Born Broke:
Our pension debt problem

by J. Scott Moody and Wendy P. Warcholik, Ph.D.

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EXECUTIVE SUMMARY

Connecticut's public pension system is one of the most expensive in the nation – which may explain why it is drowning in debt.

The state says it owes an already-whopping $24.5 billion to teachers and state employees. But the truth is even more sobering: Our study, conducted by economists Dr. Wendy P. Warcholik and J. Scott Moody, shows that by using overinflated earnings estimates the state is grossly underestimating the size of its pension debt.

Connecticut's actual unfunded pension liability is $76.8 billion. That's more than *three times* the amount the state claims to owe.

Connecticut offers a host of other benefits to retirees – including healthcare and life insurance – but there are virtually no savings to pay for these ever-mounting costs. In addition to its unfunded pension liability,

Connecticut owes *another* $22.7 billion in unfunded benefit obligations to retired teachers and state employees.

When the two figures are combined, it becomes clear that:

• **The state owes *almost $100 billion* in unfunded pension and benefit liabilities.**

• **That's $27,668 of pension debt for every man, woman and child in Connecticut.**

The state's estimate of $24.5 billion in pension liabilities significantly underestimates Connecticut's pension debt. First, economists dispute the method the state uses to

determine how much it will owe in the future because it omits future benefit obligations. Second, on the future promised benefits they did value, the state assumes that its pension savings will earn between 8 and 8.5 percent each year. That projection is unreasonably optimistic – the 2013 state treasurer's report shows that, historically, the pension funds have earned significantly lower rates of return.

What's more, Connecticut has not kept up with the payments it promised to make when it revamped the pension system in 2012. Even now, the dramatic shortfall in the state's pension system forces difficult choices on Connecticut's citizens:

With public pensions and retiree benefits eating up a greater portion of the state's budget, steep tax increases or deep cuts to government services are the only ways to achieve fiscal stability.

In light of these facts, **the Yankee Institute for Public Policy recommends the immediate adoption of a defined contribution pension plan,** both to offer public workers greater flexibility and to safeguard the hard-earned dollars of Connecticut's taxpayers.

- Yankee Institute Staff

INTRODUCTION

A new analysis of Connecticut's unfunded pension liability shows it is much, much greater than the $24.5 billion reported by the state, and has increased significantly since our last study was published in 2010.

Pension and other retiree liabilities are being dramatically underestimated because the state's estimates are based on unrealistic assumptions about discount rates and rates of return, and because the state does not include its retiree healthcare and other costs in its figures.

This new study finds that the real unfunded pension liability is $76.8 billion, or 213 percent higher than current forecasts, with other retiree benefit liabilities coming in at $22.7 billion. Add the two obligations to retirees together and Connecticut's total unfunded retiree (pension plus OPEB) liability clocks in at $100 billion. For comparison, that figure is five times the amount the state collects in revenues per year.

Additionally, as of 2009, the City of Hartford has a $700 million unfunded pension liability.

Connecticut's state government administers retirement benefits for state employees, teachers, and those in the judicial system. These three groups include 174,300 working or retired people. Of those, 76,420 drew pension benefits in Fiscal Year (FY) 2012.

Did you know?

The largest teacher pension in the state of Connecticut goes to someone who hasn't even retired yet! Bruce Douglas, head of the Capitol Region Education Council (CREC), receives a $198,000 yearly pension in addition to the $130,000 annual salary he earns for running CREC. Douglas, 66, started collecting his pension in November 2011. Before his "retirement," CREC paid Douglas a little less than $250,000 per year. But state law allows Douglas to collect both his pension and salary only as long as his salary was cut to 45 percent of the maximum level for the assigned position. Just by retiring and taking a voluntary "pay cut," Douglas actually increased his pay from $250,000 to $328,000. Between his 33 year tenure in the state education system and his time at CREC, Douglas' pension payments have peaked: After 37.5 years, teachers earn a pension equal to 75 percent of their salary, the maximum allowed.

One state lawmaker transformed an election loss into an opportunity to collect both a pension and a salary! After losing the 2008 election, Rep. Al Adinolfi, R-Cheshire, retired and began collecting his legislative pension of about $450 a month. When he was reelected in 2010, he started receiving his legislative salary again – along with his pension!

It is not surprising that New Haven's recently-elected mayor, Toni Harp (a Democrat and former state senator) said she supports pension reform! New Haven spends more on employee pensions, as a percentage of its budget, than any other major city in Connecticut. In fact, New Haven is ranked 27th out of 173 cities nationwide for its pension spending, which eats up about 10.2 percent of the city's annual revenues, according to a study by the Center for Retirement Research. If that's not enough, the city has about $500 million in pension liabilities, too.
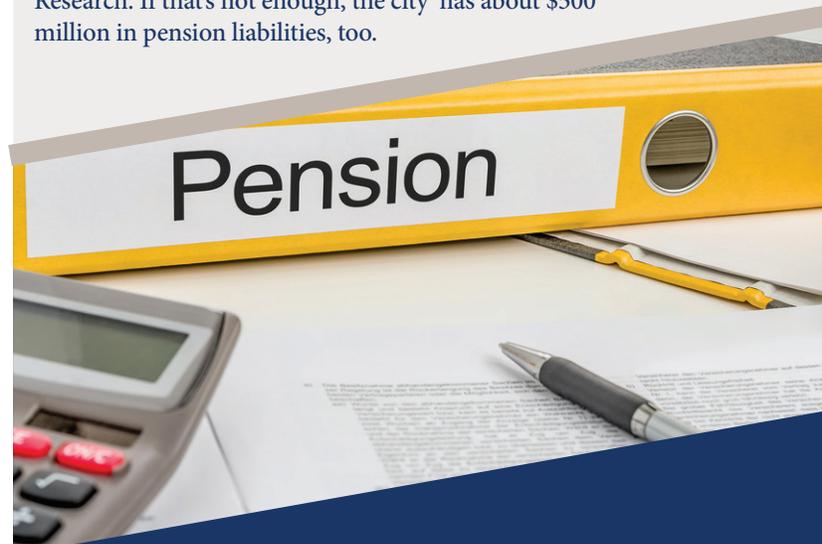
By state estimations, pension obligations for active and retired state employees, teachers and judges total $48.2 billion in FY 2012. Yet, the state has only set aside $23.7 billion in assets to pay for these obligations. The pension system reports an unfunded liability of $24.5 billion. But our study shows the liability is more than three times that amount.

And that's just the pension liability. On top of that is Connecticut's Other Post-Employment Benefits (OPEB) system, such as healthcare and life insurance, which is in even worse shape. In FY 2013, the OPEB system has nearly zero assets ($144 million) set aside to pay for $22.7 billion in obligations. Without offsetting assets, the OPEB system operates on a "pay-as-you-go" basis, which maximizes the tax burden on the shoulders of Connecticut's taxpayers.

In 2013, 657 of Connecticut's state employees collected pensions over $100,000 a year. That means they received more – as taxpayer-subsidized retirees – than 80 percent of American households earned working that year! The big winner among state employees for 2013 was former UConn Professor John Veiga, who received $283,273. Three of the top ten highest pension earners were former UConn professors; another five were former employees of the UConn Health Center. Rounding out the top ten were former employees from Corrections and Central Connecticut State University. In total, the top ten pension collectors took home about $2.3 million last year.

This year, two 66-year-olds were appointed to the bench. In just under four years, those two new judges will reach mandatory retirement at age 70. That's when they'll become instantly eligible for lifetime pensions exceeding $100,000 each year, complete with annual cost-of-living increases and lifelong state health benefits. Legislation passed this year seemed to alter the law so that judges serving less than ten years would get only a fraction of the $100,000 pension based on length of service – but an amendment passed as part of the budget implementation bill will allow judges to count years of other state service along with their years on the bench to reach the ten years necessary to collect their $100,000 pensions.

The public retiree problem is so bad that Connecticut's state government, in FY 2008, resorted to issuing $2 billion in General Obligation Bonds (GO) for the Teachers' Retirement System (TRS) to make up for lost ground. However, this gamble has not paid off and such risk arbitrage is simply not a sustainable way to deal with this unfunded pension liability.

Overall, there are two basic options available to policy makers to solve Connecticut's massive pension and OPEB crisis. One option is for policymakers to dramatically raise taxes. However, raising taxes would weaken Connecticut's economy and jeopardize the state's ability to ever meet its pension and OPEB obligations.

A better option is to reform the pension and OPEB system. As we recommended in our first study in 2010, Connecticut should replace its traditional defined benefit system with a defined contribution system for new employees. As such, normal turnover in the workforce will begin to bring down the unfunded pension liability to more manageable levels.

UNDERSTANDING THE UNFUNDED RETIREE LIABILITY

Since the last study we published in 2010, when we examined the pension figures for FY 2008, public pension health has eroded.

The funded ratio for the pension system in FY 2012 was a dismal 42.3 percent for SERS, compared to 51.9 percent in FY 2008, 55.2

percent for TRS in FY 2012 compared to 70 percent in FY 2008, and 54.7 percent for JRS in FY 2012 compared to 71.8 percent in FY 2008.

Despite our earlier recommendations, Connecticut is still using a "defined benefit" system for its public employees, which is designed so that a member, such as a state employee, is paid a fixed level of income upon retirement. The level of income is based on such factors as length of service and average level of compensation. The private sector has largely turned to a "defined contribution" system, in which the employer and employee contribute a set amount of funds into a retirement plan, usually based on a percentage of income. In this system, the employee makes her own investment decisions and chooses how much to take out during retirement.

Connecticut's defined benefit pension system consists of three separate retirement systems: the State Employees Retirement System (SERS); the Teachers' Retirement System (TRS); and the Judicial Retirement System (JRS). They will hereafter be referred to as the "Connecticut pension system." As of June 30, 2012, SERS had 91,755 active and retiree members, TRS had 82,102 active and retiree members and JRS had 443 active and retiree members, for a total of 174,300 people.

Of those, 76,420 drew pension benefits in FY 2012, up from 71,781 in FY 2008.

Under SERS, 43,887 retired members received annual benefits of $1,424,477,046, or an average of $32,458 per retiree. In FY 2008, annual benefits were $1,047,479,000. Under TRS, there were 32,294 retired members drawing annual benefits of $1,531,493,000,

an average of $47,423 per retiree. In FY 2008, annual benefits under TRS were $1,231,069,368. Under JRS, there were 239 retired members drawing annual benefits of $20,519,302, or an average of $85,855 per retiree, up from $17,789,740 in FY 2008.

Additionally, there are the State Employee OPEB Plan (SEOPEBP) and the Retired Teacher Healthcare Plan (RTHP) that both deal with Other Post Employment Benefits (OPEB), such as healthcare and life insurance, and will hereafter be referred to as the "Connecticut OPEB system."

The health of Connecticut's pension and OPEB system is based on two elements— assets held versus liabilities accrued:

Assets: The market value of stocks, bonds and other investments that are held by the pension system. Each year assets grow in one of two ways. First, the value of the assets change and, second, the Connecticut state government pays an annual contribution.

Liabilities: The present value of pension benefits to be paid out to current and future retirees. Each year liabilities grow based on a number of assumptions such as expected salary increases, mortality, turnover and other factors.

For the pension and OPEB system to be considered "fully funded," assets must equal liabilities. Unfortunately, the pension and OPEB system is far from being fully funded and is currently running a large deficit called the unfunded pension liability. For example, in FY 2012, the SERS system had assets worth an estimated $9.7 billion while liabilities are estimated to be $23 billion. This leaves an

Table 1 - Funded Ratios of Connecticut's Pension System
Fiscal Years 1992 to 2012 - in Billions of Dollars

Actuarial Valuation Date as of June 30	State Employees Retirement System (SERS)				Teachers' Retirement System (TRS)				Jucidial Retirement System (JRS) (a)			
	Actuarial Value of Assets (AVA)	Actuarial Accrued Liability (AAL)	Unfunded Actuarial Accrued Liability (UAAL)	Funded Ratio (AVA/AAL)	Actuarial Value of Assets (AVA)	Actuarial Accrued Liability (AAL)	Unfunded Actuarial Accrued Liability (UAAL)	Funded Ratio (AVA/AAL)	Actuarial Value of Assets (AVA)	Actuarial Accrued Liability (AAL)	Unfunded Actuarial Accrued Liability (UAAL)	Funded Ratio (AVA/AAL)
1992	$3.426	$6.669	-$3.243	51.4%	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1993	$3.696	$7.190	-$3.494	51.4%	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1994	$3.945	$7.329	-$3.385	53.8%	$5.602	$8.223	-$2.621	68.1%	$0.063	$0.148	-$0.085	42.7%
1995	$4.209	$7.838	-$3.629	53.7%	n.a.	n.a.	n.a.	n.a.	$0.070	$0.155	-$0.084	45.6%
1996	$4.604	$8.139	-$3.534	56.6%	$6.648	$9.627	-$2.979	69.1%	$0.078	$0.162	-$0.084	48.2%
1997	$5.131	$8.833	-$3.702	58.1%	n.a.	n.a.	n.a.	n.a.	$0.088	$0.167	-$0.080	52.4%
1998	$5.670	$9.592	-$3.923	59.1%	$7.721	$10.970	-$3.249	70.4%	$0.098	$0.168	-$0.070	58.4%
1999	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2000	$7.196	$11.512	-$4.316	62.5%	$9.606	$11.798	-$2.192	81.4%	$0.123	$0.182	-$0.058	67.9%
2001	$7.639	$12.105	-$4.467	63.1%	n.a.	n.a.	n.a.	n.a.	$0.133	$0.194	-$0.061	68.7%
2002	$7.894	$12.806	-$4.912	61.6%	$10.387	$13.680	-$3.293	75.9%	$0.138	$0.209	-$0.071	66.1%
2003	$8.059	$14.224	-$6.165	56.7%	n.a.	n.a.	n.a.	n.a.	$0.143	$0.211	-$0.068	67.6%
2004	$8.238	$15.129	-$6.890	54.5%	$9.847	$15.071	-$5.224	65.3%	$0.151	$0.220	-$0.069	68.6%
2005	$8.518	$15.988	-$7.470	53.3%	n.a.	n.a.	n.a.	n.a.	$0.160	$0.235	-$0.075	68.2%
2006	$8.951	$16.830	-$7.879	53.2%	$10.190	$17.113	-$6.923	59.5%	$0.170	$0.247	-$0.077	68.7%
2007	$9.585	$17.888	-$8.303	53.6%	n.a.	n.a.	n.a.	n.a.	$0.182	$0.261	-$0.079	69.8%
2008	$9.990	$19.243	-$9.253	51.9%	$15.271	$21.801	-$6.530	70.0%	$0.192	$0.267	-$0.075	71.8%
2009	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2010	$9.350	$21.054	-$11.705	44.4%	$14.430	$23.496	-$9.066	61.4%	$0.180	$0.277	-$0.097	64.9%
2011	$10.123	$21.127	-$11.004	47.9%	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2012	$9.745	$23.019	-$13.274	42.3%	$13.735	$24.862	-$11.127	55.2%	$0.175	$0.320	-$0.145	54.7%

(a) The actuarial valuation date for years 1994, 1995, 1996 and 1997 are as of September 30.
Source: State Employees Retirement System, Teachers' Retirement System, Judicial Retirement System and The Yankee Institute for Public Policy.

Chart 1
Unfunded Pension Liability is the Gap Between Assets and Liabilities
Fiscal Years 1994, 1996, 1998 . . . 2012

Source: State Employees Retirement System, Teachers' Retirement System, Judicial Retirement System and the Yankee Institute for Public Policy.
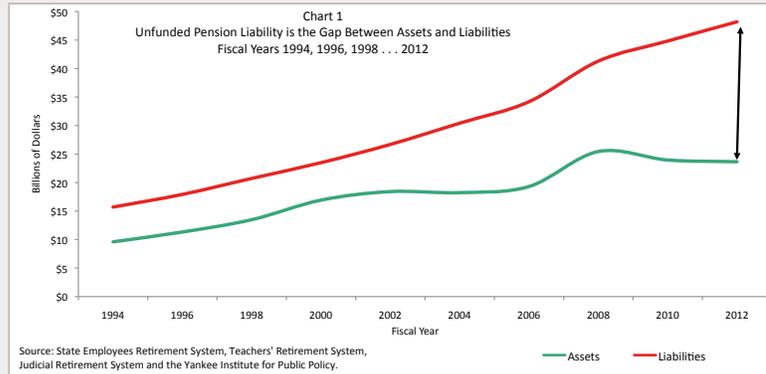
unfunded pension liability (liabilities minus assets) of $13.3 billion.

A common way to show the unfunded pension liability is the "funded ratio" which is assets divided by liabilities. Table 1 and Chart 1 show the funded ratio for the pension system while Table 3 and Chart 2 show the funded ratio for the OPEB system. The funded ratio for the pension system in FY 2012 was a dismal 42.3 percent for SERS, 55.2 percent for TRS and 54.7 percent for JRS.

More disturbingly, the OPEB funded ratio in FY 2013 was 0.6 percent. The state has set aside virtually nothing ($144 million) while facing a staggering liability of $22.7 billion.[1]

The state government's contribution to the pension and OPEB system is already quite sizable. As shown in Table 2, the annual required contribution to the state retirement system was $1.7 billion in FY 2012, compared to $1.248 billion in FY 2008. As shown in Table 4, the annual required contribution to the state OPEB system was $1.405 billion. To put this into perspective, the FY 2012 state

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1 The OPEB actuarial analysis is done every other year with the most recent being FY 2013. The FY 2013 pension is not yet available, which necessitated combining Fy 2012 pension data with FY 2013 OPEB data.

Table 3 - Connecticut's Unfunded Retiree Healthcare Liability
Fiscal Year 2006, 2008, 2011, and 2013- in Billions of Dollars

Actuarial Valuation Date as of June 30	State Employee OPEB Plan (SEOPEBP)				Retired Teacher Healthcare Plan (RTHP)			
	Actuarial Value of Assets (AVA)	Actuarial Accrued Liability (AAL)	Unfunded Actuarial Accrued Liability (UAAL)	Funded Ratio (AVA/AAL)	Actuarial Value of Assets (AVA)	Actuarial Accrued Liability (AAL)	Unfunded Actuarial Accrued Liability (UAAL)	Funded Ratio (AVA/AAL)
2006 (a)	$0.000	$21.681	-$21.681	0.0%	n.a.	n.a.	n.a.	n.a.
2008 (a)	$0.000	$26.567	-$26.567	0.0%	$0.000	$2.319	-$2.319	0.0%
2011	$0.049	$17.954	-$17.905	0.3%	$0.000	$2.998	-$2.998	0.0%
2013	$0.144	$19.676	-$19.533	0.7%	$0.000	$3.048	-$3.048	0.0%

(a) As of April 1 for SEOPEBP.

Source: Office of the State Comptroller and The Yankee Institute for Public Policy.

Chart 2
Unfunded OPEB Liability is the Gap Between Assets and Liabilities
Fiscal Years 2008, 2011, and 2013

$22.7 billion unfunded OPEB liability

Source: State Employees Retirement System, Teachers' Retirement System, Judicial Retirement System and the Yankee Institute for Public Policy.
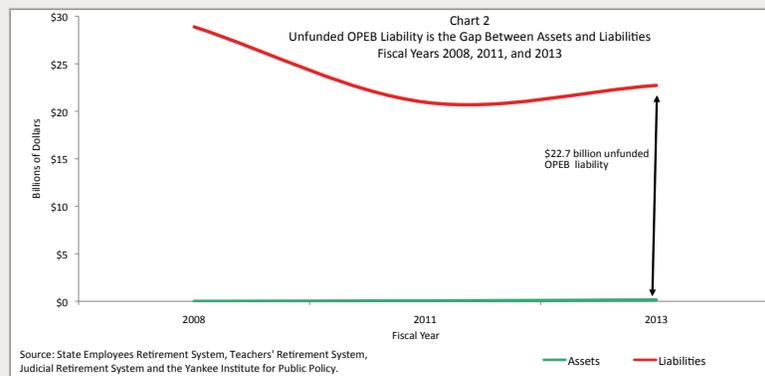
pension and OPEB contribution combined ($3.103 billion) would consume most of the sales tax revenue ($3.8 billion in FY 2012).[2]

Unfortunately, the state government has not been living up to the annual required contributions. If the state had been making its full contribution, then the funding ratios would not be nearly as bad as they are. For instance, the TRS was underfunded by $249.2 million between FY 1999 and FY 2007. This shortfall is actually much larger considering the foregone compounding of the investment.

2 Tax collection data from the U.S. Department of Commerce's Census Bureau.

ARBITRAGE: GAMBLING USING GENERAL OBLIGATION BONDS TO FUND THE PENSION SYSTEM

Due to this underfunding, the state government decided in FY 2008 to issue $2 billion in General Obligation Bonds (GO) for the TRS to make up for the contribution shortfall.

Table 2 - Schedule of Employer (State) Pension Contributions

Fiscal Years 1999 to 2012 - in Millions of Dollars

Actuarial Valuation Date as of June 30	State Employees Retirement System (SERS)			Teachers' Retirement System (TRS)			Judicial Retirement System (JRS)		
	Annual Required Contribution	Actual Contribution	Difference	Annual Required Contribution	Actual Contribution (a)	Difference	Annual Required Contribution	Actual Contribution	Difference
1992	$431.2	$250.3	-$180.9	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1993	$444.2	$290.8	-$153.4	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1994	$310.2	$310.2	$0.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1995	$351.8	$290.8	-$61.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1996	$335.1	$335.1	$0.0	n.a.	n.a.	n.a.	$9.2	$9.2	$0.0
1997	$349.2	$348.9	-$0.3	n.a.	n.a.	n.a.	$9.3	$9.3	$0.0
1998	$334.8	$334.5	-$0.3	n.a.	n.a.	n.a.	$9.3	$9.3	$0.0
1999	$315.6	$315.6	$0.0	$221.6	$188.3	-$33.2	$9.3	$9.3	$0.0
2000	$342.8	$342.8	$0.0	$240.5	$204.4	-$36.1	$9.3	$9.3	$0.0
2001	$354.2	$375.6	$21.4	$252.5	$214.7	-$37.9	$9.8	$9.8	$0.0
2002	$415.5	$415.5	$0.0	$210.7	$204.5	-$6.2	$9.6	$9.6	$0.0
2003	$425.9	$421.5	-$4.5	$221.2	$179.8	-$41.4	$10.1	$10.1	$0.0
2004	$474.0	$470.3	-$3.7	$270.5	$185.3	-$85.2	$11.6	$11.6	$0.0
2005	$516.3	$518.8	$2.5	$281.4	$185.3	-$96.0	$12.2	$12.2	$0.0
2006	$623.1	$623.1	$0.0	$296.2	$396.2	$100.0	$11.7	$11.7	$0.0
2007	$663.9	$663.9	$0.0	$425.3	$412.1	-$13.2	$12.4	$12.4	$0.0
2008	$716.9	$711.6	-$5.4	$518.6	$2,518.6	$2,000.0	$13.4	$13.4	$0.0
2009	$753.7	$699.8	-$53.9	$539.3	$539.3	$0.0	$14.2	$14.2	$0.0
2010	$897.4	$720.5	-$176.9	$559.2	$559.2	$0.0	$15.4	$0.0	-$15.4
2011	$944.1	$825.8	-$118.3	$581.6	$581.6	$0.0	$16.2	$0.0	-$16.2
2012	$926.4	$926.3	$0.0	$757.2	$757.2	$0.0	$15.1	$15.1	$0.0
Total	$10,926.4	$10,191.7	-$734.7	$5,376.0	$7,126.8	$1,750.8	$198.3	$166.7	-$31.6

(a) FY 2008 "actual contribution" includes $2 billion General Obligation Bond.

Source: State Employees Retirement System, Teachers' Retirement System, Judicial Retirement System and The Yankee Institute for Public Policy.

Table 4 - Schedule of Employer Retiree Health Care Contributions

Fiscal Year 2008 to 2013 - in Billions of Dollars

Actuarial Valuation Date as of June 30	State Employee OPEB Plan (SEOPEBP)			Retired Teacher Healtcare Plan	
	Annual Required Contribution	Actual Contribution (Employer and Employees)	Difference	Annual Required Contribution	Actual Contribution (Employer and Employees)
2008	$1,602.7	$463.70	-$1,139.0	$116.1	$20.8
2009	$1,669.3	$452.0	-$1,217.3	$116.7	$22.4
2010	$2,349.7	$555.1	-$1,794.5	$121.3	$12.1
2011	$1,324.4	$544.8	-$779.6	$177.1	$5.3
2012	$1,220.6	$541.3	-$679.3	$184.1	$55.7
2013	$1,316.6	$542.6	-$774.0	$180.5	n.a.
Total	$9,483.3	$3,099.5	-$6,383.8	$895.8	$116.3

Note: Based on GASB 45.

Source: Office of the State Comptroller and The Yankee Institute for Public Policy.

The goal was to boost the funded ratio and reduce the long-term cost of the TRS. In the short-run, Table 1 shows that the funded ratio did improve from 59.5 percent in FY 2006 to 70 percent in FY 2008—due to a 50 percent increase in assets to $15.3 billion in FY 2008 from $10.2 billion in FY 2006.

However, whether or not the GO bonds will reduce the long-term costs of the TRS is an open question. In fact, the state government is playing a game of chance that could leave taxpayer's facing an even larger pension burden. Put simply, the returns earned on investing the borrowed money must exceed the costs of borrowing the money, commonly referred to as "risk arbitrage." This is the equivalent of homeowners taking a second mortgage on their houses to invest in the stock market in the hope that the investments pay more than the cost of the mortgage.

The GO bonds were issued with a favorable average interest rate of 5.85 percent for the majority of the issuance. If the assumed rate of return, at the time of the GO bond issuance, of 8.5 percent under TRS comes to fruition, then the pension system will have netted 2.65 percentage points. However, that is a big "if." Recent economic conditions remind us that one never knows when the economy might take a nosedive, or how long it may take to recover.

Economist James B. Burnham, the Murrin Professor of Global Competitiveness at Duquesne University, in an article about risk arbitrage summed up the political situation by saying,

"As attractive as this plan [risk arbitrage] may appear from a budgetary perspective, the issuance of pension bonds generally carries significant risks that are often downplayed in light of immediate fiscal pressures and the concerns of pensioners."[3]

Now that we are 4 years beyond the GO bond issuance, it appears that the state government is losing the bet. **Between FY 2008 and FY 2012, the value of assets in the TRS has fallen by 10 percent to $13.7 billion from $15.3 billion.** Combined with a growing pension liability, the TRS funded ratio has continued to deteriorate to 55.2 percent in FY 2012 from 70 percent in FY 2008.

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3 Burnham, James B., "Risky Business" Evaluating the Use of Pension Obligatino Bonds," Government Finance Review, June 2003.

Table 6 - Market Valued Pension Liability and Funded Ratio by State
Fiscal Year 2012

State	Actuarial Assets	Market Liability	Unfunded Liability	Funded Ratio	Rank
Alabama	$28,136,859	$83,416,289	$55,279,430	34%	16
Alaska	$10,257,331	$33,972,931	$23,715,600	30%	5
Arizona	$30,716,205	$81,099,672	$50,383,467	38%	29
Arkansas	$19,914,988	$55,016,307	$35,101,319	36%	24
California	$459,450,490	$1,100,068,950	$640,618,460	42%	36
Colorado	$40,915,702	$124,738,616	$83,822,914	33%	11
Connecticut	$25,492,957	$102,247,874	$76,754,917	25%	2
Delaware	$7,862,654	$16,287,446	$8,424,792	48%	45
Florida	$127,891,781	$280,543,392	$152,651,611	46%	42
Georgia	$69,392,153	$154,949,799	$85,557,646	45%	40
Hawaii	$12,242,500	$39,193,563	$26,951,063	31%	8
Idaho	$11,657,299	$25,241,561	$13,584,262	46%	43
Illinois	$91,521,686	$378,567,679	$287,045,993	24%	1
Indiana	$25,156,363	$68,175,596	$43,019,233	37%	27
Iowa	$25,778,883	$59,705,144	$33,926,261	43%	38
Kansas	$13,278,490	$46,167,691	$32,889,201	29%	4
Kentucky	$26,060,181	$97,225,999	$71,165,818	27%	3
Louisiana	$33,578,010	$108,503,089	$74,925,079	31%	9
Maine	$11,076,400	$24,761,724	$13,685,324	45%	41
Maryland	$37,448,661	$110,513,048	$73,064,387	34%	17
Massachusetts	$43,493,039	$132,310,593	$88,817,554	33%	12
Michigan	$59,934,079	$178,436,105	$118,502,026	34%	18
Minnesota	$47,954,571	$127,349,655	$79,395,084	38%	30
Mississippi	$20,429,973	$69,238,316	$48,808,343	30%	6
Missouri	$48,699,412	$121,416,557	$72,717,145	40%	32
Montana	$7,631,673	$22,633,205	$15,001,532	34%	19
Nebraska	$9,058,379	$22,439,823	$13,381,444	40%	33
Nevada	$27,466,740	$75,934,905	$48,468,165	36%	25
New Hampshire	$5,861,896	$19,751,867	$13,889,971	30%	7
New Jersey	$85,938,988	$257,614,702	$171,675,714	33%	13
New Mexico	$21,397,284	$64,212,781	$42,815,497	33%	14
New York	$230,680,400	$490,756,062	$260,075,662	47%	44
North Carolina	$78,403,200	$145,436,340	$67,033,140	54%	49
North Dakota	$3,498,700	$10,806,862	$7,308,162	32%	10
Ohio	$146,123,868	$433,497,668	$287,373,800	34%	20
Oklahoma	$21,469,876	$62,963,724	$41,493,848	34%	21
Oregon	$44,943,100	$120,068,763	$75,125,663	37%	28
Pennsylvania	$85,323,119	$241,959,100	$156,635,981	35%	22
Rhode Island	$7,533,391	$22,540,481	$15,007,090	33%	15
South Carolina	$29,555,334	$82,721,841	$53,166,507	36%	26
South Dakota	$7,935,490	$15,141,572	$7,206,082	52%	48
Tennessee	$36,680,783	$73,328,483	$36,647,700	50%	47
Texas	$183,833,884	$427,998,123	$244,164,239	43%	39
Utah	$21,369,935	$51,129,687	$29,759,752	42%	37
Vermont	$3,335,632	$8,853,162	$5,517,530	38%	31
Virginia	$54,473,000	$133,823,921	$79,350,921	41%	34
Washington	$60,829,300	$124,883,777	$64,054,477	49%	46
West Virginia	$10,220,671	$29,152,505	$18,931,834	35%	23
Wisconsin	$78,940,000	$138,707,039	$59,767,039	57%	50
Wyoming	$6,609,063	$16,284,767	$9,675,704	41%	35
Total	$2,597,454,373	$6,711,788,758	$4,114,334,385	39%	--

Source: State Budget Solutions and Yankee Institute for Public Policy

Table 7 - Market Valued Pension Liability Per Capita and Percent of Gross State Product
2012

State	Population	Unfunded Liability Per Capita	Rank	Gross State Product	Unfunded Liability as a Percentage of Gross State Product	Rank
Alabama	4,822	$11,464	27	$183,547,000	30%	17
Alaska	731	$32,425	1	$51,859,000	46%	4
Arizona	6,553	$7,688	46	$266,891,000	19%	40
Arkansas	2,949	$11,902	26	$109,557,000	32%	13
California	38,041	$16,840	10	$2,003,479,000	32%	14
Colorado	5,188	$16,158	15	$274,048,000	31%	15
Connecticut	3,590	$21,378	4	$229,317,000	33%	12
Delaware	632	$13,324	20	$65,984,000	13%	48
Florida	19,318	$7,902	45	$777,164,000	20%	37
Georgia	9,920	$8,625	43	$433,569,000	20%	38
Hawaii	1,392	$19,357	7	$72,424,000	37%	8
Idaho	1,596	$8,513	44	$58,243,000	23%	29
Illinois	12,875	$22,294	3	$695,238,000	41%	5
Indiana	6,537	$6,581	49	$298,625,000	14%	47
Iowa	3,074	$11,036	30	$152,436,000	22%	33
Kansas	2,886	$11,397	28	$138,953,000	24%	28
Kentucky	4,380	$16,246	14	$173,466,000	41%	6
Louisiana	4,602	$16,281	13	$243,264,000	31%	16
Maine	1,329	$10,296	36	$53,656,000	26%	24
Maryland	5,885	$12,416	22	$317,678,000	23%	30
Massachusetts	6,646	$13,364	19	$403,823,000	22%	34
Michigan	9,883	$11,990	25	$400,504,000	30%	18
Minnesota	5,379	$14,760	17	$294,729,000	27%	22
Mississippi	2,985	$16,352	12	$101,490,000	48%	3
Missouri	6,022	$12,075	24	$258,832,000	28%	21
Montana	1,005	$14,925	16	$40,422,000	37%	9
Nebraska	1,856	$7,212	47	$99,557,000	13%	49
Nevada	2,759	$17,568	9	$133,584,000	36%	10
New Hampshire	1,321	$10,517	32	$64,697,000	21%	36
New Jersey	8,865	$19,366	6	$508,003,000	34%	11
New Mexico	2,086	$20,530	5	$80,600,000	53%	2
New York	19,570	$13,289	21	$1,205,930,000	22%	35
North Carolina	9,752	$6,874	48	$455,973,000	15%	46
North Dakota	700	$10,446	33	$46,016,000	16%	45
Ohio	11,544	$24,893	2	$509,393,000	56%	1
Oklahoma	3,815	$10,877	31	$160,953,000	26%	25
Oregon	3,899	$19,266	8	$198,702,000	38%	7
Pennsylvania	12,764	$12,272	23	$600,897,000	26%	26
Rhode Island	1,050	$14,288	18	$50,956,000	29%	20
South Carolina	4,724	$11,255	29	$176,217,000	30%	19
South Dakota	833	$8,647	42	$42,464,000	17%	42
Tennessee	6,456	$5,676	50	$277,036,000	13%	50
Texas	26,059	$9,370	39	$1,397,369,000	17%	43
Utah	2,855	$10,423	35	$130,486,000	23%	31
Vermont	626	$8,814	41	$27,296,000	20%	39
Virginia	8,186	$9,694	38	$445,876,000	18%	41
Washington	6,897	$9,287	40	$375,730,000	17%	44
West Virginia	1,855	$10,204	37	$69,380,000	27%	23
Wisconsin	5,726	$10,437	34	$261,548,000	23%	32
Wyoming	576	$16,786	11	$38,422,000	25%	27
Total	312,997	$13,145	--	$15,456,283,000	27%	--

CONNECTICUT'S OFFICIAL PENSION AND OPEB LIABILITIES ARE DRAMATICALLY UNDERESTIMATED

Complicating matters is that official pension and OPEB liabilities are being dramatically underestimated based on current actuarial methods. The problem revolves around the "discount rate" or "interest rate" used.

For example, a 5 percent interest rate means that a $100 today grows to $105 a year from now ($100 times 1.05 percent), while a 5 percent discount rate means that $105 a year from now is worth $100 today. In effect, the discount rate is the opposite of the interest rate.

Economists Robert Novy-Marx and Joshua Rauh were among the first to point out this actuarial fiction. They discovered that, using data from FY 2008, the median discount rate used by pension systems was 8 percent, which, conversely, means that these pension systems anticipate earning 8 percent annually.[4] For instance, in FY 2012, Connecticut's pension system uses discounts rates of 8 percent under SERS and JRS and 8.5 percent under TRS.

A new study by State Budget Solutions that utilizes the methodology of Novy-Marx and Rauh found that nationally, in FY 2012, the unfunded pension liability was $41 trillion—see Table 6.[5] Connecticut's $47.9 billion stated pension liability increases to $76.8 billion. Adding insult to injury, Connecticut's pension funded ratio falls to 25 percent—the 2nd worst ratio in the country.

As shown in Table 7, Connecticut's pension liability on a per capita basis is $21,378 and is the 4th highest in the country. As a percent of Gross Domestic Product it is 33 percent and is the 12th highest in the country.

In addition to the state government pension burden, the City of Hartford has also accrued a significant pension burden. Economist Novy-Marx and Rauh have estimated that Hartford's pension liability is $1.6 billion as of June 2009. With assets of $900 million, Hartford has an unfunded pension liability of $700 million, or $561 per capita.[6]

Unfortunately, there is no study that examines the state of unfunded OPEB liabilities. However, the adjustment to Connecticut's OPEB liability may not be as extreme as for the unfunded pension liability because the assumed discount rate is already a much lower 5.7 percent for the State Employees OPEB plan and 4.5 percent for Retired Teachers Healthcare Plan.

4 Novy-Marx, Robert and Rauh, Joshua D., Public Pension Promises: How Big are They and What are They Worth? (July 10, 2009).

5 Eucalitto, Cory, "Promises Made, Promises Broken - The Betrayal of Pensioners and Taxpayers," State Budget Solutions, September 3, 2013.

6 Novy-Marx, Robert and Rauh, Joshua D., "The Crisis in Local Government Pensions in the United States," in *Growing Old: Paying for Retirement and Institutional Money Management at Financial Crisis,* Robert Litan and Richard Herring, eds., Bookings Institution, Washington, DC, 2011.

Chart 3

Source: The Yankee Institute for Public Policy.

AN ECONOMICS LESSON: WHAT IS DEADWEIGHT LOSS?

With Connecticut's state government facing daunting unfunded pension and OPEB liabilities, the political temptation would be to raise taxes to pay for the short-fall.

However, this approach would only compound the economic problems posed by these liabilities by weakening Connecticut's economy. Higher taxes mean higher "deadweight losses" on the economy.

It is well established that people respond to tax incentives and disincentives. For example, they may buy a larger house than they otherwise would because they can deduct the mortgage interest from their federal income taxes. Since

the behavior is tax-induced, it harms the economy; if not for the tax break, the taxpayer would have made other choices about how to use the extra money.

"Deadweight loss" is a term used by economists to describe economic activity forgone by consumers and producers because of the higher relative price of goods as a result of the tax. Taxpayers may respond to the proposed higher tax rates by reducing their work effort, lowering their consumption, or even leaving the state in order to avoid the higher tax bill. In other words, the very process of transferring resources from the private to the public sector results in a permanent loss of current and future economic output.

Chart 3 graphically shows how economists are able to estimate deadweight losses where Quantity (Qe) and Price (Pe) show the market equilibrium. The addition of a tax has the same effect as an artificial price increase. The new

price point of intersection with the Demand (P+Td) and Supply (P+Ts) curves is at Quantity (Qt). The rectangle formed by the new intersection is the revenue gained by the tax.

The resulting triangle represents the deadweight loss — the value of trade that would have occurred without the tax, but is now forgone because of the tax. Deadweight loss can be estimated by calculating the area of the triangle.

However, estimating the deadweight loss is subject to the degree to which taxpayers change their behavior. If, in fact, taxpayers buy significantly more expensive homes because the mortgage interest is deductible, then the deadweight loss is large. Economists refer to this as the "tax elasticity" (TE). The example given above is an example of "high tax elasticity." Graphically, in Chart 3, TE is shown by the steepness and curvature of the supply and demand curves.

Based on this standard economic methodology, Harvard economist Martin Feldstein pioneered the empirical estimations of deadweight loss. In Feldstein's own words:

"The appropriate size and role of government depend on the deadweight burden caused by incremental transfers of funds from the private sector. The magnitude of that burden depends on the increases in tax rates required to raise incremental revenue and on the deadweight loss that results from higher tax rates … recent econometric work implies that the deadweight burden caused by incremental taxation (the marginal excess burden) may exceed one dollar per one dollar of revenue raised, making the cost of incremental government spending more than two dollars for each dollar of government spending."[7]

In two exhaustive studies, Feldstein finds, based on actual taxpayer behavior derived from IRS data, that the TE is 1.28.[8] That is, a 1 percent change in marginal tax rates yields a 1.28 percent change in taxable income.

PUBLIC POLICY OPTION #1: RAISE TAXES AND CREATE A DRAG ON THE ECONOMY

In a recent study, economists Novy-Marx and Rauh have estimated the increased pension contribution necessary to close the unfunded pension gap. Based on FY 2010 data, all states would have to increase their combined pension contributions by $163.2 billion—or $1,385 per household.

To close the gap, Connecticut would have to increase its pension contribution by $2 billion—or $1,459 per household.[9]

Combined with the OPEB contribution shortfall of $808 million, Connecticut will have to increase its pension and OPEB contribution by $2.808 billion. The following analysis assumes that this tax increase will be funded entirely through the individual income tax. As such, this would require an increase in the top individual income tax rate from 6.7 percent to 9.25 percent—and tax rate increase of 38 percent.

Such a large rate increase would yield a permanent deadweight loss to Connecticut's economy of $309 million per year, every year. In present value terms, the total deadweight

7 Feldstein, Martin, "How Big Government Be"" National Tax Journal, Vol. 50, No. 2 (June 1997), pp. 197 - 213.

8 Feldstein, Martin, "The Effect of Marginal Tax Rates on Taxable Income: A Panel Study of the 1986 Tax Reform Act, " NBER Working Paper No. 4496, October 1993 and Feldstein, Martin, "Tax Avoidance and the Deadweight Loss of Income Tax," NBER Working Paper No. 5055, March 1995. The 1.28 TE is based on the median value estimates by Feldstein.

9 Novy-Marx, Robert and Rauh, Joshua, D., "The Revenue Demands of Public Employee Pension Promises," September, 2012.

loss to Connecticut's economy is a staggering $10.305 billion.[10] In effect, such a tax hike creates a hole in Connecticut's economy; if this deadweight loss had never occurred, private companies with streams of output into perpetuity would have filled this hole. Instead, we're left staring into an empty hole.

Quantifying deadweight losses shows the magnitude of the negative economic impact of taxes on the economy and strongly suggests that reducing government spending is the better option relative to increases in taxes. Recent economic studies, at the international, national and state-level, further support this point.

First, Harvard economists Alberto Alesina and Silvia Ardagna examine the economic effects of fiscal policy in countries that constitute the Organization for Economic Cooperation and Development from 1970 to 2007. They find that:

"[a]s for fiscal adjustments, those based upon spending cuts and no tax increases are more likely to reduce deficits and debt over GDP ratios than those based on tax increases. In addition, adjustments on the spending side rather than on the tax side are less likely to create recessions."[11]

Second, UC Berkeley economist David Romer and Christina Romer (former Chair of the Council of Economic Advisors to President Obama), examine the economic effects of U.S. fiscal policy since 1947. They find that:

"The resulting estimates indicate that tax increases are highly contractionary. The effects are strongly significant, highly robust, and much larger than those obtained using broader measures of tax changes. The large

effect stems in considerable part from a powerful negative effect of tax increase on investment."[12]

Finally, economists Stephen Brown, Kathy Hayes and Lori Taylor examine the economic effects of fiscal policy of U.S. states. They find that:

"If anything, most public services do not appear to justify the taxes needed to finance them . . . this finding would seem to imply that other state and local public capital has been increased to the point of negative returns, perhaps because a growing stock of other public capital is indicative of an increasingly intrusive government."[13]

POLICY OPTION #2: SWITCH TO DEFINED CONTRIBUTION SYSTEMS

Rather than raising taxes, more and more states are moving away from the traditional defined benefit pension systems and towards a defined contribution system similar to the 401(k) system that is popular in the private sector.

Currently, fourteen states have moved to defined contributions in one of three ways with varying levels of cost savings.[14] Connecticut should join this movement in order to reduce the long-term costs of the pension system.

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10 Based on a 3 percent discount rate.

11 Alesina, Alberto and Ardagna, Silvia, "Large Changes in Fiscal Policy: Taxes versus Spending," NBER Working Paper No. 15438, October 2009.

12 Romer, Christina D. and Romer, David H., "The Macroeconomic Effect of Tax Changes: Estimate Based on a New Measure of Fiscal Shocks," NBER Working Paper No. 13264, July 2007.

13 Brown, Stephen P.A., Hayes, Kathy J., and Taylor, Lori L., "State and Local Policy, Factor Markets, and Regional Growth," Review of Regional Studies, Vol 33, No 1, 2004, pp. 40-60.

14 Golub-Sass, Alsex, Haverstick, Kelly, Munnell, Alicia H., Soto, Mauricio, Wiles, Gregory, "Why Have Some States Introduced Defined Contribution Plans?" Center for Retirement Research, Boston College, Number 3, January 2008.

First, the largest cost savings can be achieved by moving all new government employees into a defined contribution system. Currently, three states (Michigan [1997], Alaska [2006], and Utah [2011]) and the District of Columbia fall into this category

Second, the next largest cost savings can be achieved by having both defined benefit and defined contribution systems. Currently, four states—Indiana, Oregon, Georgia, and West Virginia–fall into this category.

Finally, many states allow for their employees to choose between a defined benefit plan or a defined contribution plan. Depending on the specifics of each plan, there could be a lot of choice (both plans yielding very similar benefits) or very little choice (one plan yielding substantially greater benefits). As such, choice and, correspondingly, cost savings can vary by state. Currently, seven states (Washington, North Dakota, Montana, Florida, South Carolina, Ohio and Colorado) fall into this category.[15]

Given Connecticut's large unfunded pension liabilities, the state should go directly to the most effective option, which is to follow in the footsteps of Michigan, Alaska, Utah and the District of Columbia. At the very least, putting new employees into a defined contribution plan will not add further to the unfunded pension liability. As long as the state meets its annual required contribution, normal turnover in the workforce will begin to bring down the unfunded pension liability to more manageable levels.

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15 Fact sheets on these states can be found at the Center for Retirement Research: http://crr.bc.edu/specialprojects/state-local-pension-plans/

CONCLUSION

Overall, this study exposes the true extent of Connecticut's pension crisis, which is at least $47.9 billion and may be as high as $100.2 billion.

On a per capita basis the pension bill could be as high as $21,378 or up to $21,938 if you live in Hartford. Combined with the OPEB liability, the public retiree bill climbs to $27,668 for every man, woman, and child currently living in Connecticut.

Minor changes to the current defined-benefit system may buy some extra time but will not fundamentally solve this crisis. In the end, only two options are available to policy-makers to solve Connecticut's public retiree crisis: 1) raise taxes; or 2) fundamental changes to the pension and OPEB systems. Raising taxes would only serve to weaken Connecticut's economy and jeopardize the state's ability to ever meet its pension and OPEB obligations. The best option is to reform these systems by switching to a defined contribution program.

ABOUT THE AUTHORS

J. Scott Moody has worked as a tax policy economist for over 17 years and is the author, co-author and editor of over 160 studies and books. He has testified multiple times before the House Ways and Means Committee of the U.S. Congress. Scott is currently the CEO of State Budget Solutions. He received his Bachelor of Arts in Economics from Wingate University and his Master of Arts in Economics from George Mason University.

Dr. Wendy P. Warcholik has worked as an economist in public policy settings for over 15 years. She has extensive experience in applying statistical and econometric tools in public policy paradigms. Her professional experience includes positions as Economist at the Bureau of Economic Analysis in Washington, D.C., Chief Forecasting Economist for the Commonwealth of Virginia's Department of Medical Assistance Services and Adjunct Scholar with The Tax Foundation. Additionally, she has taught numerous economics classes to MBA students. She received her Ph.D. in Economics from George Mason University.

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