

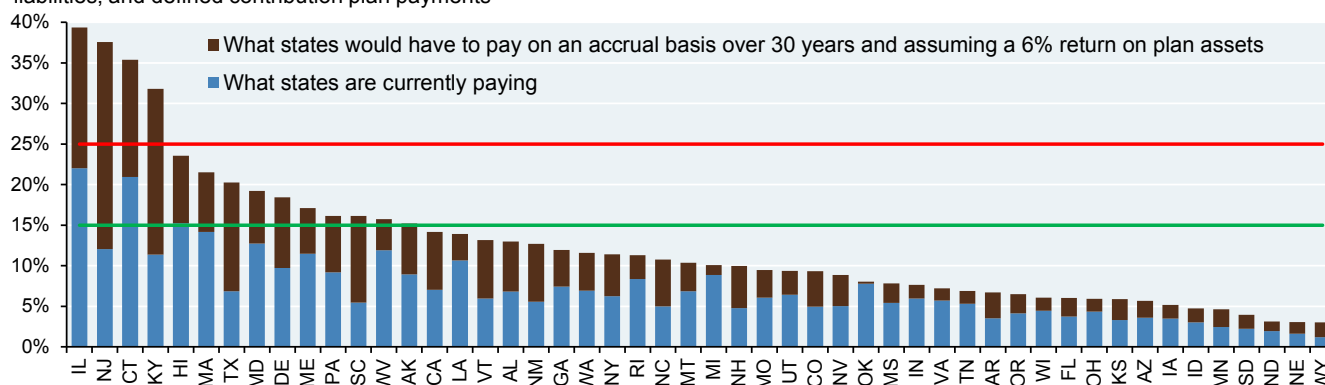
The ARC and the Covenants, 2.0: an update on the long-term credit risk of US states

As managers of ~\$70 billion in municipal bonds across our asset management business (Q1 2016), we're very focused on the total indebtedness of US states. **New GASB rules have now standardized the reporting of municipal liabilities, so we're taking this opportunity to update our assessment of how much it will cost states to service them.** Total liabilities include bonds and obligations related to underfunded pensions and retiree healthcare benefits (referred to as "OPEB", an acronym for Other Post-Employment Retirement Benefits). Pensions and OPEB are a big part of the debt picture: while US states have ~\$500 billion of bonds supported by state tax collections and general revenues, they have another \$1.0-\$1.5 trillion of unfunded pension and OPEB liabilities, depending on rates used to discount them.

After analyzing 330 single-employer and multi-employer pension and OPEB plans, we created a single measure for each state. The chart shows the ratio of what states **currently** spend on bonds, pensions and OPEB as a percentage of their revenues (blue bars), and what they **would** be spending assuming a 6% return on plan assets¹, amortizing any unfunded pension and OPEB liabilities over 30 years (total bars). For multi-employer plans, we only include the state's share of pension and OPEB liabilities since local entities are responsible for the rest.

The state of the states: how much states spend on debt, pensions and retiree healthcare

% of state revenue collections required to pay the sum of interest on bonds, the state's share of unfunded pension and retiree healthcare liabilities, and defined contribution plan payments



Source: J.P. Morgan Asset Management, state/pension plan Comprehensive Annual Financial Reports, Census, Loop Capital Markets. FY 2015.

One obvious conclusion is that the ratios vary a lot. Consistent with a country founded on States' Rights, there are large differences in pension and retiree healthcare systems across states. Many articles over-generalize the issue and neglect to mention that **many states do not need a disproportionate share of revenues to service their debts**; these states are at or below the green line. When a state is at the red line, however, they've got some serious challenges since the math becomes very difficult.

Before looking more closely at a few states with the highest ratios, I want to be clear about something. **"The ARC and the Covenants"** refers to the means by which states fulfill their obligations to public employees (through an "Annual Required Contribution", or ARC). Public sector workers² form a critical part of American civil society. They rescue and protect us when we're in danger; they make our lives safer, cleaner and more efficient; they educate our children; they enforce the rule of law and provide remedies when laws are broken; they ensure access to clean air, water and food; and they heal us when we're sick. The legal, medical, environmental and educational problems sometimes found in other countries are a reminder of what life might be like without them. They earned the benefits they accrued and which were granted by state legislatures, and have the right to expect them to be paid.

¹ See SM Exhibit 5 for 30-year rolling returns on stock-bond portfolios since the 1920s. A 6% nominal (4% real) return over 30 years would be close to the lowest return on record.

² In 2015, state and local employment was 13.5% of total non-farm employees, the lowest level since 1970.

A few states with the highest ratios face considerable challenges

Four states above the red line represent ~20% of municipal general obligation bonds outstanding. We now look more closely at these four states, and at two others close to the red line. “**IPOD**” is shorthand for the ratio in the chart (I = interest on bonds, P = pension payments, O = OPEB payments, and D = defined contribution payments³, all divided by state revenues). The current IPOD ratio shows what states now pay; the “full accrual” IPOD ratio is the percentage of state revenues required to service all future obligations accrued to date. To meet the full accrual IPOD ratio, states would need to raise substantial funds from **increased tax revenues, cuts in non-retirement spending or increases in public sector worker contributions**⁴. The table shows the mutually exclusive amount of each required for states to pay their projected obligations in full.

Mutually exclusive means of raising incremental revenues required to meet full accrual payments to retirees

IPOD = % of state revenues req. to pay interest on bonds, state share of unfunded pension and OPEB liabilities, and defined contribution pmts

State	Current IPOD ratio	Full accrual IPOD ratio	Increase in revenues (taxes)	Cuts in direct spending	Increase in worker contributions
IL	22%	→ 39%	17%	or 16%	or 400%
NJ	12%	→ 38%	26%	or 24%	or 471%
CT	21%	→ 35%	14%	or 14%	or 699%
KY	11%	→ 32%	20%	or 13%	or 435%
HI	15%	→ 24%	8%	or 6%	or 327%
MA	14%	→ 22%	7%	or 6%	or 164%

Source: JPMAM, state/pension plan CAFRs, Census, Loop, FY 2015.

Understanding the table

- To meet future obligations accrued to date, states would need to increase their IPOD ratios from current levels to full accrual levels
- Ways to raise additional funds: raise taxes, cut spending or increase worker contributions
- For example, New Jersey would need to increase state revenue collections by 26%, OR cut non-retirement spending by 24%, OR increase worker contributions by 470%
- Each of these approaches would need to be kept in place for 30 years, and used solely for purposes of pension and OPEB payments

Tax increases might be politically difficult, particularly since some states with the highest IPOD ratios already have effective tax rates⁵ that rank among the highest in the US (IL, CT, KY, HI). Without changes to taxes, spending or worker contributions, states could rely instead on **elevated investment returns** on pension and OPEB assets to meet future obligations. However, as shown in the last column of the next table, this would require annual returns for 30 years well above what history suggests is achievable.

State	Effective state tax rate on middle quintile earners	Rank of effective state tax rate on middle quintile (1=highest, 50=lowest)	Required annual return on plan assets (in the absence of higher taxes, spending cuts and increased worker contributions)
IL	10.8%	4	13.8%
NJ	9.1%	30	Not mathematically solvable
CT	10.7%	7	13.6%
KY	10.8%	6	16.8%
HI	11.4%	3	13.2%
MA	9.3%	26	10.6%

Source: JPMAM, state/pension plan CAFRs, Census, Loop, ITEP, FY 2015.

³ While we included **defined contribution** plans in our IPOD ratio, they do not play a large role in state benefit systems. The average state spends just 0.31% of total revenues on DC plans.

⁴ Some believe that a 4th option could be **pension obligation bonds**. States issue debt, invest the proceeds and attempt to earn a positive spread over their cost of debt (i.e., financial leverage). However, even if the states above issued POBs equal to one third of their general obligation bonds outstanding, and even if they earned a consistent 3% spread over their cost of debt, it would only represent ~5% of their incremental funding needs.

⁵ **Effective tax rates** shown include state and local income taxes, property taxes and sales taxes, and incorporate the benefit of the state/local tax deductibility on Federal tax returns.

Is there anything states have done to reduce accrued pension or OPEB obligations?

Over the last few years, some states changed cost of living adjustments (COLA) on pensions, and some changed terms and conditions on OPEB plans by adjusting premiums, deductibles and co-payments. In the next table, we made some COLA⁶ and OPEB⁷ adjustments, but the impact was generally modest, with IPOD ratios falling by 1%-4%. The top 4 states remained above the red line even after the adjustments. In the table, we show the revised IPOD ratio, and split the state's remaining incremental revenue burden equally across tax increases, spending cuts and worker contributions. Whether this kind of compromise is feasible will only be revealed with the passage of time.

Impact on IPOD ratio from COLA reductions and OPEB changes							
IPOD = % of state revenues req. to pay interest on bonds, state share of unfunded pension and OPEB liabilities, and defined contribution pmts							
State	Full accrual IPOD ratio	Revised Full accrual IPOD ratio	Increase in revenues (taxes)	Cuts in direct spending	Increase in worker contributions		
IL	39%	→ 36%	4.7%	and 4.4%	and 109%		
NJ	38%	→ 35%	7.6%	and 7.1%	and 140%		
CT	35%	→ 33%	4.1%	and 3.9%	and 199%		
KY	32%	→ 31%	6.5%	and 4.3%	and 139%		
HI	24%	→ 19%	1.4%	and 1.1%	and 55%		
MA	22%	→ 21%	2.2%	and 1.8%	and 49%		

Source: JPMAM, state/pension plan CAFRs, Census, Loop. FY 2015.

Understanding the table

- Our assumed COLA adjustments and OPEB changes do not reduce IPOD ratios by very much; IPOD ratios for the top 4 states remain above our red line of 25%
- As a result, states would still need incremental funds. In the table, we divide the remaining burden **equally** across tax increases, spending cuts and increased worker contributions (i.e., a political compromise)
- These steps would have to be kept in place for 30 years, with proceeds used only for pension and OPEB payments

Our analysis assumes that states modify OPEB plans on the margin, changing some terms and conditions. However, some pension consultants have discussed the potential for states to utilize the **Affordable Care Act** as a way of providing retiree healthcare to state employees. This could reduce OPEB costs by more than what is assumed above; see SM Exhibit 7 for more details.

⁶ Our assumption: for **pension plans** with a cost of living adjustment over 2%, reduce it by 1%. This would not be unusual; 17 states made COLA adjustments between 2010 and 2013. While changes to pension accrual formulas, retirement ages and other factors can reduce the growth rate of *future* obligations, when they are only applied to new employees, they do not impact accrued liabilities to existing and retired employees.

⁷ Our assumption: for **OPEB plans**, cap liabilities per worker at the 75th percentile across states. Background: a handful of states offer substantially higher retiree healthcare benefits than others, as shown in Exhibit 3 of the Supplemental Materials (SM). As an example, California, Connecticut and New York OPEB liabilities per worker are 2x-3x levels in Maryland, North Carolina, Florida and Vermont. The cap assumes that states with the highest OPEB benefits per worker reduce them, but to a level that's still top quartile. SM Exhibit 8 shows examples of OPEB changes enacted by states from 2010 to 2013.

Conclusions, caveats and additional information

- *Special funding.* Many states make payments on behalf of local entities in multi-employer plans (particularly Teacher plans), referred to as “special funding”. These situations can be temporary or permanent, but **since states disclose them as if they are permanent, our IPOD ratios for the states include the cost of assisting local entities:**
 - Of 22 states with special funding, 10 also disclosed their liabilities *without* it
 - In 6 of the 10, special funding occurred on small plans and did not materially affect IPOD ratios
 - However, there were 4 exceptions: if states and local entities paid their respective shares, IPOD ratios for **Kentucky** would decline from 32% to 18%; **Maryland** would decline from 19% to 12%; **Texas** would decline from 20% to 16%; and **West Virginia** would decline from 16% to 8%. See SM Exhibit 11 for special funding situations by state.
- *Rules of engagement.* Even in severely underfunded plans, assets are unlikely to be fully exhausted for many years, if not decades (see SM Exhibit 12). But what would happen one day if pension assets ran out? The legal issues are complex, often involving language in state constitutions protecting both state employees and bondholders, and without established rules or precedent. Given potential risks for bondholders, we’re watching pension dynamics closely in select states. The municipal bond market is currently applying a modest spread premium of 0.5% to 1.5% to states with the highest IPOD ratios, as shown in SM Exhibit 9.
- *What about cities, towns and counties?* Our analysis only covers US states; an analysis of US cities would be equally complex. While some states are well-positioned in our state analysis (e.g., New York), that state’s cities might not be (e.g., New York City, which Pew Research cites as having the highest unfunded OPEB liability per capita in the US).
- *What about lower discount rates and shorter remediation terms?* We explore the impact of lower discount rates and shorter amortization periods in SM Exhibit 6. The impact was not very large, except for states that already have high IPOD ratios.

Michael Cembalest
J.P. Morgan Asset Management

[Click here to access Supplemental Materials](#) on pension funding ratios, discount rates, OPEB liabilities, long-term market returns, IPOD scenario analysis, special funding situations, a list of plans included in the analysis and some definitions and assumptions.

Supplemental Materials (SM) index

- Exhibit 1: Pension plan funding ratios by state
- Exhibit 2: Weighted average pension and OPEB discount rates by state
- Exhibit 3: OPEB liability per worker by state
- Exhibit 4: Unfunded OPEB obligations relative to unfunded pension obligations
- Exhibit 5: Long-term history on stock and bond market returns vs. pension discount rates
- Exhibit 6: IPOD ratio scenario using a 5% discount rate and a 20 year amortization
- Exhibit 7: IPOD ratio scenario assuming the Affordable Care Act reduces OPEB expenditures
- Exhibit 8: Examples of OPEB plan changes enacted by state
- Exhibit 9: IPOD ratios vs. current yields on general obligation bonds and Moody’s rating
- Exhibit 10: Definitions and assumptions
- Exhibit 11: Instances of state special funding on behalf of local entities
- Exhibit 12: How long might it take for an underfunded pension plan to run out of money?
- Exhibit 13: Sources and Acknowledgements
- Exhibit 14: List of pension and OPEB plans analyzed by state

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