Milliman analysis: 2017 ends with stellar investment gains modestly offsetting increasing pension liabilities

2017 Milliman 100 PFI funded ratio settles at 84.1% with year's lowest discount rate

Forecast for end of year 2018 and 2019

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Year in review

During 2017, corporate pensions experienced strong investment returns paired with decreasing discount rates. While the 2017 Milliman PFI funded ratio increased by eighty basis points, there is only muted appreciation for this positive move because it was accompanied by a $2 billion deterioration in funded status. The Milliman 100 discount rate fell 46 basis points to 3.53% at the end of 2017 from 3.99% at the end of 2016. This marks the seventh time in the past 10 years the annual discount rate has declined. At 3.53%, the discount rate at year-end 2017 was the lowest year-end discount rate and fifth lowest monthly discount rate overall that has been recorded in the 17-year history of the Milliman 100 Pension Funding Index (PFI).

While asset returns during 2015 and 2016 were below expectations, assets outperformed expectations during 2017 with a gain of 11.47%. By comparison, the 2017 Milliman Pension Funding Study reported that the monthly median expected investment return during 2016 was 0.57% (7.0% annualized). The year 2017 was favorable for both fixed income and equity investment classes. The Milliman Pension Funding Study has observed investment returns above expectations in six of the last 10 years.

HIGHLIGHTS

	$ BILLION			
	MV	PBO	FUNDED STATUS	FUNDED PERCENTAGE
NOV 2017	1,483	1,742	(259)	85.1%
DEC 2017	1,492	1,773	(281)	84.1%
MONTHLY CHANGE	+9	+31	(22)	-1.0%
YTD CHANGE	+95	+97	(2)	0.8%

Note: Numbers may not add up precisely due to rounding

Despite the overall $2 billion funded status decrease, the year-end 2017 funded ratio improved slightly to 84.1% from 83.3% at the end of 2016 due to the higher plan asset and liability amounts. While plan assets were up $95 billion for the year, plan liabilities were up $97 billion, the result of declining interest rates.

The projected asset and liability figures presented in this analysis will be trued up with actual Securities and Exchange Commission (SEC) filing data as part of Milliman's annual 2018 Pension Funding Study (due in April); the study will also adjust for pension settlement and annuity purchase activities that occurred during 2017. De-risking transactions generally result in reductions in pension funded status because the assets paid

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

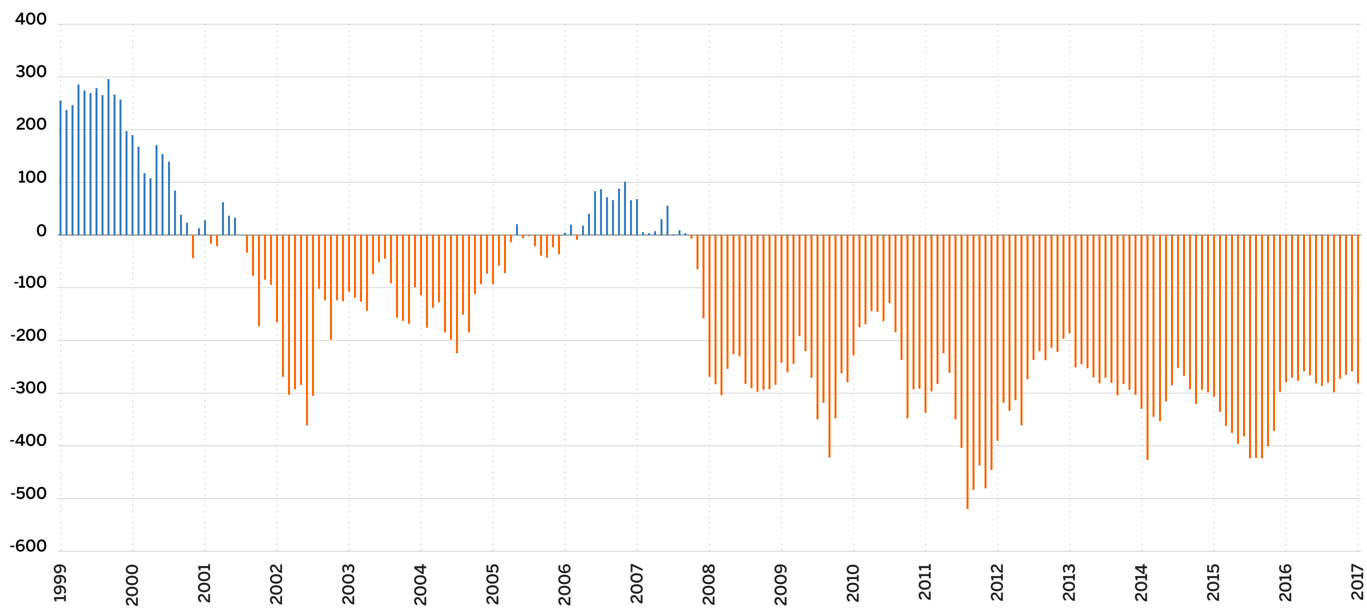
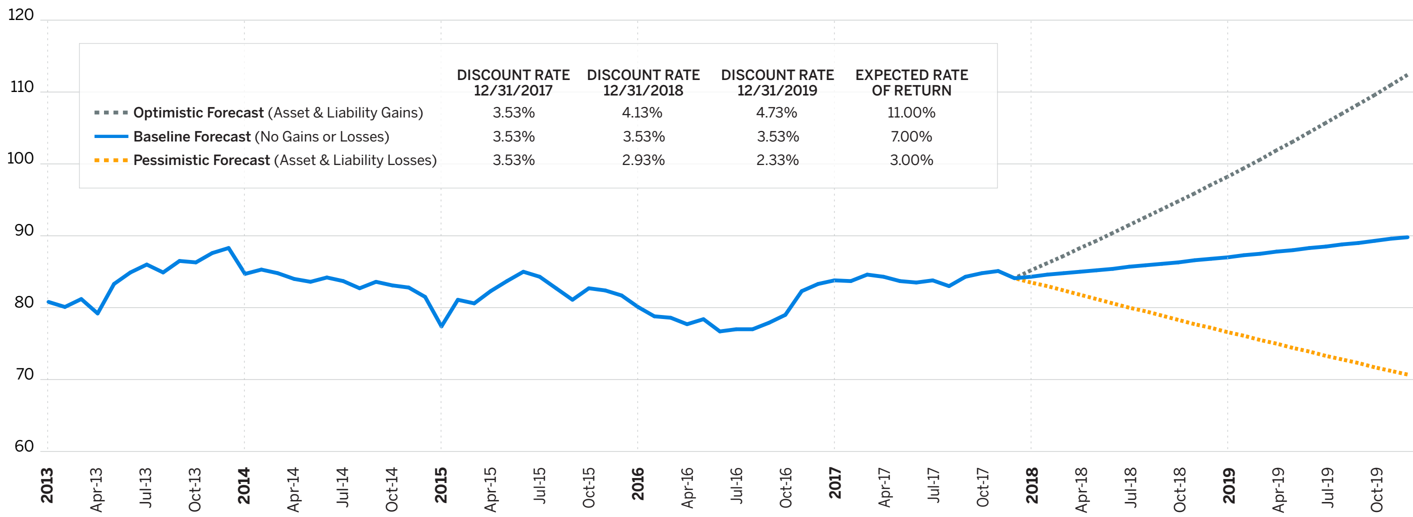


FIGURE 2: MILLIMAN 100 PENSION FUNDING INDEX — PENSION FUNDED RATIO



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.

During 2017, the cumulative investment return was 11.47% while the cumulative liability return (i.e., the projected benefit obligation [PBO] increase) was 10.04%. The $2 billion funded status decrease during 2017 resulted in a year-end funded status deficit of $281 billion. Pension expense for 2018 is estimated to decrease by $2.6 billion primarily due to the robust investment experience of 2017.

A look back at 2017 shows the year began promisingly, with investment returns for the Milliman 100 plans at 2.94% in the first quarter while discount rates exhibited reversionary behavior. The resulting funded ratio was 84.6% as of March 31, 2017. Investment gains continued during the second quarter of 2017, but funded status declined throughout as discount rates began to decline. The funded ratio fell to 83.5% as of June 30. The third quarter of 2017 resembled the first, resulting in a further funding ratio improvement to 84.3% by September 30. Discount rates remained flat for the next two months of the year, leading to hopes of a fourth quarter rally. However, with December's precipitous discount rate drop, the funded ratio ended the year at 84.1%, just slightly ahead of where it started the year at 83.3%. While investment returns were superb, the low discount rate environment exerted itself and limited the full potential of 2017 funding improvements.

Pension plan accounting information disclosed in the footnotes of the Milliman 100 companies' annual reports for the 2017 fiscal year is expected to be available during the first quarter of 2018 as part of the 2018 Milliman Pension Funding Study.

December review

The funded status experienced its largest decline for the year during December, dropping $22 billion. The deficit ballooned to $281 billion from a deficit of $259 billion at the end of November. December's funded status decrease resulted from a 14 basis point decline in the corporate bond interest rates that are the benchmarks used to value pension liabilities. As of December 31, the funded ratio fell to 84.1% from 85.1% at the end of November. We note that the 14 basis point decline was the largest one-month decline in the last 12 months, and the steepest since a 23 basis point decline in June 2016.

December's $9 billion increase in market value brings the Milliman 100 PFI asset value to $1.492 trillion at year-end 2017. The Milliman 100 PFI liability value increased to $1.773 trillion at the end of December.

2018-2019 Projections

If the Milliman 100 PFI companies were to achieve the expected 7.0% median asset return (as per the 2017 pension funding study), and if the current discount rate of 3.53% were maintained during years 2018 through 2019, we forecast the funded status of the surveyed plans would increase. This would result in a projected pension deficit of $234 billion (funded ratio of 86.8%) by the end of 2018 and a projected pension deficit of $180 billion (funded ratio of 89.8%) by the end of 2019. For purposes of this forecast, we have assumed 2018 aggregate contributions of $39 billion and 2019 aggregate contributions of $43 billion.

Under an optimistic forecast with rising interest rates (reaching 4.13% by the end of 2018 and 4.73% by the end of 2019) and asset gains (11.0% annual returns), the funded ratio would climb to 97% by the end of 2018 and 112% by the end of 2019.

MILLIMAN 100 PENSION FUNDING INDEX — DECEMBER 2017 (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	2016	1,396,661	1,676,182	(279,521)	N/A	83.3%
JANUARY	2017	1,403,106	1,673,506	(270,400)	9,121	83.8%
FEBRUARY	2017	1,421,420	1,697,625	(276,205)	(5,805)	83.7%
MARCH	2017	1,422,044	1,680,752	(258,708)	17,497	84.6%
APRIL	2017	1,431,650	1,697,629	(265,979)	(7,271)	84.3%
MAY	2017	1,442,833	1,723,815	(280,982)	(15,003)	83.7%
JUNE	2017	1,442,198	1,727,929	(285,731)	(4,749)	83.5%
JULY	2017	1,451,680	1,732,259	(280,579)	5,152	83.8%
AUGUST	2017	1,458,542	1,756,836	(298,294)	(17,715)	83.0%
SEPTEMBER	2017	1,464,216	1,737,142	(272,926)	25,368	84.3%
OCTOBER	2017	1,477,229	1,742,272	(265,043)	7,883	84.8%
NOVEMBER	2017	1,482,938	1,741,780	(258,842)	6,201	85.1%
DECEMBER	2017	1,491,505	1,772,814	(281,309)	(22,467)	84.1%

PENSION ASSET AND LIABILITY RETURNS

		ASSET RETURNS			LIABILITY RETURNS	
END OF MONTH	YEAR	MONTHLY	YEAR-TO-DATE	DISCOUNT RATE	MONTHLY	YEAR-TO-DATE
DECEMBER	2016	1.22%	6.21%	3.99%	0.16%	5.88%
JANUARY	2017	0.83%	0.83%	4.00%	0.19%	0.19%
FEBRUARY	2017	1.68%	2.52%	3.88%	1.79%	1.98%
MARCH	2017	0.41%	2.94%	3.96%	-0.65%	1.32%
APRIL	2017	1.04%	4.01%	3.88%	1.35%	2.68%
MAY	2017	1.14%	5.20%	3.76%	1.88%	4.61%
JUNE	2017	0.31%	5.53%	3.74%	0.57%	5.21%
JULY	2017	1.02%	6.60%	3.71%	0.58%	5.82%
AUGUST	2017	0.83%	7.49%	3.60%	1.74%	7.66%
SEPTEMBER	2017	0.74%	8.29%	3.69%	-0.80%	6.80%
OCTOBER	2017	1.24%	9.63%	3.66%	0.62%	7.46%
NOVEMBER	2017	0.74%	10.44%	3.67%	0.29%	7.78%
DECEMBER	2017	0.93%	11.47%	3.53%	2.10%	10.04%

Under a pessimistic forecast with similar interest rate and asset movements (2.93% discount rate at the end of 2018 and 2.33% by the end of 2019 and 3.0% annual returns), the funded ratio would decline to 77% by the end of 2018 and 71% by the end of 2019.

About the Milliman 100 Monthly Pension Funding Index

For the past 17 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 2016 fiscal year and for previous fiscal years. This pension plan accounting disclosure information was summarized as part of the Milliman 2017 Pension Funding Study, which was published on April 6, 2017. 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.

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