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November 22, 2019

Elizabeth A. Pearce
State Treasurer
State of Vermont
109 State Street
Montpelier, VT 05609

Dear Ms. Pearce:

As requested, we have reviewed John Pelletier's commentary, *A tale of two states' pension plans*, dated September 4, 2019. There are some inaccuracies in the article regarding the use of a select and ultimate investment return assumption and the impact of that assumption on the funded status of the Vermont Retirement Systems. It is also important to note that the investment return assumption is only one of many economic and demographic assumptions that are used to determine the liabilities of a pension plan. Assumptions are used to estimate a plan's future benefit payments and their present value and do not determine outcomes. Specifically, the investment return assumption does not affect the performance of the fund, nor should an actuarial assumption dictate asset allocation or investment policy.

I would first like to start with a definition of unfunded liability and some comments on why many defined benefit plans have an unfunded liability. Then I will comment on the unfunded liability of the Vermont State Teachers' Retirement System (VSTRS) and the Vermont State Employees' Retirement System (VSERS). Finally, I will address the use of a select and ultimate investment return assumption.

As you know, Segal has been the actuary for the Vermont Retirement System for approximately three years. My comments with respect to actuarial liabilities calculated before June 30, 2017 are based on the actuarial reports posted on the Treasurer's website.

Unfunded pension liability is the difference between an estimate of the cost of benefits that have been earned as of the measurement date (the actuarial accrued liability) and the value of the plan's assets as of the measurement date. The actuarial accrued liability is the present value of all benefits that have been earned as of the valuation date. To calculate an actuarial accrued liability, the actuary selects a cost method to assign cost to time periods and the actuary selects economic and demographic assumptions to estimate the benefits that will be paid to plan participants, to estimate when those benefits will be paid, and to determine the present value of those projected benefits.

Unfunded pension liability exists for many reasons. Changes to plan provisions, changes to actuarial assumptions, and experience (investment and non-investment) different than expected are all sources of increases or decreases in unfunded liability. Older plans may have unfunded liability that is attributable to benefits that were granted at the inception of the plan, or earned in early years, that were not funded at that time. Even plans that have established policies to fund pension liabilities may have unfunded liability if the plan sponsor fails to contribute the pension contributions that are calculated in accordance with the funding policy.

Mr. Pelletier notes that in the June 30, 2009 actuarial valuation reports for VSTRS and VSERS, the combined unfunded liability was projected to be \$1.272 billion as of June 30, 2018. He compares this projected amount to the actual combined unfunded liability as of June 30, 2018 of \$2.293 billion. I would like to start with the unfunded liability as of June 30, 2009 and provide the sources of the increase in the unfunded liability for the nine years from June 30, 2009 through June 30, 2018. For simplicity and because VSTRS accounts for approximately two-thirds of the unfunded liability, I will provide the analysis for the increase in the VSTRS projected unfunded liability as of June 30, 2018 from \$878 million as shown in the June 30, 2009 actuarial report to \$1.513 billion as shown in the June 30, 2018 actuarial report.

For VSTRS, the unfunded liability determined with the June 30, 2009 actuarial valuation was \$728 million. The unfunded liability was expected to increase by \$180 million to \$878 million as of June 30, 2018, if all assumptions were met, there were no assumption or plan changes, and contributions were made in accordance with the current funding policy. The actual unfunded liability as of June 30, 2018 was \$1.513 billion.

In 2009, the newly established funding policy was to contribute the cost of current benefit accruals, less expected employee contributions, plus an amount to amortize the unfunded liability over a 30-year period with payments increasing 5% per year. Unfunded liability is similar to a mortgage and the amortization payments on the unfunded liability are similar to mortgage payments. Mortgage payments cover the interest on the loan and ultimately pay down the loan principle. In the early years of a mortgage, the majority of the payments are interest payments. In the later years of a mortgage, the interest payments become smaller and the payments on the principal become larger. It is common, particularly in the public sector, to calculate payments on the unfunded liability that increase over time. This results in lower payments in the early years of funding, and payments that increase over time, but from a budgeting perspective, are expected to be relatively level as a percentage of revenues or underlying payroll for members of a system. However, increasing amortization payments will not cover the interest on the unfunded liability in the early years. That is why the unfunded liability was projected to increase over this nine-year period.

Although the unfunded liability was expected to increase by \$150 million over this nine-year period, the actual increase in the unfunded liability was \$785 million. Based on information shown in the annual valuation reports for VSTRS, we have summarized the reasons for the greater than expected increase as follows:

Item	Amount	Comments
Expected increase over this period due to normal operations (benefit accruals and interest, less contributions)	\$48 million	
Investment losses	45 million	
Other economic gains	-199 million	Salary increases and Cost-of-living increases
Demographic losses	368 million	Primarily turnover and rehires and retirement experience
Changes in assumptions	449 million	Primarily investment, cost-of-living, and mortality
Plan changes	-47 million	
Amounts transferred for retiree health benefits	<u>121 million</u>	
Total	\$785 million	

As you can see, there are many reasons why the unfunded liability has increased. As noted in the introductory comments, many assumptions are used in an actuarial valuation. Experience is monitored and reviewed every few years, and assumptions are revised as experience develops. Over this time period, there were two full experience studies and a partial experience study.

The significant assumptions revised during this time frame were the mortality and investment return assumptions. As you are aware, life expectancies continue to increase and are expected to increase further over time. The mortality assumptions have been revised to reflect both of these trends. In addition, the investment return assumption has been lowered from 8.25% to 7.50%. The investment return assumption is important, not only because it affects the projected growth in assets, but also because the investment return assumption is used to discount the projected benefits and determine the actuarial accrued liability and unfunded liability. Lowering the investment return assumption increases the unfunded liability and the contribution requirements of the State. However, this change was necessary and appropriate because the financial outlook and capital markets have changed and expected returns are lower.

As noted above, the investment return assumption was lowered to 7.50% during the time frame that Mr. Pelletier has identified. For four years during this period, a select and ultimate interest rate assumption was used. A select and ultimate interest rate structure uses different interest rates in the short term (the select period) than in the long term (the ultimate interest rate). The actual assumption used was 6.25% in year 1 increasing over 16 years to an ultimate interest rate of 9.00% for year 17 and later. As noted in the Experience Study for the period July 1, 2005 through June 30, 2010 completed by Buck Consultants, "A select-and ultimate interest rate structure can be used to reflect expectations of unusually strong or weak returns in near-term years followed by a trending to a long-term equilibrium. In this sense, it is a more elaborate and complete specification of future return assumptions than is a single rate used in all future years." The intent of this change was not to lower the funding requirements paid the State. In fact, the Experience Study noted that the change in the investment return assumption from 8.25% to the select and ultimate interest rate assumption **increased** the total contribution required for the fiscal year ending June 30, 2012 for VSTRS from \$51.3 million to \$56.9 million.

When the decision was made to move from a select and ultimate interest rate to a single interest rate in 2015, the investment environment had changed, and the assumption was set at 7.95%. In 2017, the assumptions was subsequently lowered to 7.50%.

As shown in the above chart for VSTRS, investment losses represent a small portion of the increase in the unfunded liability over the time period the Mr. Pelletier is reviewing. Changes in assumptions, primarily lowering the investment return assumption, non-investment related experience, and the transfers to fund retiree health benefits were much more significant.

Mr. Pelletier notes, “Perhaps the biggest detractor over the last decade was the use of overly optimistic assumed rates of return.” However, the investment return assumption was lowered from 8.25% to 7.5% over this period. Further, he notes “Particularly problematic was the use of ‘select-and-ultimate’ rates of return from 2012-2015.” Mr. Pelletier suggests that using the 6.25% interest rate (the year one rate in the select period), rather than an 8.25% interest rate, understates the assets that the System requires, and consequently reduces the State’s contribution to the plan. This is not the case, as explained below.

However, that is not how the State contribution requirement is determined. Each year, the State contribution requirement is recalculated, taking into account all the changes that have occurred, including investment performance and the other variables that are discussed above. Liabilities are recalculated and compared to the assets of the System to determine the unfunded liability. (Note, an actuarial value of assets is used in this calculation, not the market value. An actuarial value of assets smooths out market volatility.) A new contribution requirement is determined that takes into account the current unfunded liabilities of the System.

I did not attempt to replicate Mr. Pelletier’s suggestion that “10% of the pension funds’ unfunded liability” or that “twenty-two percent of the ...increase in the unfunded pension liability is directly attributable just to the single decision to move to the select-and-ultimate return method...” because the change to a select and ultimate assumption increased the State’s required contributions.

As you are aware, we will be reviewing the investment return assumption with the upcoming statutorily required experience studies. At that time, we will review the investment allocation, current capital market assumptions, and expected return for the investment portfolios, and recommend a reasonable long-term assumption to use in the upcoming valuation. A periodic, rigorous review of all the assumptions used in the valuation is an important component of managing the retirement systems and ensuring that the retirement benefits of your employees and retirees are secure.

Sincerely yours,



Kathleen A. Riley

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