Milliman analysis: Funded ratio for 2018 ends higher than it began, improving to 89.9%

Discount rates rose by 66 basis points in 2018, countering a disappointing investment loss of 2.77%; the funded status gained $56 billion as of December 31.

Forecast for end of year 2019 and 2020

Zorast Wadia, CFA, FSA, MAAA, EA
Charles Clark, ASA, MAAA, EA

Year in review

Investment losses alongside increasing discount rates characterized corporate pension experience in 2018, a combination that resulted in an overall $56 billion improvement in funded status. The Milliman 100 Pension Funding Index (PFI) discount rate rose 66 basis points to 4.19% at the end of 2018 from 3.53% at the end of 2017. The discount rate at year-end 2017 was the lowest year-end discount rate and fifth lowest monthly discount overall that has been recorded in the 18-year history of the PFI; 2018's discount rate improvement and associated pension liability decreases helped to offset the reductions in plan assets resulting from negative investment returns during the year.

The assets of the Milliman 100 plans under-performed expectations during 2018, posting a loss of 2.77%. By comparison, the 2018 Milliman Pension Funding Study reported that the monthly median expected investment return for 2017 was 0.55% (6.8% annualized). 2018 was an unfavorable year for both the fixed income and equity investment classes.

HIGHLIGHTS

	$ BILLION			
	MV	PBO	FUNDED STATUS	FUNDED PERCENTAGE
NOVEMBER	1,488	1,585	(97)	93.9%
DECEMBER	1,462	1,626	(165)	89.9%
MONTHLY CHANGE	(26)	+41	(68)	-4.0%
YTD CHANGE	(93)	(149)	+56	2.3%

Note: Numbers may not add up precisely due to rounding

The year-end 2018 funded ratio improved to 89.9% from 87.6% at the end of 2017 due to greater liability decreases compared to asset losses. While plan assets declined by $93 billion for the year, plan liabilities fell by $149 billion as a result of rising interest rates.

The projected asset and liability figures presented in this analysis will be adjusted as part of Milliman's annual 2019 Pension Funding Study; the study will also adjust for pension settlement and annuity purchase activities that occurred during

FIGURE 1: MILLIMAN 100 PENSION FUNDING INDEX PENSION SURPLUS/DEFICIT

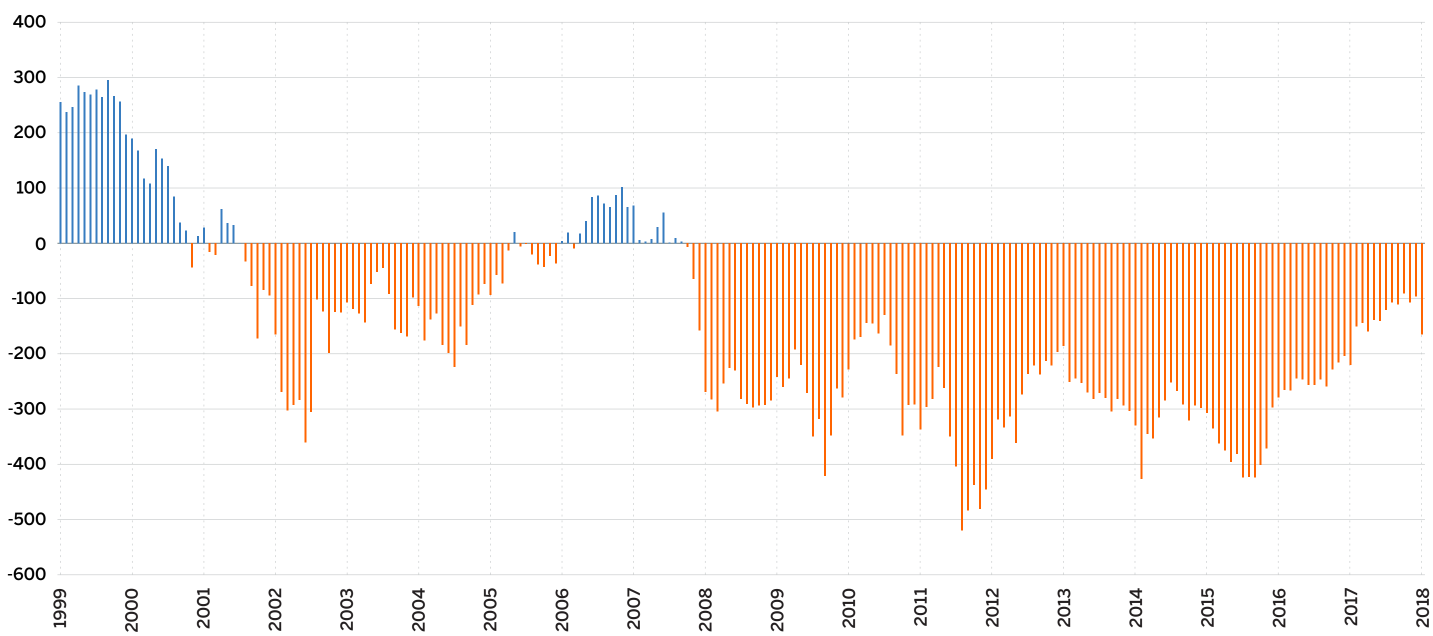
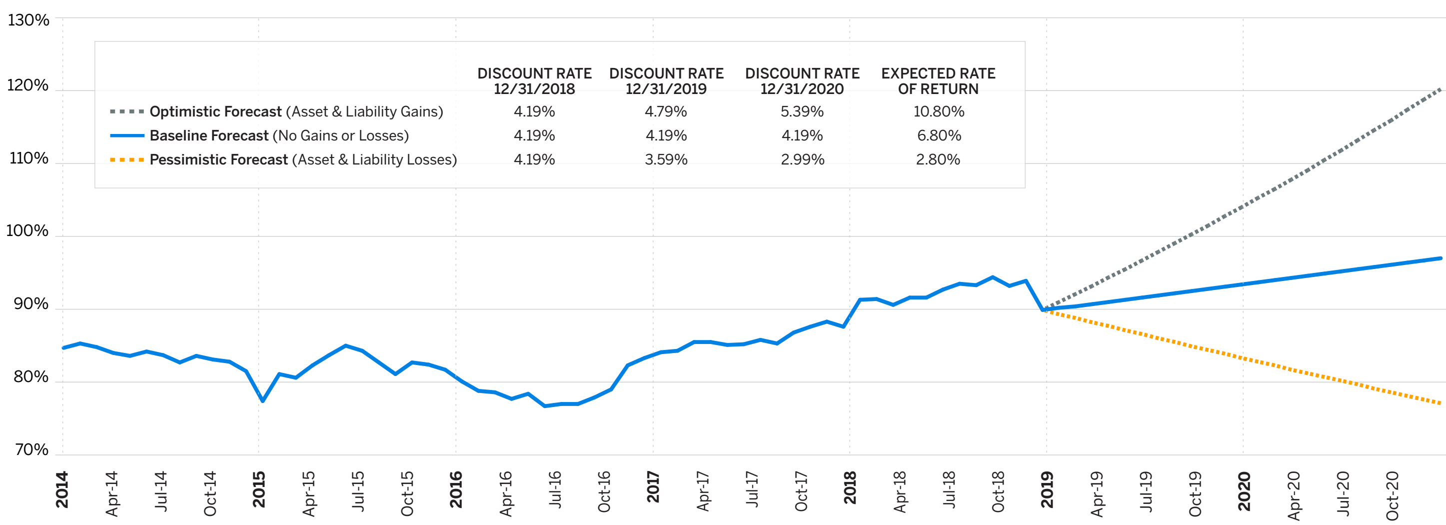


FIGURE 2: MILLIMAN 100 PENSION FUNDING INDEX — PENSION FUNDED RATIO



2018. De-risking transactions generally result in reductions in pension funded status since the assets paid to the participants or assumed by the insurance companies as part of the risk transfer are larger than the corresponding liabilities that are extinguished from the balance sheets. To offset this decrease effect, many companies engaging in de-risking transactions make additional cash contributions to their pension plans to improve the plan's funded status.

For 2018, the cumulative investment loss for the Milliman PFI was 2.77% while the cumulative liability return (i.e., the projected benefit obligation (PBO) decrease) was -4.19%. The $57 billion funded status improvement during 2018 resulted in a year-end funded status deficit of $164 billion.

The funded ratio for the Milliman 100 plans steadily improved during the first three quarters of 2018, reaching a high of 94.4% at the end of September. By that point, the funded status deficit had also fallen below $100 billion. In spite of lower-than-expected asset returns up to that point, the overall progress was hopeful heading into the fourth quarter. But as pension plan balance sheet accounting will tell you, it's not where you start, but rather where you finish that counts the most. The fourth quarter asset returns were abysmal and discount rates did not show any significant improvement from where they were at the end of September. As such, December 2018 ended with a funded ratio just under 90%, in spite of posting funded ratios above 90% for each of the 11 preceding months of the year.

Pension plan accounting information disclosed in the footnotes of the Milliman 100 companies' annual reports for the 2018 fiscal year is expected to be available during the first quarter of 2019 as part of the 2019 Milliman Pension Funding Study. We expect to publish our comprehensive recap during April of 2019 as part of the 2019 Milliman Pension Funding Study.

December review

The funded status decline of $68 billion during December was the largest decline for the year. The deficit ballooned to $165 billion from a deficit of $97 billion at the end of November. The funded status drop for the month of December was due to 22 basis point decline in the corporate bond interest rates that are the benchmarks used to value pension liabilities, as well as investment losses of 1.49%. As of December 31, the funded ratio fell to 89.9% from 93.9% at the end of November, recording the largest percentage decline for the year.

December's $26 billion decrease in market value brings the Milliman 100 PFI asset value to $1.462 trillion at year-end 2018. The Milliman 100 PFI liability value increased to $1.626 trillion at the end of December 2018.

2019-2020 Projections

If the Milliman 100 PFI companies were to achieve the expected 6.8% median asset return (as per the 2018 Pension Funding Study), and if the current discount rate of 4.19% was maintained during years 2019 through 2020, we forecast the funded status of the surveyed plans would increase. This would result in a projected pension deficit of $108 billion (funded ratio of 93.4%) by the end of 2019 and a projected pension deficit of $48 billion (funded ratio of 97.0%) by the end of 2020. For purposes of this forecast, we have assumed 2019 and 2020 aggregate annual contributions of $52 billion.

Under an optimistic forecast with rising interest rates (reaching 4.79% by the end of 2019 and 5.39% by the end of 2020) and asset gains (10.8% annual returns), the funded ratio would climb to 104% by the end of 2019 and 120% by the end of 2020. Under a pessimistic forecast with similar interest rate and asset

MILLIMAN 100 PENSION FUNDING INDEX — DECEMBER 2018 (ALL DOLLAR AMOUNTS IN MILLIONS)

END OF MONTH	YEAR	MARKET VALUE OF ASSETS	PROJECTED BENEFIT OBLIGATION (PBO)	FUNDED STATUS	CHANGE IN FUNDED STATUS	FUNDED RATIO
DECEMBER	2017	1,555,289	1,775,721	(220,432)	N/A	87.6%
JANUARY	2018	1,576,415	1,727,191	(150,776)	69,656	91.3%
FEBRUARY	2018	1,536,732	1,680,622	(143,890)	6,886	91.4%
MARCH	2018	1,529,451	1,688,946	(159,495)	(15,605)	90.6%
APRIL	2018	1,524,230	1,663,183	(138,953)	20,542	91.6%
MAY	2018	1,531,432	1,672,278	(140,846)	(1,893)	91.6%
JUNE	2018	1,523,684	1,644,368	(120,684)	20,162	92.7%
JULY	2018	1,537,759	1,645,155	(107,396)	13,288	93.5%
AUGUST	2018	1,546,237	1,657,345	(111,108)	(3,712)	93.3%
SEPTEMBER	2018	1,538,976	1,629,977	(91,001)	20,107	94.4%
OCTOBER	2018	1,478,981	1,586,232	(107,251)	(16,250)	93.2%
NOVEMBER	2018	1,488,223	1,584,851	(96,628)	10,623	93.9%
DECEMBER	2018	1,461,688	1,626,426	(164,738)	(68,110)	89.9%

PENSION ASSET AND LIABILITY RETURNS

		ASSET RETURNS			LIABILITY RETURNS	
END OF MONTH	YEAR	MONTHLY	YEAR-TO-DATE	DISCOUNT RATE	MONTHLY	YEAR-TO-DATE
DECEMBER	2017	0.99%	11.48%	3.53%	2.10%	10.04%
JANUARY	2018	1.64%	1.64%	3.74%	-2.39%	-2.39%
FEBRUARY	2018	-2.25%	-0.64%	3.96%	-2.34%	-4.67%
MARCH	2018	-0.19%	-0.84%	3.91%	0.86%	-3.85%
APRIL	2018	-0.06%	-0.89%	4.03%	-1.16%	-4.96%
MAY	2018	0.76%	-0.14%	3.99%	0.92%	-4.09%
JUNE	2018	-0.22%	-0.37%	4.12%	-1.30%	-5.34%
JULY	2018	1.21%	0.84%	4.11%	0.42%	-4.94%
AUGUST	2018	0.83%	1.68%	4.05%	1.11%	-3.88%
SEPTEMBER	2018	-0.19%	1.48%	4.18%	-1.28%	-5.10%
OCTOBER	2018	-3.62%	-2.19%	4.40%	-2.30%	-7.28%
NOVEMBER	2018	0.92%	-1.29%	4.41%	0.31%	-6.99%
DECEMBER	2018	-1.49%	-2.77%	4.19%	3.01%	-4.19%

movements (3.59% discount rate at the end of 2019 and 2.99% by the end of 2020 and 2.8% annual returns), the funded ratio would decline to 83% by the end of 2019 and 77% by the end of 2020.

About the Milliman 100 Monthly Pension Funding Index

For the past 18 years, Milliman has conducted an annual study of the 100 largest defined benefit pension plans sponsored by U.S. public companies. The Milliman 100 Pension Funding Index projects the funded status for pension plans included in our study, reflecting the impact of market returns and interest rate changes on pension funded status, utilizing the actual reported asset values, liabilities, and asset allocations of the companies' pension plans.

The results of the Milliman 100 Pension Funding Index were based on the actual pension plan accounting information disclosed in the footnotes to the companies' annual reports for the 2017 fiscal year and for previous fiscal years. This pension plan accounting disclosure information was summarized as part of the Milliman 2018 Pension Funding Study, which was published on April 19, 2018. In addition to providing the financial information on the funded status of U.S. qualified pension plans, the footnotes may also include figures for the companies' nonqualified and foreign plans, both of which are often unfunded or subject to different funding standards than those for U.S. qualified pension plans. They do not represent the funded status of the companies' U.S. qualified pension plans under ERISA.

CONTACT

Zorast Wadia
zorast.wadia@milliman.com