Transitioning American Public Pension Plans to a Shared Risk Model Through Prepackaged Chapter 9 Plans of Debt Adjustment

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1 Executive Summary

American public pension plans are in crisis, with unfunded liabilities crowding out public investments in such vital areas as health, education, and infrastructure in many states and municipalities. The causes of this crisis are myriad, including low contribution rates linked to the use of high discount rates, contribution holidays, poor governance, poor investment performance, legislative grants of unfunded benefit increases, and pension spiking. Reform efforts have focused primarily on changing benefits for future employees and nibbling at the margins on benefits for current employees and retirees. Comprehensive reform efforts have floundered against collective bargaining agreements or federal and state constitutional provisions prohibiting legislative impairment of contracts. This paper proposes a paradigm shift by creating a new, world class shared risk pension plan and transitioning through prepackaged Chapter 9 Plans of Debt Adjustment for all persons employed by, or retired from, local governments and school districts. Direct state employees and retirees could transition only voluntarily through incentives/disincentives.

Ideally, the transition effort would begin with a governor or mayor charging a task force of stakeholders to develop a new public pension plan with certain criteria and parameters based upon the New Brunswick shared risk model. The task force would draft new legislation in cooperation with the legislative body. Conditions of "insolvency" under Chapter 9 would be created by requiring local governments to contribute one-time payments sufficient to bring the pension fund to 120% funded status, a requirement that would generally be impossible for most cities, counties and school districts. Local governments would then propose similar Plans of Debt Adjustment, essentially moving employees and retirees to the new shared risk plan. Negotiations with employees, inactive employees and retirees would occur, followed by a vote of those classes of impacted creditors. All other creditors would continue to be paid on a regular schedule and would not be involved in the Chapter 9 filings, which should be short and relatively inexpensive.

This model could be employed by virtually every State, regardless of current funded status [the New Brunswick Public Service Superannuation Plan was approximately 87% funded, with a discount rate of 6.25%, prior to conversion to shared risk]. Well-funded American plans could become securely funded relatively quickly, whereas poorly-funded plans would need more time, require more contributions to make up for past accumulated unfunded liabilities, and possibly need to take on more risk. In most states, a constitutional amendment to facilitate the transitions would be required. Local governments could also transition their pension plans, though perhaps not with the same security that a state could create with a shared risk plan and a constitutional amendment.

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2 Four Steps to Transitioning U.S. Public Plans to a Stable Path

"Our common welfare should come first. . .."

Alcoholics Anonymous, Twelve Traditions, No. 1

It will not take twelve steps for U.S. public plans to right themselves, though one may hear echoes from such programs in transitioning plans from current designs to a more stable path. The first step for many of America's public pension plans is to admit that the unfunded liabilities are so immense that the sponsor is insolvent, for all practical purposes. The next step is to find a fair, secure and sustainable solution. The third step is to transition into that solution through prepackaged Chapter 9 Plans of Debt Adjustment for employees and retirees of local governments and school districts. The fourth step is to transition direct state employees and retirees into that solution with incentives and disincentives.

The innovation in the following paper is not the shared risk plan we see as being stable and sustainable, as it is essentially the Shared Risk Pension Model of New Brunswick, Canada. Even the issue of transitioning from a traditional DB (defined benefit) public pension structure to this shared risk model has already been shown by this specific pension plan. Some of these aspects will be shown below, as well as how these plans align stakeholders' interests in ensuring pensions are fully funded, well-governed, and sustainable as well as providing a valuable retirement benefit for participants.

The key novel aspect of this paper is the legal mechanism whereby U.S. public pensions can be legally and constitutionally transitioned from their current structure to the new, risk-sharing structure. As will be detailed below, there have been several legal and constitutional obstacles in reforming public pensions, and these will need to be addressed. While many other countries' systems have similar pressures and challenges, the specificity of the legal structure means other legal/constitution approaches would be needed for those jurisdictions.

3 Some Proximate Causes of America's Public Pension Crisis

Unfunded liabilities associated with America's public pension plans are enormous, under any reasonable valuation approach. At the end of FY2015, state and local governments reported unfunded liabilities of $1.378 trillion using governmental accounting standards. Even plans that have made full ARC (actuarially required contributions) every year have found their funded status decreasing or stagnating at levels well below full-fundedness.

Alternate valuations using financial economics approaches show a direr situation. One major study of 649 state, county and municipal public pension plans, using market valuation techniques, calculated the 2015 unfunded liabilities at $3.846 trillion (Rauh 2017). A critical assumption of financial economists, who almost universally support the use of a risk-free discount rate to measure the present value of future liabilities, is the notion that public pensions enjoy strong legal and constitutional protection and must be paid. If public pension benefits are supposed to be considered risk-free, the thinking goes, they should be valued in ways similar to other risk-free liabilities.

Several major factors, some of which may not be present in every public plan, seem to have contributed to the current miserable state of affairs. These include: (1) low contribution rates linked to the use of the expected rate of return as the discount rate; (2) contribution holidays, taken both in good times and bad; (3) poor governance; (4) poor investment returns, sometimes resulting from chasing returns and taking on more risk than would otherwise be appropriate; (5) legislative grants of unfunded benefit increases; and (6) pension spiking and other benefit boosting at the end of a career.

Many of these proximate causes spring from an ultimate cause of the assumption that public pension benefits will always be paid as promised, and that there will be a growing tax revenue base that will easily pay for these benefits, even if benefits have been undervalued and pension funds have been underfunded. The political calculus has been that benefits can be reaped now, and most of the costs will be borne later. For many plans, though, later has become now.

The assumption has been that public pensions can't fail. Due to legal protections mentioned in Section 4, plan participants have assumed that their benefits could never be adjusted downward and that the taxpayers could always be forced to pay for the benefits. The saying "the government doesn't go out of business" has been popular, right up until the point that it does.

Because many have thought that public pensions could not fail, this has given incentives for directly interested parties to engage in activities mentioned below that actually make the pensions more likely to fail. The moderating aspect of external regulation, as seen with insurance companies and private pensions, does not exist for public pensions. A system where plan participants see their contribution rates increase and/or their benefit levels decrease with improper behavior would provide additional pressure for public pensions not to engage in the behaviors outlined in the following subsections.

3.1 Use of the Expected Rate of Return as the Discount Rate

Almost alone among the world's public pension plans, the United States plans have slavishly stuck to the expected rate of return as the discount rate for calculating the present value of future liabilities, resulting in enormous controversy. Some authors have concluded that a partial explanation for this phenomenon is a conflict between the interests of current employees and retirees, with board members and elected officials opting to use higher discount rates and pursuing riskier investments, all to maintain lower annual contribution rates. (Andonov, Bauer and Cremers, Pension Fund Asset Allocation and Liability Discount Rates 2017) We will address chasing yield via investments in Section 3.4.

3.1.1 The Effect of High Discount Rates on Normal Cost

Let us consider the effect of the choice of assumed rates of return (used as the liability discount rate) on the normal cost for a standard defined benefit plan. Don Boyd and Yimeng Yin of the Rockefeller Institute of Government did a projection of the normal cost as a level percentage of payroll under a certain set of simplifying assumptions to see the effect of the choice of the discount rate assumption for an entry-age normal cost method. (Boyd and Yin 2018) Assuming a benefit of 2% times a 3-year final average salary times years of service, a COLA (cost of living adjustment) of 1% per year, with employee contributions of 4% of pay for a worker hired at age 25, retiring at age 60, and dying at age 80, we get the result seen in Figure 1. The age of death makes for an annuity-certain, instead of the actuarial

approach with a standard mortality table, but it isolates the effect of the assumed rate of return to simplify analysis.

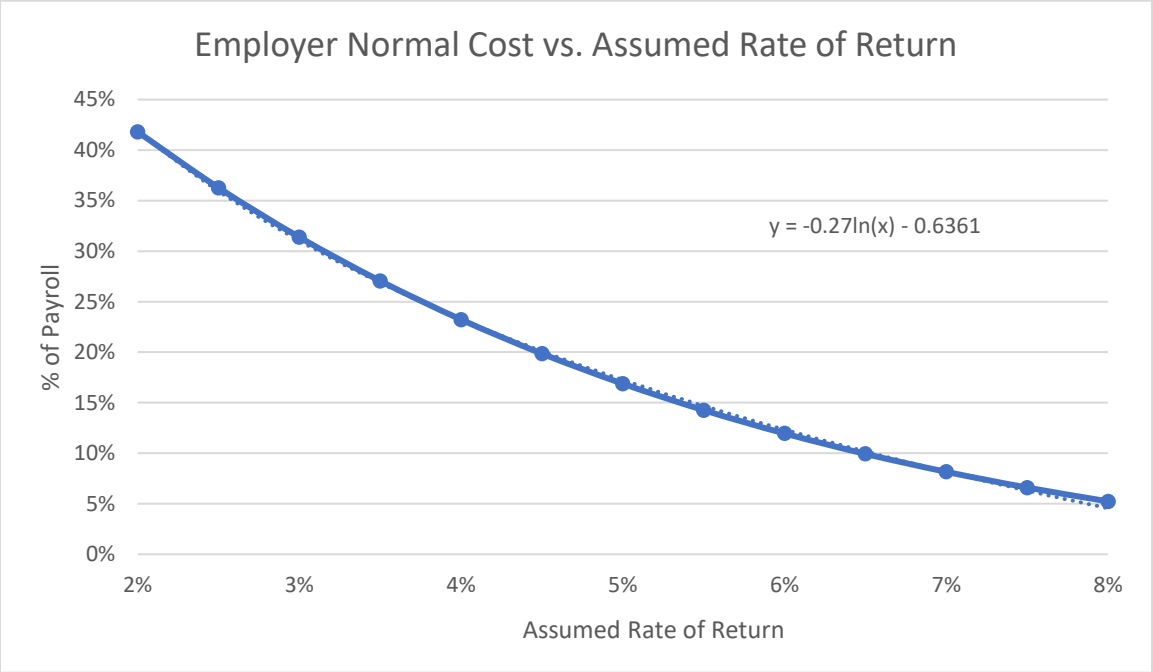

Figure 1

Source: (Boyd and Yin 2018)

This relationship is closely described by a logarithmic function, with a slope that flattens the higher the discount rate. We see the stark differences of an over-40% contribution of payroll, assuming a return of 2% per year, against a 5% contribution of payroll if one has 8% per year returns. Also, one can see the effect of going up the slope – changing from 8% to 7.5% in discount rate makes for an increase of 136 basis points contribution rate; changing from 2.5% to 2% increases the contribution rate by 553 basis points. The pension plan sponsors who are allowed to set this key assumption, and who want to minimize cost, are not ignorant of this relationship, at least qualitatively.

3.1.2 Using Risk-Free Rates for Valuation

Modern finance theory requires that present values be calculated based upon risk-adjusted discount rates. Because public pensions are protected to a certain extent by the federal and state constitutions from legislative impairment, and because most local governments are not likely to file for bankruptcy protection or debt adjustment, these pensions are presumed to be virtually risk-free. One can argue about whether it would be more appropriate to use a tax-adjusted municipal bond rate or U.S. Treasuries to reflect this risk-free aspect of public pensions, and there are many thorough and readable discussions of this issue. (Waring 2012) (A. H. Munnell, State and Local Pensions: What Now? 2012) (Novy-Marx and Rauh 2011) In recent years, many actuaries have begun to accept the notion that

economic liabilities of pension plans should be calculated using a risk-free discount rate.[1] However, when a Joint Task Force of the Society of Actuaries and the American Academy of Actuaries produced a draft report calling for public pensions plans to use a risk-free discount rate to calculate their liabilities, the Task Force was disbanded, and a huge controversy ensued. (Burr 2016) (Bartholomew, et al. 2016)

Because the appropriate discount rate for economic accounting purposes is bond-like, and because there are valid arguments for pension plans to invest in public equities, confusion is rampant. One excellent discussion and summary of the competing interests comes from Dr. Munnell, and it's worth quoting at length:

> *The argument about the discount rate pertains to reporting; investing and calculating contributions are separate issues. Discounting the stream of future benefits by a riskless rate does not imply that the plans should hold only riskless assets. A number of considerations suggest that state and local plans should continue to invest in equities. If the returns on these equities resemble their long-run historical performance, then, for any given level of contributions, plans' unfunded liabilities would be paid off more quickly that if funds were invested in bonds.*
>
> *Determining contributions is a trickier issue. Academic models suggest that the calculation should use the riskless rate. But contributing based on the riskless rate and investing in equities produces ever growing funding levels and declining contributions for each successive generation. These outcomes have political ramifications in the real world. Calculating contributions based on the expected rate of return is probably the least bad option and does not conflict with using the riskless rate for reporting purposes. The risk is that public sector sponsors using one liability measure for determining contributions and another one for reporting purposes may create confusion and reduce transparency.*
>
> *The riskless rate debate is going to be muddied by GASB's new blended rate [set forth in GASB Statement 68] that is based on the degree to which assets are projected to be available to cover benefit promises. The change will lower rates in a number of cases where plans are projected to be underfunded for the foreseeable future. GASB's changes cannot be viewed as a step in the right direction, because they not only maintain the tie to how plans are funded but also create a system in which well-funded plans use a higher discount rate than poorly funded ones.*
>
> *In the end, the choice of the discount rate is neither the source of the problem nor a quick solution. While the discount rate affects the present value of the plans' promised benefits, it does not affect the promised benefits themselves. When teachers or firefighters retire, they will get the amount calculated under the plan*

[1] *See*, e.g., (Gold, Response to Invitation to Comment: Pension Accounting and Financial Reporting n.d.) (Gold, Papers/Presentations n.d.)

provisions, and how that future amount is reported today has no impact on the ultimate payment. (A. H. Munnell, State and Local Pensions: What Now? 2012)

The difference in annual contributions required between an 8% expected rate of return and a risk-free rate of return is stark. If the employer normal cost is five times higher at a 3.5% discount rate than at a 7.5% discount rate, governments have a powerful incentive to keep annual costs lower by using the higher discount rate, and they have done exactly that.

3.1.3 Investment Return Assumptions of U.S. Plans versus Investment Performance

In Figure 2, we see a plot of the distribution of investment assumptions used for a variety of public pension plans from the Public Plans Database (Public Plans Data n.d.). As of the data extraction date of January 2018, there were 170 public pension plans in this set, for fiscal years 2001 to 2016; not all plans have data for all years. In this box-and-whisker plot, we see that the average investment return assumption has been slowly decreasing over this period, and that the bulk of plans remain in a fairly narrow range. From 2001 to 2003, the interquartile range (from 25th percentile to 75th percentile) was only from 8% to 8.25%, while from 2010 to 2014, this range was from 7.5% to 8%.

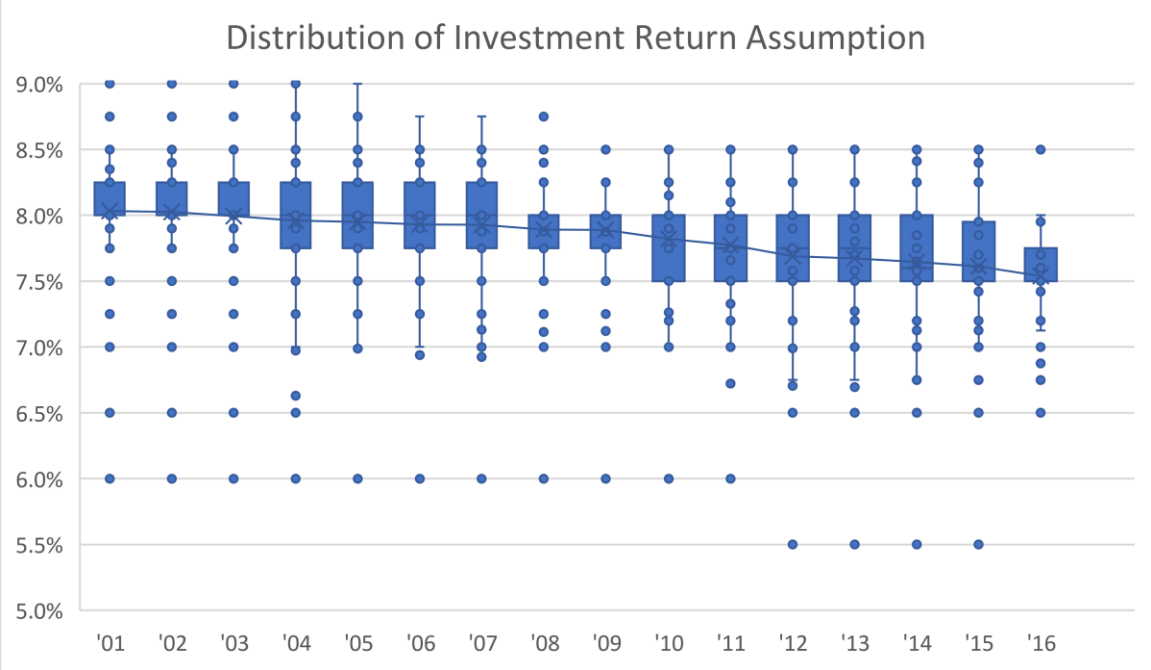

Figure 2

Data source: (Public Plans Data n.d.)

On the other hand, the actual reported investment performance has been quite a bit more volatile than seen above. In a similar box-and-whisker plot in Figure 3, we look at the range of 10-year average returns from the Public Plans Database,

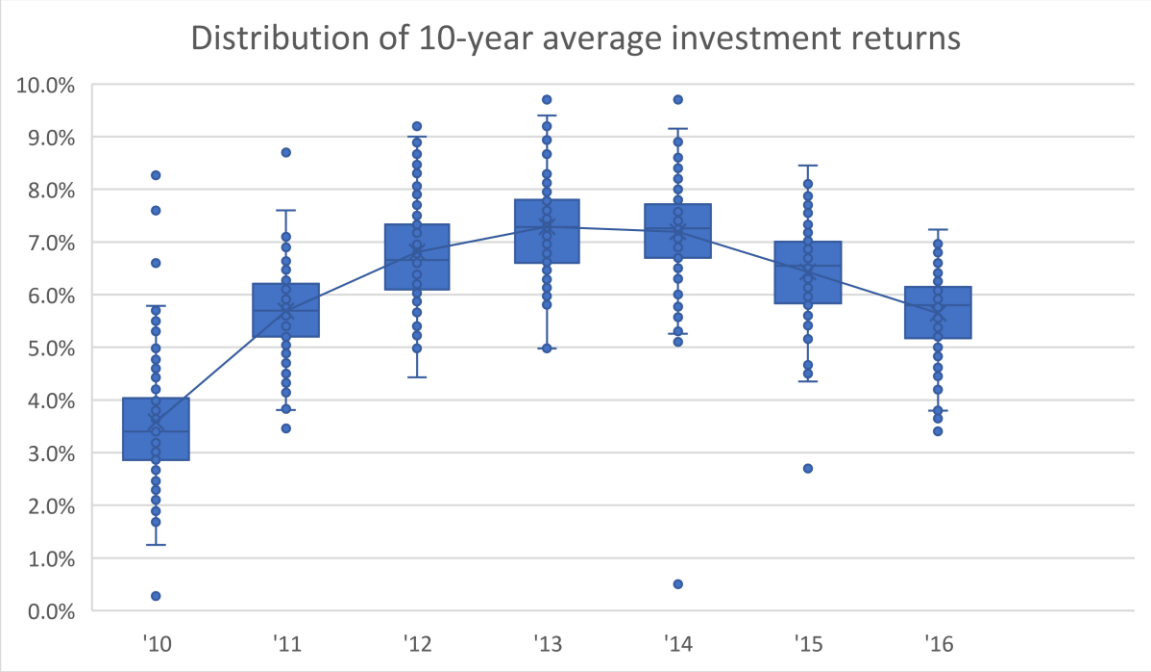

Figure 3

Data source: (Public Plans Data n.d.)

Unsurprisingly, the dismal returns of 2008 and 2009 affect the 10-year returns, but even after multiple years of a bull market, the rates are generally well below the discount rate being used. The slowness for the valuation assumption to align with reality means that unfunded liabilities due to investment underperformance accrue.

3.1.4 Other Valuation Assumptions and Funding Approaches to Reduce Current Contributions

As seen in Section 2.1.1, the setting of the investment return/discount rate assumption has a very large effect. However, there are several other valuation assumptions and decisions in valuing defined benefit pensions, such as:

- Mortality rates (and trends)
- Salary growth rates
- Payroll growth rates
- Disability rates
- Beneficiary rates (for spousal or other benefits)
- Retirement rates at various ages
- Any early retirement adjustments
- COLAs (whether automatic or discretionary)

As mentioned earlier, the discount rate assumption tends to swamp the effects of the other choices, especially the higher that discount rate is. As many plans have lowered their discount rates, other assumption choices have come to the fore.

In many cases, the effects combine to reduce the amount needed to be paid now, while expecting future contributions to grow. A particular combination of assuming a steadily growing payroll and

setting contribution rates as a level percentage of payroll has led to interesting effects for plans where full payments of normal cost and amortized unfunded liability costs are always made as calculated. When both payroll does not grow as expected, and investment results fall short (even if not by much), we see eroding funding ratios for plans that would seem well-run otherwise.

In Figure 4, we see the median funded ratio for U.S. public pension plans in the Public Plans Database that have always paid 100% of the ARC (annually required contribution) or ADEC (actuarially determined employer contribution) for the record of the Public Plans Database. As with the prior graph, data do not exist for all plans for all fiscal years, but the median is not affected by this as much as, say, a mean. There were 72 plans in the database out of the 170 that were 100% ARC payers. While there were a few periods of improvement, the plans have slide from full-funded in 2001, down to 75% funded in 2016.

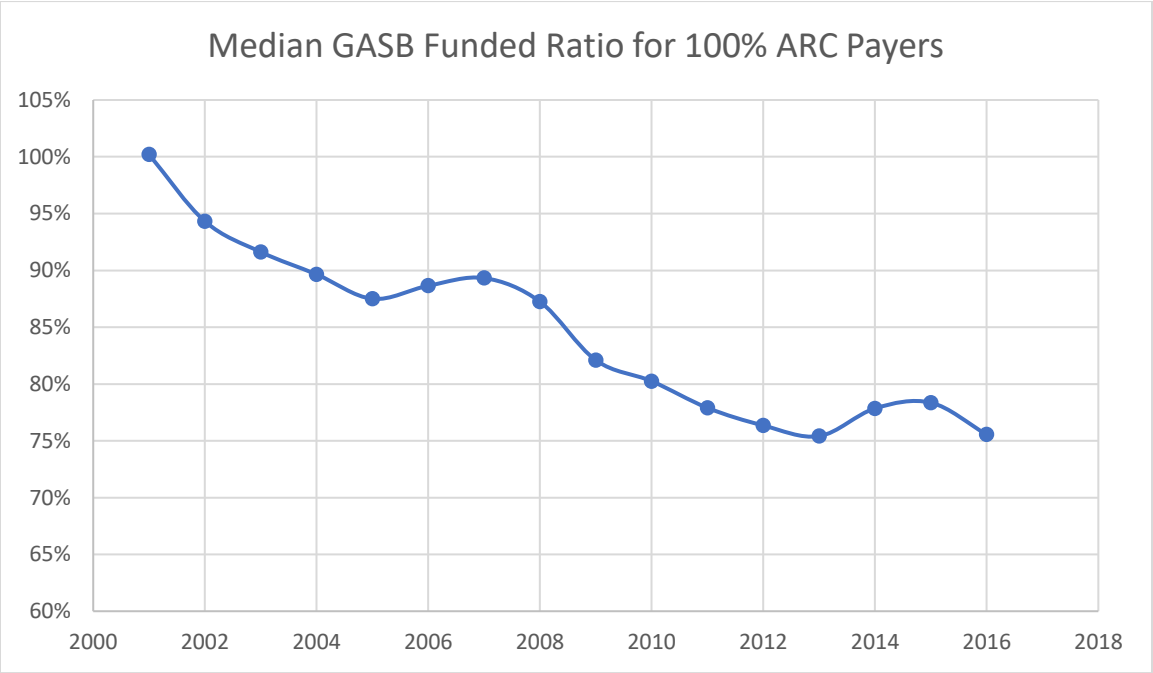

Figure 4

Data source: (Public Plans Data n.d.)

Many aspects drive these results, but the main concept is that actual experience has been diverging from the assumptions made in valuing pensions. The pension cash flows ultimate cost cannot be known until after they are made; valuations are intended to make a fair estimate of where we expect these costs to land, and these drive funding policies. The more the valuations diverge from the emerging experience, costs rise to make up for those shortfalls.

3.2 Contribution Holidays, Taken in Good Times and Bad

Without the discipline imposed by low discount rates, public sponsors have been incentivized to believe that high funded ratios achieved with discount rates based on expected returns mean that contributions can be decreased. Thus, at the end of the 1990s bull market, many public pension plans looked at funded ratios at or slightly above 100% and concluded that contributions could be decreased. When the

dot-com crash occurred and funded ratios plunged, those same plans then struggled to make up the ground lost by the contribution holidays.

In a few more years, the Great Recession hammered public pension plans again. This time, state and local revenues dried up, with federal assistance providing a temporary lifeline. Contribution holidays once again became prevalent, but this time because sponsors simply had no money. (Munnell, Aubry and Cafarelli, How Did State/Local Plans Become Underfunded? 2015) States like Illinois, Kentucky, New Jersey, and Connecticut, among others, all followed this path and now find themselves unable to extricate themselves.

It's easy to conclude that if state and local governments had been forced to value future liabilities at market rates in the late 1990s, the temptation to engage in contribution holidays certainly would have been diminished.

The reality is that excuses popped up for the decreased funded ratios. The actuarial profession has always assumed that pension plans should be at least 100% funded. Barton Waring calls this "allocating pension costs to current employees". (Waring 2012) The Government Finance Officers Association also supports 100% funded status as a "best practice." Otherwise stated, this is a matter of **intergenerational equity—**taxpayers should pay currently for the services they receive currently.

However, in the last decade, public pension plans have come to rely upon 80% as a reasonable level of funding. In 2007, the GAO opined in a footnote that "[a] funded ratio of 80% or more is within the range that many public sector experts, union officials, and advocates view as a healthy pension system." The GAO named none of these experts, officials, or advocates in that footnote, however. (United States Government Accountability Office 2007) Two and a half years later, Pew Charitable Trusts piled on, arguing that "most experts advise at least an 80 percent funding level," citing only the GAO (Pew, 2010). Eventually, the American Academy of Actuaries surveyed the history of this 80% funding standard and pronounced it a "myth" and an "urban legend". (American Academy of Actuaries 2012) (American Academy of Actuaries 2014) One of the authors of this paper has kept a record of media mentions of this fallacious standard since 28 October 2014, having amassed 166 examples as of 25 January 2018. (Campbell n.d.)

More recently, various people have been moving the 80% goalpost downward. This is unsurprising given that even 100% ARC payers are seeing their funded ratios falling below 75%, as seen in Figure 4. Even more disturbing, some argue that a full funding policy is misguided. As Tom Sgouros of the Haas Institute at UC-Berkeley writes:

> *A system at 70 percent funding can likely pay all its obligations in a given year, and if at the end of that year it is at 70.1 percent, who is to say this cannot be repeated the following year if the actuarial facts on the ground do not change significantly? Social Security operated at what amounted to a few percentage points of full funding in its trust fund for two generations and only a very few pension plans are funded at levels so low.*

> *To put it more rigorously, the normal cost to a pension plan accumulated within a calendar year is the present value of the additional benefits accrued by all the employees in that year. If the contributions to the fund (employer and employee contributions, as well as investment income) are adequate to offset the normal cost and inflation, then the unfunded liability of a plan will not change from one year to the next.32 If the unfunded liability does not change one year to the next, the fund can operate indefinitely with that same unfunded liability.*

> *A pension fund must pay 100 percent of its debts. But it need not pay them a moment before they are actually due, and since a pension plan is constantly receiving new contributions, the fund itself need not be the only source of payments. As a result, even if all the debts are paid, at any one time, the fund itself may be at some level well below 100 percent funding. (Sgouros 2017)*

Obviously, this breaks any concept of intergenerational equity, but beyond the theoretical exercise, one must consider the fragility of this approach. Being able to maintain a public pension system on what is ultimately a pay-as-you-go policy assumes that the sponsor will be able to pay the costs as they come. The experiences of Prichard, Alabama; Puerto Rico; and Detroit, Michigan (to name notable situations) have shown that one cannot assume future taxpayers will appear to pay for benefits promised for past services. Intergenerational equity is not much of a concern if later generations do not emerge; however, plan participants will find cold comfort in finding that their past services had not been paid for.

3.3 Poor Governance

Although recent criminal convictions of pension plan officials in States like New York and California have captured public attention, deeper issues with pension plan governance remain unaddressed. These include outsized political influence over investment policy, the use of placement agents in States like Pennsylvania, California, Illinois and Kentucky (Blum and Irani 2011) and the continued practice of electing Board members with little to no background or experience in investment policy or financial management. (Nowacki 2015) (Siedle 2017)

Some studies have even found that boards with a high fraction of members who sit by virtue of their positions in state government (ex officio) or are appointed by a state official underperform on private equity investment return the most, followed by funds whose boards have a high percentage of members elected by public employees or retirees. (Andonov, Hochberg and Rauh, Pension Fund Board Composition and Investment Performance: 2016)

One comprehensive study of the governance issue can be found in the recent book by Keith Ambachtsheer. Among the issues that he explored are the necessity for a board skill/experience matrix to move beyond mere representation models, how pension funds pay their investment professionals, what investment models to follow (e.g., Norway vs. Yale vs. Canada), and how to locate investments which yield a sustainable cash flow. (Ambachtsheer 2016)

3.4 Investment Return Volatility and the Vicious Cycle of Chasing Returns

Returning to the issue of investment results, as pension plans have seen long-term investment performance fall well below the target returns needed to keep contributions low, many plans have turned to ever-riskier investment allocations. In some cases, the liability design itself spurred such risky behavior.

A notable case that led to disaster was the Dallas Police and Fire Pension Fund's investment experience over several years as two investments representing 9% of their portfolio performed extremely poorly. (Bush 2014) The fund had been pursuing such a strategy to help support a benefit that guaranteed 8.5% returns for employee deposits to their pensions. Needless to say, the pension fund was not able to actually guarantee such returns, leading to a spiral of ever-riskier investments.

Pension funds in the U.S. more broadly have been seeing an increasing allocation to alternative funds, in order to make up for anemic returns in the more straightforward public equity and bond market. As noted in the Public Plans Database, the allocations to alternatives have been increasing in percentage of pension funds as well as in absolute amounts, as officially reported. See Figure 5 for the ranges

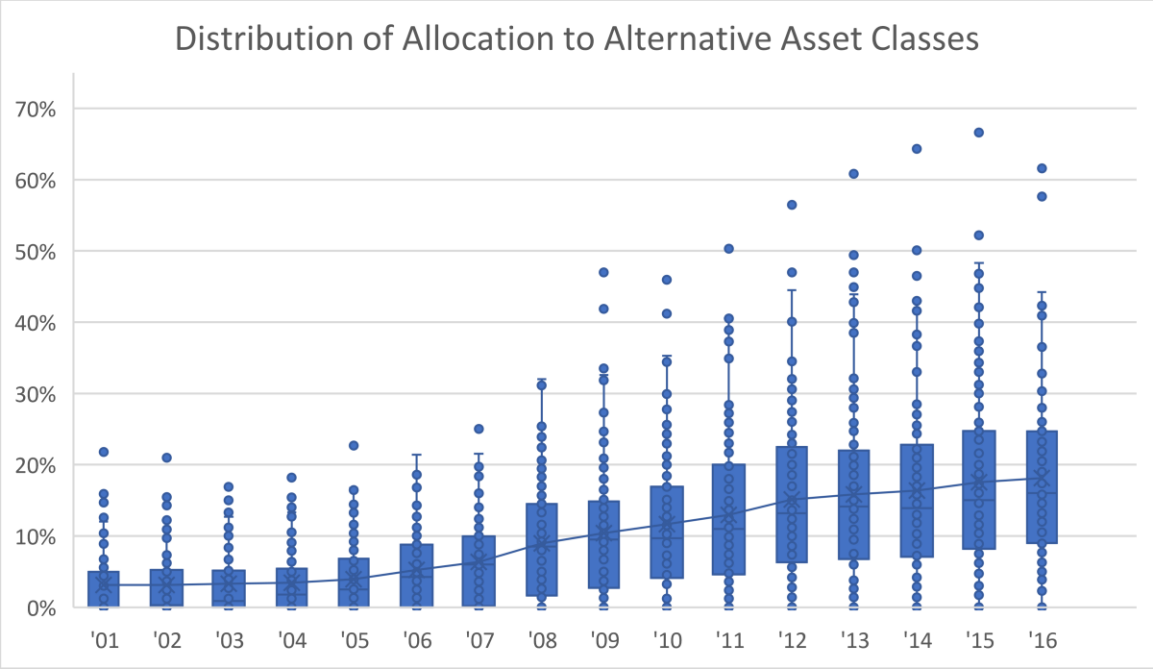

Figure 5

Data source: (Public Plans Data n.d.)

Some of the extreme allocations are for relatively small plans, and we can see the median and mean (not asset-weighted) allocations have steadily been increasing, especially since 2008's market crash. Many plans have been trying to rebuild their funds via increased returns and not increased contributions.

The increasing allocation to alternative asset classes has been in line with theoretical expectations for macroeconomic markets as well as actual experience. As reported in the Wall Street Journal, many

pension funds have seen the need to shift allocations just to prevent further fund erosion. (Martin 2016) This reporting was based on research from Callan Institute, which showed the following asset allocations to achieve target returns, and the associated increased volatility that went with these allocation shifts. In Figure 6, we see the results from finding an optimal portfolio with a target expected return; in recent years, this has translated into extra volatility.

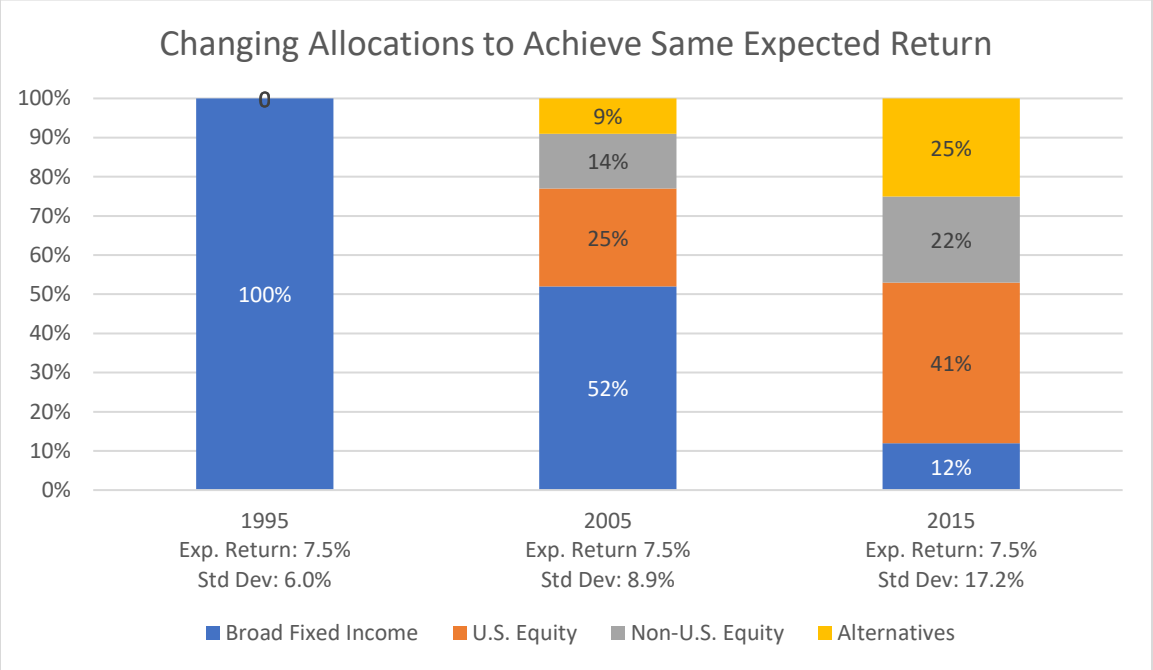

Figure 6

Data source: (Kloepfer and Moriarty 2016)

The Callan Institute also considered holding the risk level as represented by the standard deviation of returns, to see the resulting expected return. As seen in Figure 7, while complexity of investment allocations does increase, the allocations are fairly stable to achieve a less volatile result. However, the expected returns suffer greatly.

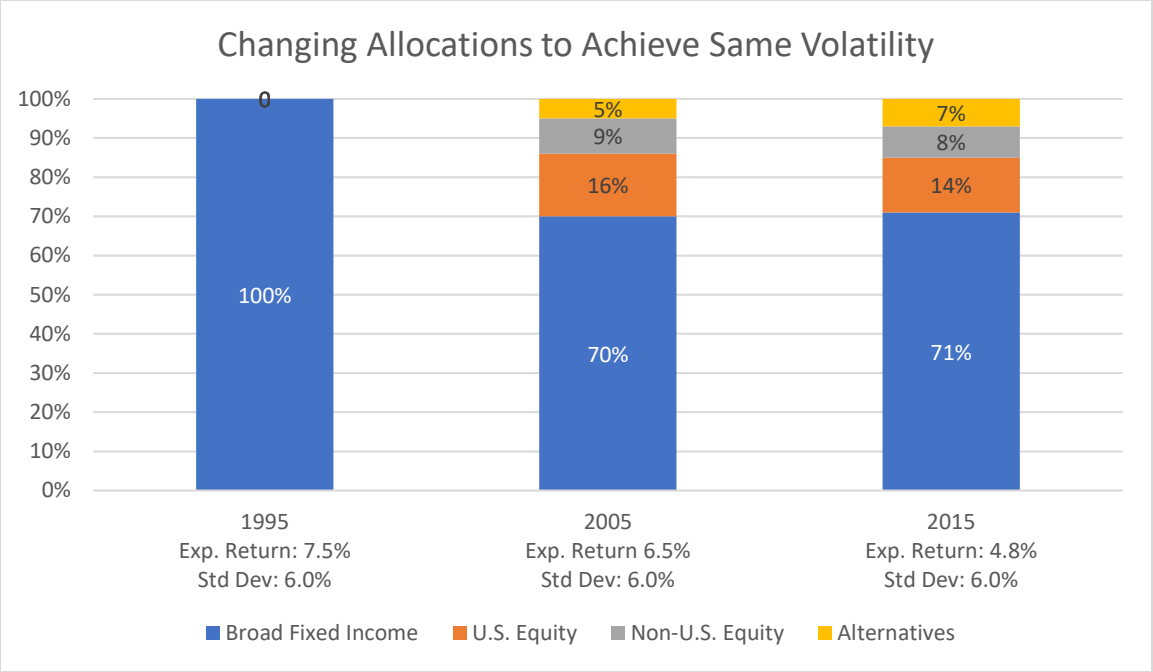

Figure 7

Data source: (Kloepfer and Moriarty 2016)

As we've seen, many U.S. public pensions have tilted more towards chasing yield to maintain a relatively high discount rate. We have also seen increasing year-to-year volatility as cash flows out to maintain benefits which are steadily growing. This has led to escalating required contributions, which sponsors have had difficulty maintaining, and so they continue to chase higher returns.

3.5 Legislative Grants of Unfunded Benefit Increases

At the peak of the dot-com boom, many public pension funds saw funded ratios of over 100%. As mentioned earlier, some saw this as an opportunity to take holidays from paying even normal cost of pensions. Some politicians, on the other hand, saw this as an opportunity to boost pensions for current employees; this tends to be a favorite move for public employees, whether unionized or not. Sometimes these boosts were retroactively applied, with statements that such benefits were already paid for in the fully-funded plans.

The notable case here was that of California SB 400, a bill passed in 1999 that retroactively boosted pension benefits with higher multipliers for years of service and also created a younger retirement age. As reported in the *Los Angeles Times*, "CalPERS had projected in 1999 that the improved benefits would cause no increase in the state's annual pension contributions over the next 11 years. In fact, the state had to raise its payments by a total of $18 billion over that period to fill the gap, according to an analysis of CalPERS data." (Dolan 2016) Professor Rauh now estimates California's total unfunded pension liabilities at over $769 billion. (Rauh 2017)

Other plans also added pension benefit sweeteners, even when the funded status was not above 100%, sometimes under the theory that the new benefits would pay for themselves (in more contributions as

employees work past normal retirement age), that the benefits weren't worth all that much, or that this was merely smoothing experience. Examples of these benefit sweeteners were the Milwaukee County backDROP benefit (Umhoefer, Schultze and Diedrich 2009), the Dallas Police and Fire DROP (Walsh 2016), 13th checks for Detroit pensioners even when investments performed poorly (Block 2013), and so on.

In many of these cases, the actual costs of the new benefits were far higher than originally estimated, for the same reason that those plans which did not boost benefits also saw eroding funded ratios: the valuation assumptions were too optimistic, especially the discount rate. In some of these cases, the benefit sweeteners have been disastrous, with costs on orders of magnitude more than projected.

Given the legal protections discussed in Section 4.1, where benefit increases can never be reversed, these enhancements have increased funding burdens on sponsors.

3.6 Pension Spiking, Air Time, and Other Ways Participants Boost Their Benefits

This item refers to methods that plan participants can boost their pension benefits in ways not necessarily intended by benefit designers, or at least, in ways where the value to taxpayers is at least suspect.

The "traditional" form of spiking is boosting of the pensionable salary/wage in order to maximize initial pension benefits from formulas that are based on the salary of the last few years of work. People may negotiate a higher-than-normal raise, work excessive overtime, or even "cash in" accrued paid time off days. Private employers have long since reined in this sort of boosting, with limits on overtime, carryover of paid time off credits, and the like.

Another form of pension boosting is "air time", in which participants can "buy" years of experience in the pension system. The original concept of "air time" was to allow public employees to make up for benefits lost from other pensions when they switched jobs.

While some public plans have attempted putting in safeguards against spiking, as long as benefit formulas are heavily weighted to the last few years before retirement, and as long as it's seen that "somebody else" will pay for the boost, there will be an enticement to spike to the extent possible.

4 The Legal Obstacles to Public Pension Reform

Two major legal principles stand juxtaposed over the framework of public pensions today. The first is the strong contract protection afforded by constitutional provisions or judicial interpretations. The second is the degree of freedom afforded legislatures and sponsors in raising money through taxation and funding (or not funding) pensions.

4.1 Constitutional Prohibitions Against Impairment of Contracts

The first major principle is the command that state legislatures cannot impair the obligation of contracts. Article I, Section 10 of the United States Constitution was a response to state debtor relief laws enacted prior to the adoption of the Constitution and was designed to protect private contracts from state legislative impairment. Most state constitutions have similar provisions. In more recent years,

the Supreme Court has stressed a heightened need for judicial oversight when public commitments are involved and "the State's self-interest is at stake." *United States Trust Co. of New York v. New Jersey*, 431 U.S. 1, 26 (1977).

States have defined the pension contract in a variety of ways. (A. H. Munnell, State and Local Pensions: What Now? 2012) (Monahan 2012) A few states consider pensions as a mere "gratuity", the terms of which can be changed by the legislature. Some states consider the pensions of retirees vested and sacrosanct, but the contract for employees only accrues benefits through the current work year, at least until one becomes eligible for retirement. Other states follow the so-called "California rule", which basically holds that from the date one becomes employed the terms of the pension contract cannot be impaired or diminished, but those terms can be, and often are, enhanced. (Monahan 2012) Although the California Supreme Court now has docketed two cases (purchase of "airtime" and pension spiking) challenging this judicial rule, one possible outcome is for the Court to declare that modifications to a pension contract must be reasonable and that any "changes in a pension plan which result in disadvantage to employees **should** [instead of "must"] be accompanied by comparable new advantages." *Marin Ass'n of Public Employees v. Marin County Employees' Retirement Ass'n*, 2 Cal.App.5th 674 (1st App. Div. 2016), *review granted*, Case No. S237460 (Nov. 22, 2016). Such a ruling will only introduce more litigation and controversy about how pension contracts can be amended.

A few states, most notably Illinois (Art. XIII, §5) and New York (Art. V, §7), have a constitutional provision specifying that membership in a pension fund through employment constitutes an enforceable contract which cannot be impaired or diminished. Kentucky goes even further and specifies by statutes that the entire construct for each major pension system constitutes an "inviolable contract", with the state constitution declaring that contracts shall not be impaired.

Thus, if a pension contract is formed through a collective bargaining agreement (as in Connecticut, for example), a specific statutory provision (as in Kentucky), judicial interpretations (as in California) or a constitutional provision (as in Illinois), both state and federal constitutions then prohibit legislative impairment of those contracts. An open question is the extent to which voters can impair those contracts through referenda, initiatives, or constitutional amendments.

4.2 Broad Legislative Discretion on Raising Taxes and Funding Pension Plans

The second major principle is the repose of sole authority in the legislature to raise money and appropriate those funds. Most recently, the New Jersey Supreme Court upheld the right of the Governor to withhold billions from the public pension funds, declaring that despite a compelling need "to honor its compensation commitment to retired employees," the political branches had to forge that solution. *Burgos v. State of New Jersey*, 222 N.J. 175 (2015). Courts from Illinois to Kentucky and elsewhere have reached the same conclusion. See, e.g., *In re Pension Reform Litigation*, 2015 IL 118585 (May 8, 2015); *Jones v. Board of Trustees*, 910 S.W.2d 710 (Ky. 1995).

Thus, although public retirees may have an enforceable contract to their pensions, much like Shylock in *The Merchant of Venice*, they may find themselves able to secure a judgment, but discover they cannot shed a drop of blood in the process. Pension funds, which represent an advance from pay-as-you-go systems, simply do not have to be funded in most States.

5 How Prepackaged Chapter 9 Bankruptcies Can Usher in Fair Solutions

If a given State can create a desirable new pension system for employees and retirees, then a prepackaged Chapter 9 Plan of Debt Adjustment can be the perfect, if not the *only* available, transition vehicle. Bankruptcy does not have to be a traumatic, end-of-the-world experience, as the corporate world discovered when it created prepackaged Chapter 11 proceedings in the 1980s and 1990s. What follows is a brief discussion of how Chapter 9 Plans of Debt Adjustment could be utilized, including a discussion of how that desirable new pension system could be created.

5.1 How Prepackaged Chapter 9 Plans of Debt Adjustment Could Function

The case law emerging from recent Chapter 9 cases (such as the cities of Vallejo, Stockton, and Detroit) has reinforced the ability to modify public pension obligations in Chapter 9 municipal debt adjustment proceedings. In those proceedings, the bankruptcy courts determined that pension agreements were executory contracts, permitting a municipality to alter its pension obligations in a Chapter 9 proceeding, even if constitutional or statutory provisions provide that such contractual obligations may not be altered.

The problem with Chapter 9 proceedings in the recent past has been the delay, cost and uncertainty of result. For example, the City of Vallejo, California spent over $10 million in professional fees; Jefferson County, Alabama, over $30 million; and Detroit, over $170 million. All took over 18 months to confirm a Plan of Debt Adjustment. All such Chapter 9 filings so far, including these three examples, have been without any prior extensive planning or effort to resolve their financial difficulties or reach agreement with creditors. In bankruptcy parlance, such filings are deemed "free-fall" since the fate of the municipality and its competing creditors is played out in the unscripted drama of the bankruptcy court without any prior agreement or pre-planning of the intended result and subject to the uncertainty of court rulings and the aggressive arguments of various stakeholders.

There is no reason for such delay, cost and uncertainty of result in Chapter 9 filings. Section 1126(b) of the Bankruptcy Code is applicable to Chapter 11 and Chapter 9 and provides an expedited process by which a debtor may propose and confirm a Chapter 9 plan. Under this provision, a prospective municipal[2] debtor may solicit consents for a proposed plan from its creditor constituencies and thereafter file a petition under Chapter 9. After filing for Chapter 9, the debtor schedules a single bankruptcy court hearing to pass on the adequacy of its prepetition disclosure materials and confirmation of its proposed plan. A "prepackaged" bankruptcy debt adjustment is one method of binding all the public pension creditors (public workers and retirees), as well as security holders and

[2] The term "municipality" is defined in the Bankruptcy Code as a "political subdivision or public agency or instrumentality of a State." 11 U.S.C. §101(40). The definition is broad enough to include cities, counties, townships, school districts, and public improvement districts. It also includes revenue-producing bodies that provide services which are paid for by users rather than by general taxes, such as bridge authorities, highway authorities, and gas authorities.

other creditors to a Plan of Debt Adjustment. However, if certain creditor claims will be left untouched, the municipality can concentrate only on those claims it needs to address.

To see how this would function, let us use the example of a local school district. In some states, such as Illinois, Kentucky and Connecticut, the Legislature appropriates the pension contribution for all teachers; in others, such as Alabama and Mississippi, the local school districts make the employer contribution for teachers and include these payments in their local budgets. States which make the pension contribution at the state level would need to pass the responsibility down to the local school districts and then increase annual education funding as appropriate. In this fashion, annual budgeting responsibility would be lodged with the most appropriate institution—the local school district.

The new rule for the first year would require that the school district contribute a proportionate share of the newly recalculated pension liability so that the plan is 120% funded. In many states, this would be a multiple of payroll, since the liability would be calculated using 4.75% or something close to that. No school district could afford such a contribution, so it would meet the "insolvency" requirement of 11 U.S.C. § 101(32)(c) and be eligible to file a Plan of Debt Adjustment. Thus, so long as the state authorizes municipal filings,[3] prepackaged Chapter 9 bankruptcies are possible; if a state has not previously authorized the use of Chapter 9, it would need to do so as another initial step.

5.1.1 A summary of steps involved in a prepackaged plan of debt adjustment include:

1.The negotiation of a plan with public workers and retirees and other major creditor constituencies (with the latter only becoming involved if the Plan attempts to address any of those debts);

2.Preparation and dissemination of a proposed plan, disclosure statement and voting ballot to solicit creditor votes from the impaired classes (current employees, inactive employees and retirees);

3.Voting by all parties with impaired interests under the plan of debt adjustment. In order for a class to accept the plan, at least two-thirds in amount and more than one-half in number of the class must vote to accept the plan. Only claims actually voted are computed in determining creditor acceptance and at least one impaired class must vote to accept the plan in order to have the bankruptcy court confirm it;

4.After the development of the prepackaged plan, the solicitation of votes with full disclosure and the vote tally (ideally showing at least one class of creditors voted to accept the plan), filing of the bankruptcy petition, together with the prepackaged plan and creditor acceptances thereof; and

5.A hearing held by the bankruptcy court to consider whether the prepetition disclosure materials meet the requirements for adequate disclosure as set forth in the Bankruptcy Code and any applicable rules of the SEC. If disclosure is found adequate, as well as compliance with the requirements of the Bankruptcy

[3] Twelve states have statutory provisions specifically authorizing the filing of a Chapter 9 petition by an in-state municipality: Alabama, Arizona, Arkansas, Idaho, Minnesota, Missouri, Montana, Nebraska, Oklahoma, South Carolina, Texas, and Washington. Another 12 states authorize a filing conditioned on a further act of the state, an elected official, or a state entity or through some other required process like use of a neutral evaluator mechanism: California, Connecticut, Florida, Kentucky, Louisiana, Michigan, New Jersey, New York, North Carolina, Ohio, Pennsylvania, and Rhode Island. Three states grant limited authorization: Colorado, Illinois, and Oregon; two states prohibit filing (Georgia and Iowa), but Iowa has exception to the prohibition. The remaining 21 states either are unclear or do not provide specific authorization with respect to filing as part of their state law.

Code for confirmation of a plan, the debtor presents a certification of creditor acceptances and the court considers whether the proposed plan can be confirmed under the requirements of the Bankruptcy Code (such as whether the plan of debt adjustment is feasible, in the best interest of creditors and fair and equitable).

A principal benefit of a prepackaged plan is speed, which necessarily reduces costs, uncertainly and anxiety. In addition, the relatively brief time in bankruptcy (often less than three months) minimizes disruption of the debtor's operations and relationships with needed creditor constituencies. Of course, the prepetition negotiation and solicitation may take substantial time.

The reality of a prepackaged Chapter 9 may actually encourage reasonable consensual resolutions. This prepackaged Chapter 9 municipal debt adjustment plan can provide the needed pension obligation reform to save the municipality, its taxpayers, public workers, retirees and creditors and provide the bridge to a new shared risk public pension plan.

5.2 How to Address Unfunded Benefit Promises in Chapter 9

Unfortunately, in many public pension plans the responsibility for unfunded benefit promises is not aligned with the contribution requirements for employees. Legislatures may confer unfunded COLAs, enhanced benefit accrual rates, pension spiking opportunities and the like, all without requiring any added contributions from employees. As illustrated in Figure 1, many employee contribution levels are set by statute around 5%, thereby coinciding with the 8% discount rate assumption. Chapter 9 Plans of Debt Adjustment may provide a vehicle for addressing at least some of these liabilities.

First, consider the problem of unfunded COLAs, which many legislatures have granted. No retiree could contend that he/she actually helped to fund this liability. No retiree could contend that his or her employer actually helped to fund this liability. Likewise, no retiree could legitimately contend that he/she actually planned a retirement budget around COLAs that did not exist as of the date of retirement. On the other hand, once a retiree becomes accustomed to such COLAs, one's spending may begin to assume that they will be continued indefinitely.

Once the concept of risk-sharing becomes institutionalized and current employees are asked to bear part of the cost of those unfunded COLAs for retirees, they may legitimately question whether they should in fact bear that cost along with the employer. Therefore, the Plans of Debt Adjustment might include a question on the ballot for both employees and retirees concerning how much of the unfunded COLA should be retained. The actuary could calculate how much the employees and employers would be expected to contribute based on, say, five options: (1) 100% retention, (2) 75% retention, (3) 50% retention, (4) 25% retention, and (5) 0% retention.

One might anticipate that retirees, even if they acknowledge the unfairness of saddling current employees with funding such benefits that the retirees never helped to fund, would tend to vote in favor of higher rates of retention. One might also anticipate that current employees would tend to vote

in favor of lower rates of retention, thereby producing a dual-node result. The Bankruptcy Judge would then be responsible for making the final determination as to the retention percentage, and the Plan of Debt Adjustment might provide that any reduction in benefits would be phased in over several years (in order to give retirees an opportunity to adjust their budgets).

Second, consider the problem of pension spiking, whether created by "High-Three" formulas, the addition of unused sick leave or vacation time to boost final earnings, or otherwise. To simplify, let us use the sick leave or vacation time hypothetical to estimate the unfunded liability for retirees stemming from their use of pension spiking. Some retirees may have had zero days of unused sick leave, whereas others may have accumulated the maximum allowable and then applied those hours to the final year of salary for purposes of the pension calculation. Simply analyzing the extent of pension spiking would not be a complete answer, however.

The reason is that some teachers may have decided that they would retire in a particular year, regardless of how many sick days they had accumulated and regardless of the impact of those sick days on their pension. Other teachers may have decided to retire early because of the impact on their pensions from the use of sick leave in the final salary calculation. Had spiking not been available, those teachers might have decided to work a year or two or three extra, thereby accumulating additional pension credits and perhaps benefitting to some extent from salary raises at the end of their careers.

Thus, it would seem that a statistically significant survey could be conducted of the retirees in order to develop estimates of liabilities added due to pension spiking that could then be extrapolated to the entire population. The sample of retirees who had their final salary increased with the addition of unused sick days could be asked appropriately worded questions to determine whether they would have retired when they did, regardless of the impact of pension spiking. If the answer is negative, that teacher could then be asked how many more years he or she would have worked before retiring. That teacher's pension could be recalculated, using the added pension credit and a new average final salary, along with a shorter period in retirement. The total added liability could be calculated.

The actuary likewise could calculate the change in assets associated with these changes in salaries. The overall net new pension liability would be the difference between the changes in liabilities and changes in assets. The actuary could then calculate the level of contributions required to support 100%, 75%, 50%, 25% or 0% retention of the spiked benefits, just as in the example for unfunded COLAs.

5.3 How to Create a "Landing Spot" for Plans of Debt Adjustment, Namely a Risk-Sharing Pension Plan

A Governor of any state, but especially those with serious underfunding issues, could create a Task Force of representatives of key employee and retiree groups, an independent actuary with deep experience in plan design, and an independent mediator/facilitator. The actuary should be given complete access to the pension plans' databases and could work with the existing actuary, who presumably has the most knowledge of the system.

The Governor should then specify their mission—produce a reform plan to present to the legislature which accomplishes at least the following objectives:

- Bases the pension calculation solely on base salary (thereby eliminating pension spiking as a common practice);
- Incorporates a cap of earnings which can be used for pension calculation purposes (much like the cap on maximum taxable earnings in social security);
- Achieves 75-80% replacement of the five highest years of substantial earnings over at least a full 35-year working career, subject to the cap on earnings and considering the likely range of social security benefits for the employee (thereby using the social security administration's 35-year formula for calculating benefits) (Aon Consulting 2008)[Example: $100,000 cap on earnings might then yield a maximum pension of $75,000 (Kahneman and Deaton 2010)];
- Moves away from end of career formulas, such as high-three or high-five, for purposes of calculating the pension benefit, thereby at least partially encouraging the expansion of partial employment options toward the end of one's career;
- Extends working careers for non-public safety employees so that the normal retirement age coincides with social security retirement ages, possibly indexed to future longevity trends;
- Considers the best available evidence on physical decline (Belbase, Coe and Rutledge 2015) and longevity after retirement for public safety employees, including any epidemiology (Violanti, et al. 2013) and actuarial experience studies (e.g., (Segal Consulting 2014)), for purposes of determining whether the normal age of retirement for such workers should be increased to, say, age 60;
- Moves toward a proportional sharing of the contribution costs between employers and employees, thereby making employees more conscious of the cost of unfunded benefits;
- Utilizes a discount rate much closer to high quality corporate bond rates to compute the unfunded liabilities;
- Considers whether some form of stress testing or stochastic modeling (Morneau Shepell 2016) could be employed to manage the portfolio and identify risky or underperforming assets or asset categories that should be eliminated in favor of more sustainable income streams;
- Evaluates best governance practices, especially those in world leaders, such as the Canadian or European plans, (Ambachtsheer 2016) see discussion in section 3.3 , supra;
- Uses a much shorter amortization schedule (thereby moving toward correcting the current intergenerational equity imbalance (Miller 2012); and
- Seeks to achieve a funded status of 120% of liabilities within a reasonable period (thereby providing a cushion for the inevitable economic downturns).

Such a model for public pensions plans already exists and could productively be copied by this hypothetical Task Force. It is the shared risk model pioneered by the Province of New Brunswick and has been praised by, among others, the American Academy of Actuaries (American Academy of Actuaries 2014) and Alicia Munnell of the Boston College Center for Retirement Research (Munnell and Sass 2013) (Shared Risk model "an important evolutionary step, and potentially an attractive alternative to the traditional defined benefit plan").

The New Brunswick story is worth summarizing. Soon after being elected Premier of New Brunswick in late 2010, David Alward appointed a three-person task force to analyze private pensions and make recommendations. In March 2011, two of the members (a retired lawyer and an actuary) met with him and a handful of Cabinet members and their deputies. Of some 300 private pensions in the province, only three were fully funded, with most on the brink of insolvency. They explained, "the demographics will eat you alive." They told the Premier that the public and private plans could be fixed, but they needed time and a mandate "to fix" the plans. After two and a half hours, Alward gave them marching orders to fix the plans. That night, according to his own admission, Alward "felt sick to my stomach."

The task force delivered the bad news to union after union and worked with the actuaries to devise equitable solutions. For ten months, the task force and the government worked behind the scenes to develop the necessary legislation, regulations and funding policy. On May 31, 2012, four union leaders and the task force chair (the retired lawyer who had represented unions and management and worked as a pension regulator during her career) joined Premier Alward at a press conference to announce agreement on the new legislation. It is safe to say that none of the union leaders had voted in favor of the conservative Alward, but that day they united in celebration and tears.

In practice, the reforms meant that the discount rate was reduced to 4.75%, thereby increasing the unfunded liability. Automatic COLAs were eliminated, and the retirement formula was changed so that it was based on a conditionally-indexed career average, with both changes lowering the unfunded liability. Although a major point of resistance for the heavily unionized New Brunswick work force, retirement ages were increased to 65 for most workers and 60 for public safety workers, thereby substantially decreasing the unfunded liability. Transition rules were agreed upon, so that persons near retirement under the old rules were not unduly penalized. Employer and employee contributions were agreed upon, with the understanding that poor investment returns could result in increases within agreed upon ranges. Worse investment returns could result in decreases in pension benefits, again within agreed upon ranges, but those benefits would be first to be restored when returns improved. (Government of New Brunswick 2013)

Investment management was altered in significant ways. First, independent trustees with experience in finance were required. Second, stochastic modeling of the portfolio became regularized, with a mandate for the actuary to run at least 1000 different economic scenarios for a 20-year time horizon. If the established contribution rates and other assumptions about the plan indicated that base benefits could be paid in at least 97.5% of those scenarios, then no changes would be required. The modeling also had to indicate that "ancillary benefits" such as the conditional indexing of wages and COLAs would be paid at least 75% of the time. Otherwise, the trustees would de-risk the portfolio, increase contributions, and/or decrease pension benefits. The stabilizers became automatic.

Finally, the new unfunded liability, created with a target of maintaining about 120% funding, would be amortized in 15 years.

5.4 Addressing Objections to Extended Working Careers

Employees of most American public pension plans could be expected to react with the same shock and horror that the New Brunswick public employees did when the Task Force broached the subject of longer working careers. Here are some possible responses.

First, since the 1983 agreement to reform social security, the full retirement age has been gradually increasing. For persons retiring today, the full retirement age is 66; for persons born in 1960 or later, 67. For workers in the private sector, normal retirement ages generally match up well with the full retirement age under social security. According to the AARP, nearly half the private sector workforce has no workplace retirement plan. (John and Koenig 2014) As many have observed, the public sector expects those workers, as well as those private sector employees with a workplace retirement plan, to pay taxes to support state public pensions. At one level, basic fairness would say that public employees ought to be on roughly the same footing as everyone else when it comes to the age at which one retires (with obvious occupational exceptions).

Second, if Congress makes no changes to social security before 2035, the law will require 23% reductions in all retiree paychecks. Although it's easy to conclude that Congress would never allow that to happen, the more likely result is some combination of tax increases and benefit cuts. Three consecutive administrations have contemplated some variation on this theme.

For any non-retired person, the best defense against any such future reduction is to maximize one's social security income before it is slashed by Congress, either through action or inaction. Just to illustrate, if one's full retirement benefit were $1000/month, starting social security at age 62 results in a 25% reduction, or $750. Correspondingly, waiting until age 70 results in a bump to $1320/month. In addition, working a few extra years may mean replacing early career low-earnings years with higher end-of-career earnings years. Because social security benefits are calculated using the average of the highest 35 years of earnings (though indexed), replacing low earnings years (or even zero earnings years) with high earnings years also increases the social security benefit. (Kotlikoff, Moeller and Solman 2015).

Third, reducing the unfunded liabilities of state public pension plans by agreeing to longer working careers may give employees at least some hope of salary raises. In many states, average public employee salaries have stagnated over the past decade. The dot-com crash and the Great Recession have kept public salaries down in an indirect fashion. That is, the unfunded pension liabilities exploded, and governments responded by stretching out the amortization periods to keep the annual required contributions as low as possible. Nonetheless, employer and employee contributions continued to rise in many jurisdictions. For example, as of the end of FY2013, approximately one-third of the top 150 public pension plans required employer contribution rates of 20% of payroll or higher. Those high rates can deter governments from raising salaries. Thus, if salaries don't keep up with inflation or even the assumed growth rate in the actuarial analyses, public employees risk having inadequate income during their working years when demands are highest (raising children, buying houses and cars, educating children, etc.). This violates all norms of "life cycle" expenditures (Deaton 2005). Therefore, one could argue that insisting upon no changes to pension formulas or retirement dates cripples the ability of local governments to provide reasonable incomes during an employee's working years.

Fourth, a move to a shared risk plan also introduces the prospect of COLAs when market performance warrants, much like the system Wisconsin has employed for years. In many states, it would be difficult to find any public employee who seriously believes that COLAs will be granted at any future time under the current trajectory.

Fifth, fairness to the next generations demands that the pension crisis be resolved. If there is no transition to a fair, secure and sustainable pension system soon, then the children of today's public employees who may pursue public service careers and today's students who may become teachers will all be second class citizens. Not only will they have less secure pensions than today's employees, but they will have to pay taxes for the next 30-40 years to amortize the unfunded liabilities racked up to pay for the retirements of today's employees. This is hardly fair to the next generations. It's like a violation of the old Boy Scout rule to leave your campsite in better condition than it was when you arrived. It's also a violation of the most basic religious concepts of stewardship.

Sixth, there is real potential in part-time work to ease the transition into retirement. Many public pension formulas use career-end salaries as part of the equation, and it therefore becomes important for public employees to maximize their earnings toward the end of their working careers. There are also undeniably many employees who are burned out or physically less capable of working until age 66 or 67 (leaving aside the separate issue of public safety employees, such as police or firefighters). If the formula for determining retirement benefits is changed so that the average of a longer period of years is used, then, subject to local situations, the employee may have the opportunity to ease into retirement through part-time work, but without penalizing himself or herself. In fact, in New Brunswick, nurses in one union greeted the opportunity for part-time work (along with longer working careers) with enthusiasm, and anecdotal reports indicated that absenteeism dropped significantly.

Seventh, there may be an opportunity for some lump sum payments to entice employees to work longer. Moving the retirement date so that it coincides with the "normal" retirement age under social security increases social security benefits rather dramatically, as indicated above. A December 15, 2015 CBO study indicated that the average wage earner (middle quintile) born in the 1960's with a full working career might expect to see 41% of his/her wages replaced by social security when retiring at the normal age. (Congressional Budget Office 2015) Thus, it would not take much from a public pension to get that employee to a wage replacement ratio of 75-80%, which is the target of most financial advisors and experts. A recent paper by Olivia Mitchell of the Wharton Pension Research Council suggested that offering workers a partial lump sum payment if they waited until the normal retirement age might help matters. Applying her logic to public pensions, one could offer a pension and social security equal to at least 80% of the last five years of substantial earnings and then an actuarially based lump sum payment for any foregone public pension income stream. States also might borrow from the Georgia ERS and its emphasis on educating employees about wage replacement through social security and public pensions.

Eighth, if employees work longer and if some cap on benefit accruals were instituted, then there might also be opportunities for salary boosts by not requiring employee contributions when the benefit accrual cap is reached. Social security taxes cease when the cap on earnings is reached. Many States have no caps on wages subject to pension contributions. However, if the main purpose of a pension is to prevent poverty in retirement, there is no particular reason that income above some agreed-upon limit

be part of the pension calculation. Although not directly related to a later retirement date, the cessation of contributions for earnings above that cap would represent an immediate boost in disposable income for those later years of employment. Furthermore, if a limit of, say, $100,000 were agreed upon, some public employees likely have had contributions taken out of their paychecks in the past. Those amounts, plus the State contributions and earnings on both contributions, could be "refunded" to affected employees at the time of their retirements in the form of an IRA rollover.

Finally, and perhaps of greatest importance, several studies have concluded that people who work longer tend to live longer. (Wu, et al. 2016) (Waldron, Links Between Early Retirement and Mortality 2001) (Waldron, Do Early Retirees Die Early? Evidence from Three Independent Data Sets 2002)

6 A Constitutional Amendment to Tie Up Loose Ends

There may be sound reasons to place a constitutional amendment before the voters. For example, it would be undesirable for the Legislature to tamper with the new shared risk model before the model has a chance to prove itself. It would also be counter-productive for the Legislature quickly to abolish the shared risk model and replace it with a defined contribution plan. Furthermore, because the vast majority of taxpayers are not public employees or retirees, fairness demands that their interests be protected and that the entire effort not be seen as merely the diversion of additional taxpayer dollars to support the retirements of public employees.

Although every State will be different, here are some possible elements of a constitutional amendment:

- No contribution holidays—contributions treated just like social security withholding and employer contributions, paid on same schedule (or adjusted to fit cash flow needs);
- Transition to shared risk plan shall not be construed as an impairment of contracts nor a violation of any other constitutional provision;
- COLAs only available for retirees who participate in the shared risk plan, either voluntarily (current retirees theoretically could have their pension frozen and then given the option to join the shared risk plan) or mandatorily (either as a new employee or as a result of plans approved in bankruptcy);
- Contracts formed regarding pensions and healthcare in retirement are formed only annually and may not be diminished for any such accruals (alternatively, the shared risk plan is the pension contract and may not be diminished by the Legislature);
- State plans and state-sponsored plans would become part of shared risk model upon approval of constitutional amendment or plan approval by bankruptcy court, whichever occurs first;
- New retirement ages specified in amendment, possibly linked to changes in mortality improvements (probably based upon U.S. averages, not particular state averages);
- New cap on salary subject to contributions, possibly indexed to changes in wage indexes (suggestion—somewhere in the range of $80,000 to $100,000); and
- No enhancement of benefits unless fully funded in advance (or on some reasonable schedule).

7 How This Solution Addresses the Six Proximate Causes of Public Pension Underfunding

At the beginning of this paper, we postulated six major causes of public pension underfunding. These were: (1) low contribution rates linked to the use of the expected rate of return as the discount rate; (2) contribution holidays, taken both in good times and bad; (3) poor governance; (4) poor investment returns, sometimes resulting from chasing returns and taking on more risk than would otherwise be appropriate; (5) legislative grants of unfunded benefit increases; and (6) pension spiking.

It may be useful to examine how our proposed solution of a shared risk model, coupled with Chapter 9 Plans of Debt Adjustment and a constitutional amendment, address these issues.

7.1 Reduced Discount Rate

A key element of transitioning to a shared risk plan is the adoption of a dramatically reduced discount rate to value liabilities. New Brunswick initially adopted a 4.75% discount rate for its public service shared risk plan with the understanding that the rate would be fixed for three years. This rate was chosen as close to the indexed corporate bond rate at the time, but those rates have since drifted downward. Nevertheless, New Brunswick has stuck with the 4.75% discount rate, figuring that other built-in safeguards help to insure the security of the plan. These safeguards include, among others, the prohibitions on benefit increases if the Open Group Funded Ratio drops below 105% or if there is less than a 95% probability of meeting the base benefits with current contribution levels over an extended period of time. In similar fashion, the Ontario Teachers' Pension Plan has been gradually reducing its discount rate in recent years, and it presently sits at 4.8%. United States public pension plans would do well to mimic the examples of these Canadian plans.

7.2 No Contribution Holidays

Some states, such as Illinois, Kentucky and Connecticut, will need to pass the responsibility for annual contributions down to the local level so that contributions become incorporated into local budgets and payment is normalized, just as FICA contributions are. Making this simple change would go a long way toward eliminating the annual fights over funding at the legislative level. In some states, a constitutional amendment could institutionalize this funding concept.

7.3 Better Governance

States would do well to study the governance of the Ontario Teachers' Pension Plan, widely regarded as one of the best public pension plans in the world. OTPP is a major investor in infrastructure around the world. Since 1990, it has earned annualized returns of over 10%. Over the last decade, its annualized return has beaten virtually every American public plan. Keith Ambachtsheer's valuable book, The Future

of Pension Management, is an excellent resource for state reformers. (Ambachtsheer 2016) Plan members have an understandable desire to be represented on plan boards. Elected representatives have equally strong claims on board representation, especially to safeguard taxpayer interests. One possible alternative would be to require certain skills of board members (attorneys, actuaries, finance professionals, government accounting experts, etc.), have three nominees for each position (one from the Governor, one from the Senate Majority Leader, and one from the Senate Minority Leader), and then allow members to vote on these nominees. Such a procedure would force elected representatives to choose the most qualified individuals for open slots and eliminate some of the cronyism which has prevailed in some states.

7.4 Improved Investment Returns

The introduction of stochastic modeling and attention to a 20-year time horizon would have salutary benefits, primarily focusing the attention of plan trustees and staff on the volatility of asset classes. The portfolio may tend toward more conservative investments, but the elimination of wide swings due to volatile assets would be salutary. In addition, a switch away from boards dominated by ex officio members or public employees and retirees ought to improve the investment management functions of the plans. Clearly, American public plans have adopted much riskier profiles in recent years as bond returns have bottomed out. Where plans once could invest in long-term bonds and rely upon the risk-free returns of 7.5% to 8%, they have been forced to chase riskier assets as bond yields have dropped below 3%.

7.5 No More Unfunded Benefit Increases

A constitutional amendment may be the best vehicle for tying the hands of legislatures and collective bargaining agents. The amendment could simply state that no benefits may be enhanced unless such enhancements are fully funded (or funded within a short period of time, specified in the amendment). This would eliminate the temptation to increase benefit multipliers, grant unfunded COLAs, allow pension spiking, etc.

7.6 Decreased Incidence of Pension Spiking

Moving toward a career average formula, as New Brunswick did, would help reduce the problem of pension spiking. The use of base salary only would improve matters. A cap on maximum earnings subject to pension contributions, just as social security presently has, would eliminate the perceived unfairness in some states of long-time employees landing high-paying jobs for the final few years of their careers and then relying on those earnings under high-three or high-five formulas to calculate lifetime pensions.

8 Conclusions

The pension crisis in the U.S. public sector cannot be solved by only addressing new entrants to the system. The crisis has developed from decades of already-accrued promises, which must be dealt with. Other purported solutions, such as pension obligation bonds, only inject more leverage and risk into an already precarious situation for deeply underfunded pensions.

Having a legal and constitutional path from the current underfunded pensions to a more modest, but also more reliable, benefit design is crucial for many systems.

For those systems without weak governance, with solid investment performance, with steady funding of their pensions, the transition to a risk-sharing plan may be relatively easy. Many of these well-run plans are nevertheless finding themselves with escalating pension costs, and these risk-sharing plans may help retard cost growth while maintaining a good level of retirement benefits for their participants.

Deeply underfunded plans will likely find the transition difficult; however, the alternative for these plans is to try to get ever-increasing contributions to make up for decades of deliberate underfunding of the pensions. The decision not to pay the full benefits was essentially made years ago when full contributions weren't made at the time the benefit value was accrued. Recognizing this will be politically difficult, but it is far more preferable to have something attainable promised.

The important aspect of this paper is not the specific risk-sharing arrangement; while we are recommending the New Brunswick model, many other risk-sharing arrangements could work. The concept is that all the behavior that has weakened the stability of public pensions came from a lack of "skin in the game" by the people pursuing said behavior. When participants see that "clever tricks" will be taken out of their own benefits and not only taxpayers, they will be interested in ensuring their pensions are well-run.

The important aspect is the transition. Without having a feasible and legal transition, as well as legal and constitutional protections to prevent sliding back into the bad behavior of the past, solving the pension crisis is not possible.

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