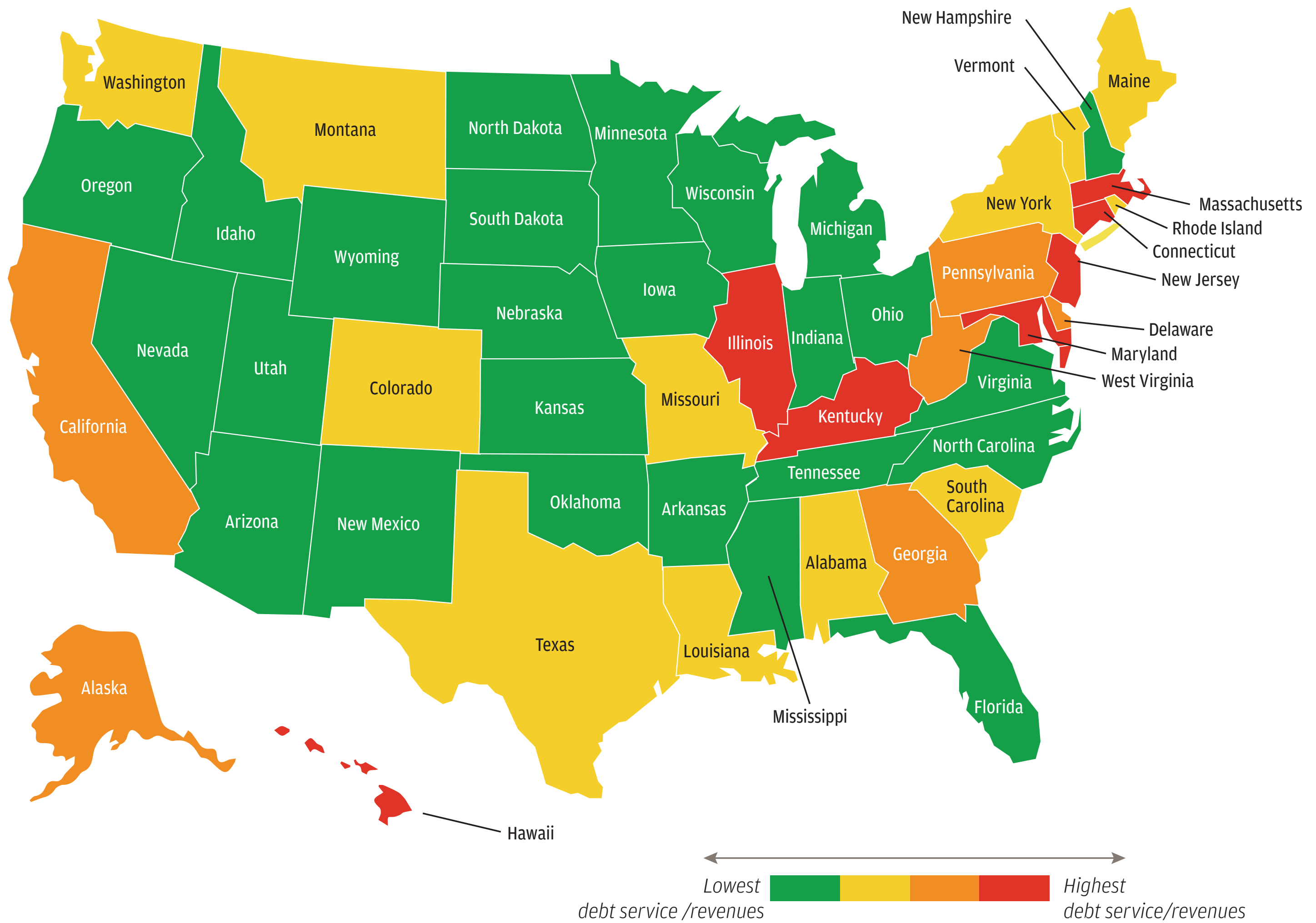
EYE ON THE MARKET • SPECIAL EDITION

The ARC and the Covenants 4.0

The State of the States, 2018

J.P. MORGAN PRIVATE BANK



The "ARC and the Covenants 4.0" is our latest analysis of fiscal stress facing US states. We define stress as the percentage of state revenues needed to pay interest on general obligation debt, and meet all future pension and retiree healthcare obligations. Most states have burdens that are manageable (which we define as 15% or less). However, there are a few states whose burdens are so large as to require tax increases or spending cuts that may not be politically or economically feasible. I participated in a seminar at Harvard's Kennedy School last year, and there was a sense that the US should use the Promesa legislation for Puerto Rico as a dry run for creating state-level bankruptcy rules, just in case. Based on the trajectory of funding ratios in a couple of states, I understand why some public policy analysts advocate the expansion of Chapter 9 legislation to states as well.

J.P.Morgan

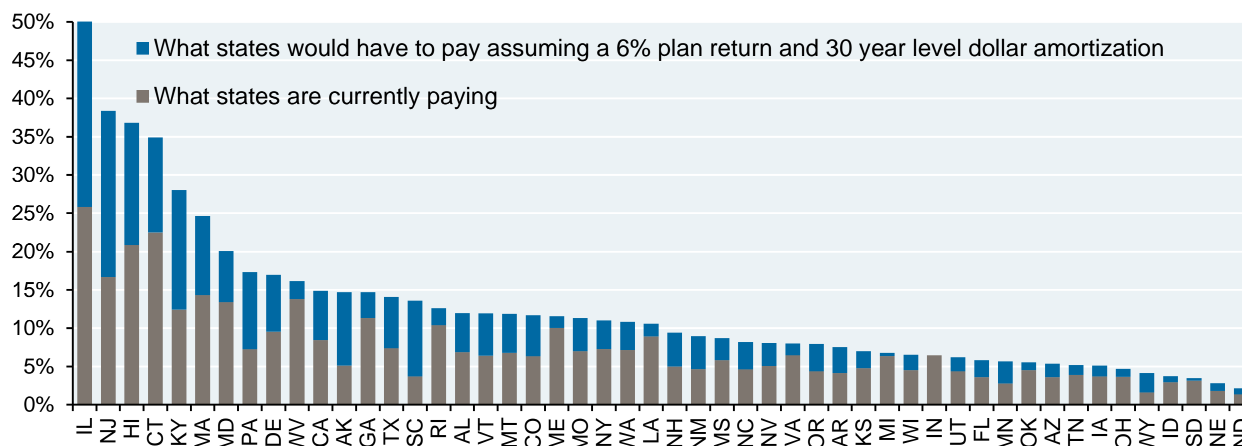
The ARC and the Covenants: The State of the States, 2018

A few years ago, we launched a project to assess the fiscal stress that US states, cities and counties face due to unfunded pension and retiree healthcare obligations. While these obligations are not explicitly cross-defaulted with municipal bonds, recent precedent suggests that we pay close attention anyway: when public sector employees suffer writedowns to pensions or retiree healthcare, bondholder losses are usually worse[1]. As managers of $75 billion in municipal bonds on behalf of our clients (Q3 2018), the issue of unfunded obligations is of paramount concern.

We named this project "The ARC and the Covenants". ARC stands for "Annual Required Contribution", and refers to the amount municipalities would have to pay each year to fully meet unfunded obligations over time, based on certain assumptions. We divide ARC payments by municipal revenue to get a sense for how large the burden is. The chart shows the results from our latest analysis on US states, for which we reviewed over 300 single and multi-employer pension, defined contribution and retiree healthcare plans. **The bottom line: many states have ratios that are manageable (which we define as 15% or less). However, there are a few states with severe problems**. I participated in a seminar at Harvard's Kennedy School last year, and there was a sense that the US should use the Promesa legislation for Puerto Rico as a dry run for creating state-level bankruptcy rules, just in case. I think the expansion of Chapter 9 legislation for states makes sense, and I'm not the only one[2].

The cost of unfunded pensions and retiree healthcare as a % of state revenues

% of state revenues required to pay the sum of interest on net direct debt, the state's share of unfunded pension and retiree healthcare liabilities, and defined contribution plan payments



Source: J.P. Morgan Asset Management, State Annual Financial Reports, Moody's. FY 2017.

[1] Examples include Central Falls (RI), Vallejo (CA), San Bernadino (CA), Stockton (CA) and Detroit (MI), which we discussed in Exhibit SM7 of our 2017 ARC and the Covenants piece on cities and counties.

[2] "The city of Chicago and the state of Illinois should act now to restructure their liabilities and put the fiscal mess behind them. This can be accomplished by utilizing Chapter 9 and other tools Congress just gave Puerto Rico. The process would entail about two years of unpleasant headlines, but the city and the state will rebound far sooner and less painfully than if they stay on their current paths", former FDIC Chairman William M. Isaac, 2016.

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We refer to our ratio as an "IPOD" ratio, since it measures Interest, Pension, OPEB (retiree healthcare) and Defined Contribution payments as a percentage of state revenues. In our analysis, we amortize unfunded balances over 30 years, and assume a 6% return on pension and OPEB plan assets.

To understand the stress a few states are under, look at Table 1. The current IPOD ratio indicates how much states now pay as a % of revenues, and the revised IPOD ratio is what they would need to pay to fully meet unfunded obligations over time. The middle section shows the primary ways the gap could be filled: tax hikes, increased worker contributions or higher investment returns. Illinois and New Jersey come closest in my view to deteriorations in pension finances that are practically irreversible.

- **Increase tax revenues**. To be clear, this tax hike would have to be in place for 30 years, and be used *solely* for contributions to underfunded plans. It's unclear if such tax increases are politically viable when considering that state public sector workers generally represent 3%-7% of all workers in the state. If spending cuts were chosen instead of tax hikes, they would be similar in magnitude[3].
- **Increase public sector worker contributions**. Require active public sector workers to shoulder the burden on their own, with no help from taxpayers[4]. The increases are 4x or more in some cases.
- **Achieve massive investment returns on plan assets**. First thing to notice: there are no solutions for some plans given how underfunded they are, or if states are dealing with them on a "pay-go" basis and not prefunding them at all. Second: even when required investment returns can be computed, I consider any investment return in double digits to be practically unachievable[5].

Table 1

Largest revised IPOD ratios				*Who funds the gap, every year for 30 years (mutually exclusive)*						
				TAXPAYERS		PUBL SEC WORKERS		STATE FUND MANAGERS		
State	Current IPOD ratio		Revised IPOD ratio	Increase in tax revenues		Increased contributions		Req. pension inv return		Req. OPEB inv return
IL	26%	→	51%	25%	or	689%	or	11.5%	and	No solution
NJ	17%	→	38%	22%	or	521%	or	No solution	and	No solution
HI	21%	→	37%	16%	or	117091%	or	11.3%	and	18.2%
CT	22%	→	35%	12%	or	408%	or	10.5%	and	No solution
KY	12%	→	28%	16%	or	427%	or	No solution	and	No solution
MA	14%	→	25%	10%	or	237%	or	10.2%	and	No solution
MD	13%	→	20%	7%	or	216%	or	8.1%	and	No solution
PA	7%	→	17%	10%	or	532%	or	13.0%	and	No solution
DE	10%	→	17%	7%	or	614%	or	7.6%	and	No solution
WV	14%	→	16%	2%	or	116%	or	6.1%	and	17.5%
CA	8%	→	15%	6%	or	387%	or	8.6%	and	No solution

Source: J.P. Morgan Asset Management, State Annual Financial Reports, Moody's. FY 2017.

[3] Most states run balanced budgets so the figures are similar, but **spending cuts** would need to be a bit larger since cuts would have to be made to non-pension spending (and not overall spending).

[4] In **Hawaii**, public employees are required to contribute between 6% and 8% of pay to the retirement system. However, employers end up paying most of these contributions on their behalf. As a result, baseline amounts of actual worker contributions paid are small, and would have to increase astronomically to close the funding gap.

[5] The 90th percentile of all 30-year real returns on a 70/30 stock bond portfolio since 1956 is 7.1%. Assuming 2.5% future inflation, the 90th percentile nominal return since 1956 would be 9.6%. As a result, any breakeven return above 9.6% would require returns in the top decile of historical performance.

Why do some states have such large unfunded obligations relative to revenues? Some enacted benefit increases before a market decline, which resulted in a large funding gap. Some contributed well below recommended levels for many years, worsening funding ratios further. And in some cases, the size of the pension/OPEB system is large relative to the state's economy and tax base.

Table 2 summarizes key statistics on pension and OPEB plans for the weaker states:

- *Funding ratios*[6]. The reported versions indicate what states disclose for their pension and OPEB plans. The revised versions are what we *estimate* them to be, using a 6% discount rate.
  - The projected 10-year pension funding ratio represents our rough estimate assuming the state continues its contribution pattern, and earns a 6% return on assets. Most projected ratios are not substantially different from current ones, suggesting that depletion risks are not imminent.
  - However, this assumes that states like IL, CT and HI continue to allocate 20%-25% of state revenues to underfunded plans; this may not be feasible forever, given competing needs related to public services, infrastructure and education[7]. There's also the risk of market volatility that depresses funding ratios, which would raise ARC payments further. **In other words, these are rough estimates that are sensitive to a variety of investment and political outcomes**.
  - Most states do not prefund OPEB plans, and use a pay-as-you-go approach
- *Contributions to underfunded plans*. "Actual vs reported ARC" shows what the state paid in FY 2017 relative to its reported ARC. The revised version shows the state contribution relative to our recomputed ARC, using both different return and amortization assumptions. "Level dollar" vs "level percent" amortization makes a big difference, and is explained in the supplementary materials.
- *Pension vs OPEB shares*. The last 2 columns show the pension and OPEB shares of the combined revised state ARC. Bottom line: **unfunded pensions are generally the larger problem**.

Table 2

	PENSIONS					OPEB				Unfunded ARC	
State	Reported funding ratio	Revised funding ratio	Projected 10-year pension funding ratio	Actual vs reported ARC	Actual vs revised ARC	Reported funding ratio	Revised funding ratio	Actual vs reported ARC	Actual vs revised ARC	Pension share	OPEB share
IL	38%	34%	52%	95%	53%	0%	0%	17%	11%	78%	22%
NJ	36%	40%	27%	49%	35%	0%	0%	30%	36%	58%	42%
HI	55%	48%	65%	100%	41%	9%	7%	89%	61%	56%	44%
CT	41%	35%	53%	99%	62%	3%	4%	57%	42%	71%	29%
KY	34%	40%	40%	72%	36%	33%	29%	138%	43%	77%	23%
MA	60%	50%	64%	100%	45%	5%	7%	29%	36%	78%	22%
MD	69%	56%	71%	99%	61%	3%	4%	63%	63%	79%	21%
PA	55%	48%	61%	102%	28%	1%	2%	55%	47%	75%	25%
DE	82%	74%	82%	99%	58%	4%	6%	43%	45%	39%	61%
WV	79%	67%	76%	100%	93%	25%	22%	69%	53%	71%	29%
CA	68%	57%	72%	100%	53%	1%	1%	53%	36%	68%	32%

Source: J.P. Morgan Asset Management, State Annual Financial Reports, Moody's. FY 2017.

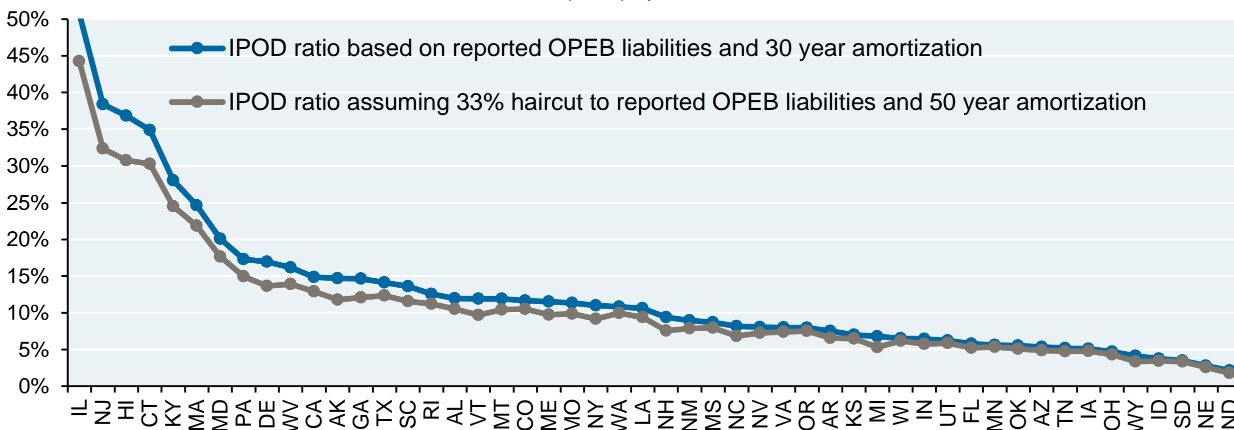
[6] For context, the average **corporate** pension funding ratio was 86% in 2017, according to the Milliman 100 Index. Corporate plans also use lower discount rates (3.6% avg) than public plans (7.1% avg) use to discount liabilities.

[7] A 2017 paper from UC Berkeley found evidence that **rising pension expenditures are crowding out public services**. Major finding: a 10% increase in per-employee pension expenditures is associated with a 0.73% drop in city employment the following year, as well as declines in spending on construction and equipment.

Other than tax increases, spending cuts and increased worker contributions, is there anything else states can do to solve this problem? Once pension obligations have been accrued, they cannot be altered; case law has confirmed this. The only exception: states can reduce cost of living adjustments, but most have already done that. Retiree healthcare (OPEB) obligations, on the other hand, can be altered at the state's discretion; the most common changes are increased retiree premium contributions, co-payments and deductibles. Since our last state analysis two years ago, some states enacted changes that substantially reduced projected OPEB liabilities: Iowa (-38%), Kansas (-100%), Louisiana (-34%), Minnesota (-69%), Nevada (-73%), North Carolina (-37%), Texas (-38%) and Virginia (-28%). In other states, they rose compared to last time. And as stated on the prior page, unfunded OPEB obligations are usually smaller than unfunded pensions.

To see how sensitive IPOD ratios are to OPEB restructuring, we ran an alternative scenario that makes an arbitrary **33% reduction to all retiree healthcare liabilities**, and that amortizes unfunded pension and OPEB obligations over **50 years** instead of 30 when computing ARC payments[8]. Both assumptions lower the IPOD ratios, but not by enough to change our assessment of risk for the weaker states on the left hand side of the chart.

What if states make large cuts to retiree healthcare and use a much longer amortization period?
% of state revenues required to pay the sum of interest on net direct debt, the state's share of unfunded pension and retiree healthcare liabilities, and defined contribution plan payments



Source: J.P. Morgan Asset Management, State Annual Financial Reports, Moody's. FY 2017.

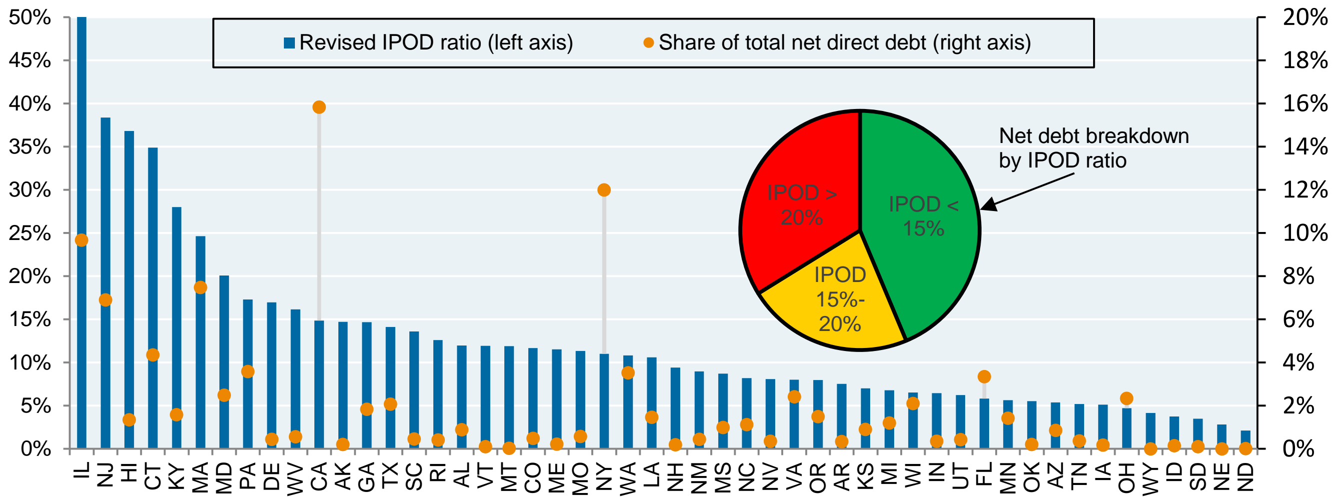
Some states make payments on behalf of local municipalities, referred to as **Special Funding** situations. For example, Illinois, New Jersey and Connecticut IPOD ratios would fall substantially if local municipalities started making these payments instead. However, our sense is that most local entities are not financially sound enough, or politically willing, to do so. See SM2 in the Supplementary Materials for more information on Special Funding.

Since we're just a few weeks away from one of the most widely anticipated midterm elections in years, here's some history on the **local politics of underfunded pensions**. The weaker states are generally "**blue**" ones: of the 11 states with IPOD ratios over 15%, 7 have state legislatures that were controlled by Democrats for the last 20 years; 2 state legislatures were mixed (Kentucky and Delaware); and 2 state legislatures were controlled by the GOP (Alaska and Pennsylvania).

[8] This effectively allows states to maintain funding ratios from 60%-70% for many years while they wait for compounding benefits to kick in.

While a lot of states have low, healthy IPOD ratios, they are generally not the ones issuing all the debt. The next chart shows each state's IPOD ratio alongside its proportion of all general obligation debt. **Over 50% of general obligation debt outstanding corresponds to states with IPOD ratios over 15%.** For these reasons, our asset managers are generally cautious about general obligation exposures to weaker states. When they do invest there, they consider what (if any) exposure a particular issuer may have directly or indirectly to a state retirement system. In the $3.7 trillion municipal bond market, many issuers have no exposure, such as the Northwestern Memorial Healthcare in Illinois, or Princeton University in New Jersey. Other issuers, such as local public utilities, may also be separate legal entities, and enjoy segregated revenues and participate in a better-funded local pension.

Plenty of states have low IPOD ratios, but states with high IPOD ratios issue the most state debt



Source: J.P. Morgan Asset Management, State Annual Financial Reports, Moody's. FY 2017.

Before concluding, I want to be clear about something. Public sector workers form a critical part of our civil society. They risk their lives to 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 have earned the benefits they accrued and which were granted by state legislatures, and have the right to expect them to be paid.

The **supplementary materials** review the debate around public plan discount rates, the risks around the timing of market returns, Special Funding situations, the pace of asset depletion in underfunded plans, the history of public plan funding ratios since 2000, some history on New Jersey, descriptions of our methodology and data sources, and full results tables for all 50 states.

Michael Cembalest
JP Morgan Asset & Wealth Management

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