debt that priced in March made up 23% of total issuance, the highest proportion of long-end issuance since February 2022
  - The uptick in the share of long issuance can be partly attributed to limited supply from Financial issuers who largely participate in shorter maturities over the long end; Financial firms comprised 40% of issuance in 1Q23, down from 53% in 2022
  - Demand in the long end remained stable with captive pension and insurance buyers; long end spreads widened by just 2bps, from 158 to 160bps



Trailing 12 Month Long Corporate New Issuance (bn)

AAA	AA	A	BBB	Total
\$9.9	\$13.3	\$91.1	\$70.3	\$184.5

### Largest Long-Dated USD Investment Grade Deals

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)
AMGN	Amgen Inc	20	2/15/2023	BAA1	2.8	5.65	165	17	11.2	4.1
		30	2/15/2023	BAA1	4.3	5.66	185	17	16.1	3.8
		40	2/15/2023	BAA1	2.8	5.81	200	17	13.0	4.7
INTC	Intel Corp	20	2/7/2023	A2	1.0	5.63	175	25	5.7	5.7
		30	2/7/2023	A2	2.0	5.70	195	25	7.9	4.0
		40	2/7/2023	A2	1.3	5.90	215	30	5.7	4.6
UNH	UnitedHealth Group Inc	30	3/23/2023	A2	2.0	5.09	143	3	4.8	2.4
		40	3/23/2023	A2	1.8	5.24	158	3	3.8	2.1
KVUE	Kenvue Inc	20	3/8/2023	A2	0.8	5.12	100	Debut	5.3	7.1
		30	3/8/2023	A2	1.5	5.09	120	Debut	7.8	5.2
		40	3/8/2023	A2	0.8	5.24	135	Debut	7.4	9.9
HSBC	HSBC Holdings PLC	21	3/2/2023	A3	2.8	6.33	210	-5	8.3	3.0
LLY	Eli Lilly & Co	30	2/23/2023	A2	1.3	4.88	100	10	6.4	5
		40	2/23/2023	A2	1.0	5.03	115	10	6.5	7
ORCL	Oracle Corp	30	2/2/2023	BAA2	2.3	5.59	200	-13	13.1	6

# IR+M DISCLOSURE STATEMENT

## Disclosures:

Sources: Moody's PFaroe, FTSE Russell (formerly Citigroup), LIMRA, and Bloomberg. All data in the above commentary is as of 03/31/2023. Yields are represented as of the aforementioned date and are subject to change. The views contained in this report are those of Income Research & Management ("IR+M") and are based on information obtained by IR+M from sources that are believed to be reliable but IR+M makes no guarantee as to the accuracy or completeness of the underlying third-party data used to form IR+M's views and opinions. This report is for informational purposes only and is not intended to provide specific advice, recommendations, or projected returns for any particular IR+M product. Investing in securities involves risk of loss that clients should be prepared to bear. More specifically, investing in the bond market is subject to certain risks including but not limited to market, interest rate, credit, call or prepayment, extension, issuer, and inflation risk. "Bloomberg®" and Bloomberg Indices are service marks of Bloomberg Finance L.P. and its affiliates, including Bloomberg Index Services Limited ("BISL"), the administrator of the index (collectively, "Bloomberg") and have been licensed for use for certain purposes by IR+M. Bloomberg is not affiliated with IR+M, and Bloomberg does not approve, endorse, review, or recommend the products described herein. Bloomberg does not guarantee the timeliness, accurateness, or completeness of any data or information relating to any IR+M product. Moody's Analytics PFaroe® product used by IR+M includes market data and other information sourced from third parties under license. Certain licensors require Moody's Analytics to make disclosures to, or to obtain acknowledgements or agreements from, IR+M and parties receiving the information from IR+M, which is effected by the disclosures and disclaimers available at <https://static.pfaroe.com/DisclosuresAndDisclaimers/index.html>.

## IR+M Funded Status Monitor Assumptions:

Detailed methodology and assumptions for the IR+M Funded Status Monitor can be found at:

<https://www.incomeresearch.com/wp-content/uploads/2023/02/IRM-Funded-Status-Monitor-Whitepaper-2023.pdf>

	End Stage	Average	Young
<b>Target Liability Duration (Years)</b>	7-9	10-12	13-15
<b>Funded Ratio at Inception (i.e., 12/31/2019)</b>	100.0%	89.8%	80.0%
<b>Asset Allocations</b>	<b>End Stage</b>	<b>Average</b>	<b>Young</b>
<b>US All Cap Equity</b>	8%	27%	38%
<b>International Equity</b>	2%	17%	22%
<b>US REITS</b>	0%	2%	5%
<b>Private Equity</b>	0%	4%	5%
<b>Growth Assets Allocation</b>	10%	50%	70%
<b>Long Government Fixed Income</b>	5%	10%	15%
<b>Long Credit Fixed Income</b>	30%	25%	15%
<b>Intermediate Government Fixed Income</b>	5%	5%	0%
<b>Intermediate Credit Fixed Income</b>	50%	10%	0%
<b>Fixed Income Allocation</b>	90%	50%	30%