U.S. Single Employer Pension Plan Contribution Indices, 2009–2014

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Executive Summary

In June 2016, the Society of Actuaries published a study of *contribution indices*—metrics for measuring pension plan contribution adequacy toward paying down unfunded liabilities in single employer (SE) pension plans in the United States.[1] Using the Department of Labor Form 5500 database as of Oct. 28, 2016, this study expands on the prior study and updates results through 2014 with preliminary results for 2015. Study highlights include:

- Using smoothed assets as allowed and the smoothed bond rates required by current law to discount the liability, the 2014 total funding target liability of $1.9 trillion was 98% funded, with an unfunded liability of $30 billion.[2] Based on unsmoothed high-quality corporate bond rates and the market value of assets, the estimated liability of $2.4 trillion was 91% funded with an unfunded liability of $218 billion.
- Weighted by plan liabilities, more than 99% of the SE system contributed at least the minimum amount required by law for both 2013 and 2014. Preliminary data for 2015 indicate results similar to 2014.
    - Based on smoothed rates for 2014, about 8% of the system contributed at least enough to maintain their unfunded liability and 3% fell short of that benchmark, while 89% had no unfunded liability. Corresponding 2013 percentages were 18%, 4% and 78%, respectively. Fewer plans met the benchmark in 2014 than 2013 because fewer plans had an unfunded liability in 2014. The portion of the system that failed to maintain their unfunded liabilities remained essentially flat.
    - For 2014, 7% of the system contributed at least enough to close their funding gaps within 7 years, while 4% failed to meet that benchmark. Respective percentages for 2013 were 16% and 6%.
- Using the lower, unsmoothed rates, more plans had an unfunded liability and fewer plans' contributions were sufficient to maintain their unfunded liability.
    - For 2014, 28% of the system had no unfunded liability, up from 16% for 2013.
    - About 44% of system's contributions were insufficient to maintain their unfunded liabilities for 2014, down from 53% for 2013. And 55% of the system contributed less than needed to close their funding gap within 7 years, down from 73% for 2013.

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[1] Society of Actuaries, "Contribution Indices for U.S. Single Employer Pension Plans," June 2016, http://www.soa.org/Research/Research-Projects/Pension/2016-contrib-indices.aspx.

[2] Funding requirements for single employer pension plans are defined by Internal Revenue Code §430, as amended by the Moving Ahead for Progress in the 21st Century Act, the Highway and Transportation Funding Act of 2014 and the Bipartisan Budget Act of 2015. In the current economic environment, smoothed rates are higher than unsmoothed rates.

Aggregate Liabilities and Funded Status

Under current funding rules, the SE system's total Funding Target liability for the 2014 plan year of $1.9 trillion is 98% funded in aggregate, with an unfunded liability of $30 billion, as Figure 1 below shows. Current funding rules for SE pension plans allow significant smoothing of corporate bond rates to discount liabilities, with the smoothing effect becoming more restricted starting in 2021. Current law also allows smoothing of asset fluctuations for the actuarial value of assets.[3]

Figure 2 below demonstrates that unsmoothed high-quality corporate bond rates have been considerably lower in recent years than the smoothed rates used under current law. Using unsmoothed rates, the authors estimate the total liability for 2014 to be $2.4 trillion. Against the market value of assets, the estimated liability is 91% funded in aggregate, with an unfunded liability of $218 billion (Figure 1).

Figure 1
AGGREGATE LIABILITIES AND FUNDED STATUS

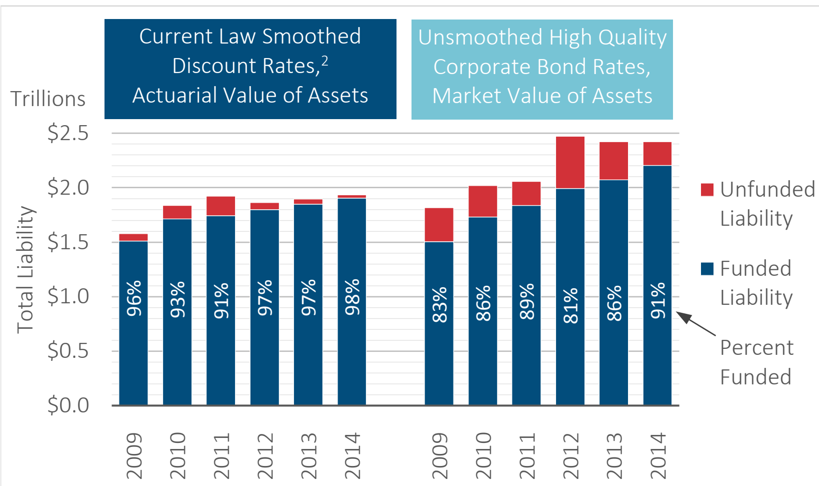
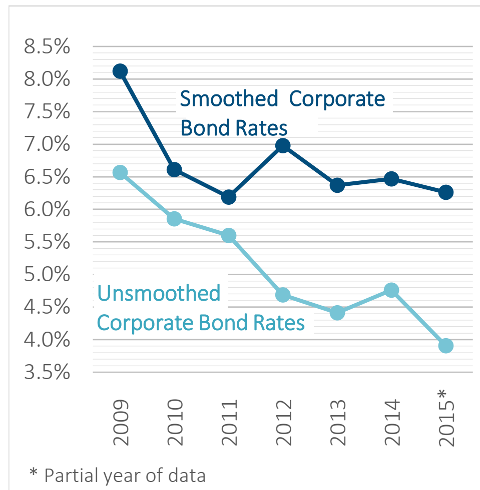


Figure 2
MEDIAN DISCOUNT RATES



Many factors influence pension plans' funded status, including the discount rates used to compute liabilities, investment returns on assets and other economic experience, demographic experience and contributions. Other sources have explored the general impact of many of these factors. This study isolates the impact of contributions on changes in funded status among SE plans. More specifically, it explores whether contributions—absent other influences—reduced unfunded liabilities in any given year.

Aggregate Contributions and Benchmarks

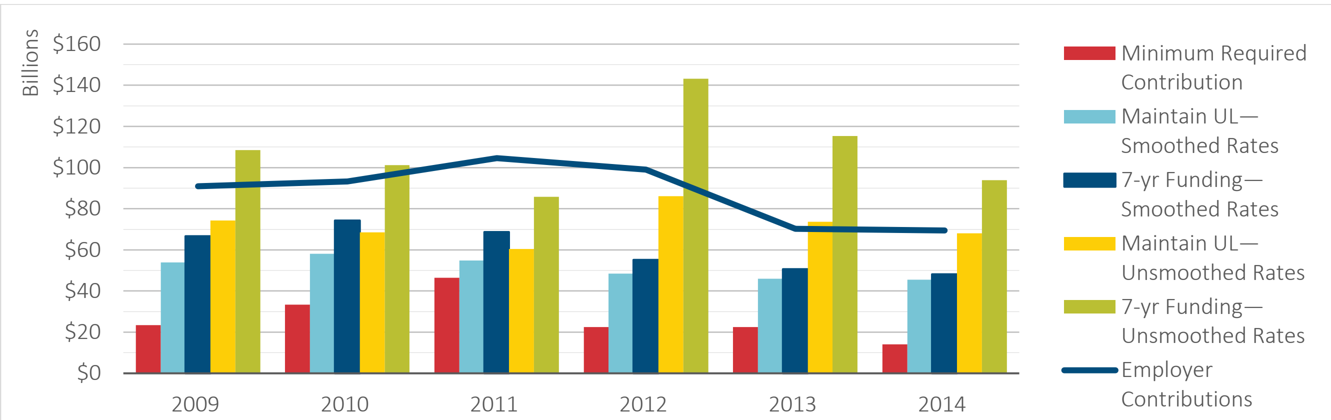
In part because of general reductions in unfunded liabilities during the period studied, total contributions for 2014 were less than aggregate contributions for 2009. Figure 3 compares aggregate employer contributions in the SE system to several benchmarks over 2009–2014, as described on the following page.

[3] Funding requirements for single employer pension plans are defined by Internal Revenue Code §430, as amended by the Moving Ahead for Progress in the 21st Century Act, the Highway and Transportation Funding Act of 2014 and the Bipartisan Budget Act of 2015.

- Minimum Required Contribution–the least amount that must be contributed under current law after reflecting plan sponsors' choices for using carryover and prefunding balances.[4]
- Two benchmarks based on the market value of assets and Funding Target under current law.[4] These benchmarks assume that all actuarial assumptions are met exactly during the year.
  - Maintain Unfunded Liability–the amount of contribution required to hold the unfunded liability flat.
  - 7-year Funding Pace–the amount of contribution required to close the plan's funding gap in 7 years. Funding over 7 years is the conceptual essence of current SE pension funding rules.
- The same two benchmarks computed based on the market value of assets and liabilities computed with *unsmoothed* high-quality corporate bond rates. These benchmarks also assume that all actuarial assumptions are met exactly during the year.

Figure 3

AGGREGATE CONTRIBUTIONS AND BENCHMARKS



For each year, aggregate employer contributions significantly exceeded aggregate all three benchmarks computed with the smoothed rates under current law: Minimum Required Contribution, Maintain Unfunded Liability, and 7-year Funding Pace.[5] In other words, total contributions reduced total unfunded liabilities by more than the amount required to fill the funding gap within 7 years.

More specifically, plan sponsors contributed a total of $69 billion for 2014, compared to Minimum Required Contributions of $14 billion, and to $46 billion and $48 billion in order to maintain the unfunded liability and fund over 7 years, respectively. These benchmarks are computed with the smoothed interest rates used by current law.

Now consider the benchmarks computed with unsmoothed rates. In this economic environment, unsmoothed rates are lower than smoothed rates (see Figure 2 above), so liabilities and unfunded liabilities are greater. In aggregate, contributions made significantly less progress toward paying down unfunded liabilities. The 2014

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[4] Internal Revenue Code §430 and accompanying regulations define funding rules for single employer pension plans.
[5] Note that the aggregate Minimum Required Contribution benchmark is significantly less than the aggregate benchmark for maintaining the unfunded liability because regulations permit reducing the Minimum Required Contribution to take credit for previously having contributed more than the minimum amount required. Internal Revenue Code §430 and accompanying regulations define funding rules for single employer pension plans.

benchmark for maintaining the unfunded liability using unsmoothed discount rates was $68 billion. Contributions of $69 billion were barely enough to maintain the unfunded liability and not enough to make any real progress toward closing the gap. The benchmark to close the funding gap in 7 years was $94 billion.

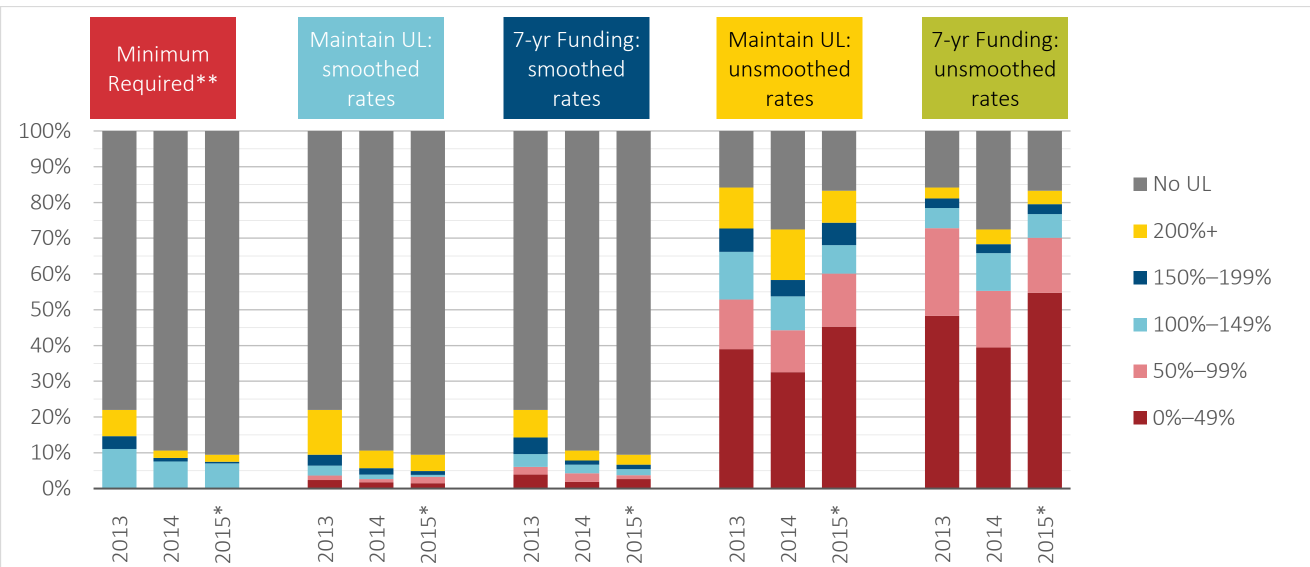
Contribution Indices

However, the aggregate view does not necessarily reflect individual plan situations. The contribution index (CI) provides a means for examining and comparing individual plans. A plan's CI is the ratio of its contribution to a benchmark that has been computed using only the plan's data. A CI of more than 1.0 means that the contribution exceeded the benchmark, while a CI of less than 1.0 means the contribution fell short of the benchmark. When a plan does not have an unfunded liability (UL in Figure 4), it has neither a benchmark nor a CI.

Figure 4 below illustrates the frequency, weighted by plan liabilities, that the SE system's CIs fell within certain ranges. The graph presents the same benchmarks as shown in Figure 3 above.

Figure 4

CONTRIBUTION INDICES BY RANGES



* Data reflect a partial year of reporting.
** After offsetting credit and prefunding balances.

In Figure 4, gray represents plans that have no unfunded liability. Many more plans have an unfunded liability using the lower, unsmoothed discount rates than when using the higher, smoothed rates (see Figure 2). Consequently, gray bars are much bigger for contribution indices that use smoothed rates than for those based on unsmoothed rates.

Consider the CIs based on smoothed rates. In all years studied, nearly all plans contributed at least their Minimum Required Contribution. Less than one-half of 1% of the system failed to contribute at least the Minimum Required Contribution.

Using smoothed rates for 2014, 89% of the system had no unfunded liability—up from 78% for 2013. About 8% of the system's contributions exceeded the amount necessary to maintain unfunded liabilities (yellow, dark blue and light blue bars), down from 18% for 2013. The remaining 3% of the system fell short of that benchmark (pink and red bars) for 2014, a decrease from 4% for 2013. Preliminary results for 2015 look similar to 2014.

Turning to the 7-year funding pace CI based on smoothed rates, roughly 7% of the system met or exceeded the benchmark, down from 16% for 2013. And 4% of the system failed to meet the benchmark in 2014, down from about 6% in 2013. Again, preliminary results for 2015 look similar to 2014.

The downward shift from 2013 to 2014 in percentages of plans meeting or exceeding the benchmarks is primarily a reflection of the increased percentage of plans that do not have an unfunded liability in 2014. Many of the plans that met or exceeded their benchmarks in 2013 no longer had an unfunded liability for 2014.

A plan can contribute its Minimum Required Contribution or more, yet fail to meet the benchmark for maintaining its unfunded liability and/or 7-year funding pace, primarily for three reasons:

- Current law allows reducing contribution requirements for carryover and prefunding balances that recognize past contributions exceeded the minimum amount required.
- As previously noted, current law allows smoothing in the actuarial value of assets, whereas the benchmarks use the unsmoothed market value of assets.
- In addition, current law also uses a layered approach to amortization, which can result in an amortization payment that is greater than or less than a strict amortization of the current unfunded liability.

Consider now the CIs based on unsmoothed rates. Recall that for 2014, 89% of the system had no unfunded liability using smoothed rates. Using unsmoothed rates, the percentage falls to 28%, which is up from 16% in 2013. Percentages based on partial reporting for 2015 look closer to 2013 than to 2014.

Using unsmoothed rates, 28% of the system exceeded the benchmark for maintaining their unfunded liability for 2014, while 44% fell short. Corresponding percentages for 2013 were 31% and 53%, respectively. Early indications for 2015 show 23% of the system exceeding the benchmark and 60% falling short.

For 2014, 17% of the system exceeded the 7-year funding pace benchmark while 55% of fell short. For 2013, 11% exceeded the benchmark while 73% fell short. Preliminary 2015 results show 13% of the system exceeding the benchmark and about 70% falling short.

Data and Methods

Analysis is based on publicly available data from the Department of Labor Form 5500 as of Oct. 28, 2016 which reflects completed reporting for plan years through 2014 and a partial year of reporting for 2015. Other than adjustments for obvious errors, data were used as reported. The use of the reported values is not intended to provide commentary on the appropriateness of the underlying actuarial assumptions and methods for funding these plans or any other purpose.

This study includes frozen plans. Note for comparison purposes that a similar study published by the SOA in 2016 excluded frozen plans. Therefore, in this study, aggregate values for previously reported years are slightly higher than the prior study’s results, although the story that the figures tell remains the same.

Liabilities based on unsmoothed corporate bond rates were estimated by adjusting plans' reported Funding Target liabilities and normal cost to approximate liabilities computed on the same valuation date using the High Quality Market Corporate Bond Yield Curve published by Internal Revenue Service for election in §430(h)((D)(ii) to use the full yield curve. These estimation techniques were developed for the SE system as a whole and may not be appropriate for any given plan. Modifications to the assumptions and methods used may result in different numerical outcomes, but the overall conclusions are likely to be similar. Different assumptions and methods may be more appropriate for analysis of a specific plan or small set of plans.

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