

Pension 101

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Vermont Legislative
JOINT FISCAL OFFICE

Chris Rupe
Fiscal Analyst
Joint Fiscal Office

Topics of Discussion

- Overview of Pensions
- How DB Pensions Are Calculated
- How Pensions Work
- The Problem and the Numbers
- Why Did the Numbers Change?
- What to Expect

Overview of Pensions

- Vermont has 3 pension systems:
 - VSERS – Vermont State Employees’ Retirement System (single employer)
 - VSTRS – Vermont State Teachers’ Retirement System (multi employer)
 - VMERS – Vermont Municipal Employees’ Retirement System (multi employer)
- Each of the three pension systems is governed by a board of trustees and managed by the State Treasurer’s Office.
- All three are Defined Benefit (“DB”) plans, but a Defined Contribution (“DC”) option is also available for some employees (e.g. certain exempt state employees).
- DB pension plans are designed to **pre-fund future retirement benefits**. Employers AND Employees make contributions into the pension funds and those funds are invested over a long time horizon.
- For today’s discussion, we will focus on **VSERS** and **VSTRS**.

Overview of Pensions

- A “Defined Benefit” system provides an employee with a retirement benefit that is calculated (“defined”) by an established formula. The retirement benefit amount is not linked to the investment performance of the pension fund.
- In a “Defined Contribution” plan, the employee receives a “defined” employer contribution into an investment account, similar to a 401(k). The employee’s retirement benefit depends on how much money they save and the performance of their investments. Risk falls on the employee rather than the employer.
- Other alternative plan designs exist, such as stacked hybrids or cash balance plans, that incorporate features of both.
- Today, we are talking about **Defined Benefit** plans.

How DB Pensions Are Calculated

- How much money a retiree will receive in pension benefits is defined by a formula based on how long the employee has worked and how much they earned:

Years of service x Average Final Compensation (AFC) x Multiplier = Annual Pension Benefit

- Plans typically define a multiplier and how **AFC** is calculated. Usually, it is based on an average of 3-7 of your highest consecutive years of salary.
- Plans also typically cap how large an annual pension benefit can be relative to their AFC (e.g. up to 50 or 60% of AFC).
- “Normal” vs. “early” retirement. To qualify for a normal retirement, an employee must reach a minimum age (or Rule calculation) to receive full pension benefits. Can either be a fixed age (65?) or a **Rule Of** (age + years of service), whichever is reached first.
 - Example: If there is a normal retirement age of 65 and a Rule of 90, an employee who is 63 years old can still retire normally if they have at least 27 years of service (63 + 27 = 90).

How DB Pensions Are Calculated

- I am a 65 year old state employee with 20 years of service and an AFC of \$66,000. I am a member of VSERS Group F. What will I earn in retirement?

20 years of service x \$66,000 x 1.67% = \$22,044 (estimate)

- What if I had 35 years of service?

35 years of service x \$66,000 x 1.67% = \$38,577 (estimate)

- BUT - Under the terms of Group F, I cannot receive a benefit more than 50% of my AFC. Therefore, with an AFC of \$66,000, my maximum benefit would be capped at \$33,000.
- Other factors, like survivorship options, will influence what the actual benefit amount will be.

How DB Pensions Are Calculated

- Some plans allow people to retire early (e.g. younger than the retirement age or short of the Rule of 87 or 90) but receive a reduced benefit for doing so.
- Some plans also provide **COLAs (Cost of Living Adjustments)** to retirees to help their benefits keep pace with inflation.
- In order to be eligible for a retirement benefit, the employee must be **vested** in the plan. Vesting = attaining a minimum number of years of service (often 5-10 years depending on plan).
 - Employees who leave employment before vesting have their pension contributions refunded.
- Fun facts!
 - VSERS paid out \$153 million in benefits and contribution refunds in 2020
 - VSTRS paid out \$201 million in benefits and contribution refunds in 2020

VSERS GROUP COMPARISONS

VSERS GROUP COMPARISONS	GROUP A	GROUP C	GROUP D	GROUP F <i>Hired before 7/1/08</i>	GROUP F <i>Hired on or after 7/1/08</i>												
Employee Contributions	6.65% of gross salary	8.53% of gross salary	6.65% of gross salary	6.65% of gross salary	Same												
Employer Contributions	21.4% of gross salary (includes pension & post employment benefits)	21.4% of gross salary (includes pension & post employment benefits)	21.4% of gross salary (includes pension & post employment benefits)	21.4% of gross salary (includes pension & post employment benefits)	Same												
Average Final Compensation (AFC)	Highest 3 consecutive years, including unused annual leave payoff	Highest 2 consecutive years, including unused annual leave payoff	Final salary at retirement	Highest 3 consecutive years, excluding unused annual leave payoff	Same												
Benefit Formula	1.67% x creditable service	2.5% x creditable service	3.33% x creditable service (after 12 years in Group D)	1.25% x service prior to 12/31/90 + 1.67% x service after 1/1/91	Same												
Maximum Benefit Payable	100% of AFC	50% of AFC	100% of Final Salary	50% of AFC	60% of AFC												
Normal Retirement (no reduction)	Age 65 or 62 with 20 years of service	Age 55 (mandatory)	Age 62	Age 62 or with 30 years of service	Age 65 or a combination of age & service credit that equals 87												
Post-Retirement COLA	Full CPI, from a minimum of 1% up to a maximum of 5%, after 12 months of retirement	Full CPI, from a minimum of 1% up to a maximum of 5%, after 12 months of retirement	Full CPI, from a minimum of 1% up to a maximum of 5%, after 12 months of retirement	50% CPI until 1/1/2014; 100% of CPI thereafter, from a minimum of 1% up to a maximum of 5%, after reaching age 62, or (if retired after June 30, 1997) 30 years service	50% CPI until 1/1/2014; 100% of CPI thereafter, from a minimum of 1% up to a maximum of 5%, after reaching age 65 or age and service to equal 87												
Early Retirement Eligibility	Age 55 with 5 years of service or 30 years of service (any age)	Age 50 with 20 years of service	Age 55 with 5 years of service	Age 55 with 5 years of service	Same												
Early Retirement Reduction	Actuarially reduced benefit if under 30 years of service	No reduction	3% per year from age 62	6% per year from age 62	<table border="1" style="font-size: small;"> <thead> <tr> <th>Ser. Years</th> <th>Monthly Red.</th> </tr> </thead> <tbody> <tr> <td>35+</td> <td>1/8th of 1%</td> </tr> <tr> <td>30-34</td> <td>1/4th of 1%</td> </tr> <tr> <td>25-29</td> <td>1/3rd of 1%</td> </tr> <tr> <td>20-24</td> <td>5/12th of 1%</td> </tr> <tr> <td>< 20</td> <td>5/9th of 1%</td> </tr> </tbody> </table>	Ser. Years	Monthly Red.	35+	1/8 th of 1%	30-34	1/4 th of 1%	25-29	1/3 rd of 1%	20-24	5/12 th of 1%	< 20	5/9 th of 1%
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Post-Retirement Survivorship Options	100% and 50% (with or without pop-ups), all actuarially reduced based on age of beneficiary	70% spousal survivorship with no reduction in retiree's benefit	100% and 50% (with or without pop-ups), all actuarially reduced based on age of beneficiary	100% and 50% (with or without pop-ups), all actuarially reduced based on age of beneficiary	Same												

VSTRS GROUP COMPARISONS

VSTRS GROUP COMPARISONS	GROUP A	GROUP C – Group #1*	GROUP C – Group #2**
Employee Contributions	5.5% of gross salary	5.0% of gross salary	5.0% of gross salary***
Employer Contributions	varies based on actuarial recommendation	varies based on actuarial recommendation	varies based on actuarial recommendation
Benefit Formula	1.67% x creditable service	1.25% x service prior to 6/30/90 + 1.67% x service after 7/1/90	1.25% x service prior to 6/30/90 1.67% x service after 7/1/90 2.0% after attaining 20.0 years
Maximum Benefit Payable	100% of AFC	53.34% of AFC	60% of AFC
Average Final Compensation (AFC)	Highest 3 consecutive years, including unused annual leave, sick leave, and bonus/incentives	Highest 3 consecutive years, excluding all payments for anything other than service actually performed	Highest 3 consecutive years, excluding all payments for anything other than service actually performed
Normal Retirement (no reduction)	Age 60 or with 30 years of service	Age 62 or with 30 years of service	Age 65 or when the sum of age and service credit equals 90
Post-Retirement COLA	Full CPI, up to a maximum of 5% after 12 months of retirement; minimum of 1%	50% CPI, up to a maximum of 5% after 12 months of retirement or with 30 years; minimum of 1%	50% CPI, up to a maximum of 5%
Early Retirement Eligibility	Age 55 with 5 years of service	Age 55 with 5 years of service	Age 55 with 5 years of service
Early Retirement Reduction	Actuarial reduction	6% per year from age 62	Actuarial reduction
Post-Retirement Survivorship Options	100%, 75%, and 50% (with or without pop-ups), all actuarially reduced based on age of beneficiary	100%, 75%, and 50% (with or without pop-ups), all actuarially reduced based on age of beneficiary	100%, 75%, and 50% (with or without pop-ups), all actuarially reduced based on age of beneficiary
Benefit Eligibility – Other (Vested Rights, Disability, Death-in-Service)	5 years of service (vested and disability) 10 years of service, or age 55 with 5 years (death-in-service)	5 years of service (vested and disability) 10 years of service, or age 55 with 5 years (death-in-service)	5 years of service (vested and disability) 10 years of service, or age 55 with 5 years (death-in-service)
Disability Benefit	Unreduced, accrued benefit with minimum of 25% of AFC	Unreduced, accrued benefit with minimum of 25% of AFC	Unreduced, accrued benefit with minimum of 25% AFC
Death-in-Service Benefit	Disability benefit or early retirement benefit, whichever is greater, with 100% survivorship factor applied, plus children's benefit up to maximum of 3 concurrently	Disability benefit or early retirement benefit, whichever is greater, with 100% survivorship factor applied, plus children's benefit up to maximum of 3 concurrently	Disability benefit or early retirement benefit, whichever is greater, with 100% survivorship factor applied, plus children's benefit up to maximum of 3 concurrently
Medical Benefits	Health subsidy based on member's service credit	Health subsidy based on member's service credit	Health subsidy based on member's service credit
Dental	Member pays the full premium	Member pays the full premium	Member pays the full premium

Group A members cease contributions upon attainment of 25 years of service.

Group #1 are members who were at least 57 years of age or had at least 25 years of service on June 30, 2010.

**Group #2 are members who were less than age 57 and had less than 25 years of service credit on June 30, 2010.

*** Group #2 members who had less than 5 years of service credit as of June 30, 2014 will contribute 6% of gross salary.

How Pensions Work

- Pre-funding retirement expenses has the benefit of spreading these costs over time and **taking advantage of compound interest and investment returns.**
- Assets are invested according to an investment strategy. The strategy is designed to achieve the expected rate of return over a long period of time.
 - Diversification and balance
 - Risk management – try to capture the gains while protecting from losses
 - Minimize extreme volatility
 - Long view – avoid trying to “time” the market!
- Common types of pension investments involve foreign and domestic equities (stocks), fixed income (bonds), private equity, real estate, etc.
- Investment strategy and performance is periodically reviewed and assets are periodically rebalanced as market conditions evolve.
- The goal is not to achieve the highest possible return in any given year (though it’s great when that happens!)– instead, the goal is to prudently and responsibly achieve the overall expected rate of return over time!

How Pensions Work

- “Fiduciary Responsibility” – trustees have a responsibility to:
 - Act in the best interest/benefit of the beneficiaries (the members and retirees)
 - High standard of care
 - Prudence, impartiality, trust, good faith.
- “Shall strive to maximize total return on investment, within acceptable levels of risk for public retirement systems, in accordance with the standards of care established by the prudent investor rule under 14A V.S.A. § 902”

How Pensions Work

- All three plans have a board of trustees (24 V.S.A. § 5062)
 - General administration of the system
 - 5 members
- VT Pension Investment Committee (VPIC) – 7 members (3 V.S.A. § 522)
 - Responsible for governing the investment of the assets of the three retirement systems.
 - Approves policies and procedures, investment policy, asset allocations, and appointment of third party managers and consultants.
 - VPIC and respective Board Trustees must both agree to any changes in actuarial rate of return.
- Treasurer's Office
 - Custodian of the assets, manages day-to-day operations of VPIC and retirement operations.
 - Manages reporting, studies, and recommends long term policy.
 - Member of all 3 boards of trustees.
- Investment Consultant
 - Prepares investment performance reports
 - Conducts asset liability study
 - Reviews investment manager performance
 - Recommends investment managers for selection by VPIC

How Pensions Work

- Legislature:
 - Appropriates the funding to pay the employer ADEC, though the level of appropriation has sometimes historically been higher or lower than the ADEC amount.
 - Under-funding = higher UAAL/higher ADEC in future years; missed opportunity to achieve investment gains (compounded every year).
 - Establishes various reporting and procedural requirements in statute.
 - Codifies elements of plan design into statute.
 - Establishes the amortization schedule
- Legislature DOES NOT:
 - Determine the assumed rate of return
 - Pick and choose investments

The Problem

- VSERS and VSTRS are relatively mature retirement systems with growing unfunded liability.
 - “Mature system” – aka “it’s been around for a while and there are a lot of retired members who are earning benefits relative to active members who are still paying contributions into the system”
 - Example: VSTRS has 9,862 active members, 2,756 inactive members, 819 terminated vested members, and 9,514 retired members.
- Over the years, investment performance has not consistently achieved the assumed rate of return.
 - Trustees recently recommended lowering the assumed rate of return from 7.5% to 7.0% to more realistically match projected investment returns.
- Legacy underfunding issues
- Demographic and experience factors have increased pension costs
 - People are living longer!
 - Salary growth, COLAs
 - Employee turnover
- A second-level problem exists around funding **OPEB (Other Post-Employee Benefits)** which is a fast growing liability. However, this subject is worth its own separate discussion.

The Problem

- All of these factors have contributed to the fact that the 2 pension plans do not have enough assets today to pay for the expected costs of the retirement benefits they will have to pay out in the future.

The amount of future retirement benefit costs (a.k.a. the Actuarial Accrued Liability)

minus

The value of assets in the plan (Actuarial Value of Assets)

=

“Unfunded Actuarial Accrued Liability”

- The Unfunded Liability essentially represents the funding shortfall to fully pay for promised retirement benefits.
- Unfunded Liability is growing more rapidly than the assets in the plan are growing. This means that the funded ratio for the plans is decreasing.

Actuarial Value of Assets

Unfunded Liability



Funded Ratio

The Problem

- It is common for a defined benefit pension plan to have an unfunded liability. But if the unfunded liability grows too large, it creates challenges to manage through because **the unfunded liability must eventually be paid off.**
- Lack of progress toward improving the funding ratio and significant, sustained growth in UAAL negatively impact bond ratings.
- The unfunded liability is “**amortized**” over a period of time. Just like your home mortgage is amortized over a period of years, with principal and interest. The longer the amortization period, the lower your annual payment but the more you pay in total (interest) and the longer the expense sits on your budget.
- For VSERS and VSTRS, there is a “closed amortization” system, meaning that the full UAAL is scheduled to be paid off by an established year (2038).
- In the absence of other changes, growth in the unfunded liability means more money must be paid into the pension system.
 - This payment the employer makes against the unfunded liability is included in the **ADEC (Actuarial Determined Employer Contribution)**, along with any employer-paid normal costs.
 - **Normal cost** = The annual cost of future retirement benefits that were earned during the current year by the active workforce.
 - Generally, active employees pay a fixed, pre-established contribution rate into the pension fund. But this employee contribution rate is not automatically linked to any changes in the unfunded liability.
 - Currently, the risk for making up funding shortfalls/growth in the ADEC is borne by the employer (taxpayers).

The Problem

- Periodically, the pension systems will engage their actuaries and investment consultants to study their workforce data and investment performance/strategy and revise the assumptions for how much money the pension plans will need to pay out in future benefits. This is often referred to as an “experience study”.
- Recently, this analysis PLUS the reduction in assumed rate of return from 7.5% to 7.0% has translated into significant growth in the unfunded liability (UAAL) for both VSERS and VSTRS.
- As a result of this growth in UAAL, the projected ADEC has also increased. The larger the UAAL, the larger the payment will be to pay it off.
- In plain language, this means that the total cost of future retirement benefits grew based on assumptions based on today’s plan structures, and less of the money needed to pay for those benefits is expected to come from investment returns in the future. Therefore, the employer’s payment toward those costs (the ADEC) will increase.
- You cannot avoid paying off the UAAL by moving all employees from a DB to a DC plan.
- BUT, you can take steps to lower the UAAL through tweaks to plan design for active employees who are still working but not yet retired AND to future employees.

The Problem

Year Ending June 30	VSERS				VSTRS			
	Actuarial Value of Assets	Actuarial Accrued Liability	Unfunded AAL	Funding Ratio	Actuarial Value of Assets	Actuarial Accrued Liability	Unfunded AAL	Funding Ratio
2020	\$ 2,054,826	\$ 3,095,291	\$ 1,040,465	66.4%	\$ 2,035,714	\$ 3,969,003	\$ 1,933,289	51.3%
2019	\$ 1,964,501	\$ 2,779,966	\$ 815,465	70.7%	\$ 1,950,860	\$ 3,505,319	\$ 1,554,459	55.7%
2018	\$ 1,881,805	\$ 2,661,609	\$ 779,804	70.7%	\$ 1,866,121	\$ 3,379,554	\$ 1,513,433	55.2%
2017	\$ 1,793,795	\$ 2,511,373	\$ 717,578	71.4%	\$ 1,779,592	\$ 3,282,045	\$ 1,502,453	54.2%
2016	\$ 1,707,268	\$ 2,289,452	\$ 582,184	74.6%	\$ 1,716,296	\$ 2,942,024	\$ 1,225,728	58.3%
2015	\$ 1,636,268	\$ 2,178,827	\$ 542,559	75.1%	\$ 1,662,346	\$ 2,837,375	\$ 1,175,029	58.6%
2014	\$ 1,566,076	\$ 2,010,090	\$ 444,014	77.9%	\$ 1,610,286	\$ 2,687,049	\$ 1,076,763	59.9%
2013	\$ 1,469,170	\$ 1,914,300	\$ 445,130	76.7%	\$ 1,552,924	\$ 2,566,834	\$ 1,013,910	60.5%
2012	\$ 1,400,779	\$ 1,802,604	\$ 401,825	77.7%	\$ 1,517,410	\$ 2,462,913	\$ 945,503	61.6%
2011	\$ 1,348,763	\$ 1,695,301	\$ 346,538	79.6%	\$ 1,486,698	\$ 2,331,806	\$ 845,108	63.8%
2010	\$ 1,265,404	\$ 1,559,324	\$ 293,920	81.2%	\$ 1,410,368	\$ 2,122,191	\$ 711,823	66.5%

The Numbers

- The recent actuarial studies, investment performance, and reduced assumed rate of return have translated into significant projected increases in the UAAL and ADEC for both plans.

VSERS Actuarially Determined Employer Contribution		
FY	ADEC	Increase over prior FY
2022 (recommended)	\$ 119,967,769	\$ 36,091,199
2021	\$ 83,876,570	\$ 4,932,656
2020	\$ 78,943,914	\$ 15,959,172
2019	\$ 62,984,742	\$ 10,919,345
2018	\$ 52,065,397	\$ 3,562,039
2017	\$ 48,503,358	\$ 2,265,505
2016	\$ 46,237,853	\$ 1,586,070
2015	\$ 44,651,783	\$ 4,434,117
2014	\$ 40,217,666	\$ 3,135,733
2013	\$ 37,081,933	\$ 494,069
2012	\$ 36,587,864	

VSTRS Actuarially Determined Employer Contribution		
FY	ADEC	Increase over prior FY
2022 (recommended)	\$ 196,200,000	\$ 60,600,000
2021	\$ 135,600,000	\$ 9,402,611
2020	\$ 126,197,389	\$ 20,556,612
2019	\$ 105,640,777	\$ 17,231,340
2018	\$ 88,409,437	\$ 5,749,861
2017	\$ 82,659,576	\$ 6,556,667
2016	\$ 76,102,909	\$ 3,245,046
2015	\$ 72,857,863	\$ 4,505,038
2014	\$ 68,352,825	\$ 8,170,070
2013	\$ 60,182,755	\$ 8,940,823
2012	\$ 51,241,932	

The Numbers

- The recent actuarial studies, investment performance, and reduced assumed rate of return have translated into significant projected increases in the UAAL and ADEC for both plans.

Scope of Challenge for Each Fund		
	VSERS	VSTRS
UAAL 2019 Valuation for FY21 Budget	\$815.5 million	\$1,554.0 million
UAAL 2020 Valuation for FY22 Budget	\$1,040.5 million	\$1,933.0 million
Change in UAAL (aka Target Reduction Amount)	\$225.0 million	\$379.0 million
ADEC FY21	\$83.9 million	\$135.6 million
ADEC FY22	\$119.9 million	\$196.2 million
Change to ADEC (aka Target Reduction Amount)	\$36.0 million	\$60.6 million

Why Did the Numbers Change?

- Changes to the unfunded liability are due to a combination of factors. Examples include:
 - Changes in Actuarial Assumptions
 - Net turnover of plan participants
 - Salary experience of employees
 - Past investment performance and assumed future investment performance

Cumulative Changes to UAAL – VSTRS (Teacher) System

Cumulative Changes in Liability		
	2007-2020	2011-2020
Beginning FY Unfunded liability	\$259,108,435	\$711,823,061
Expected adj. not incl. assumption/benefit changes	37,199,874	(5,786,660)
Assumption Changes	828,540,973	783,238,313
Plan Provisions	(46,409,122)	0
Net Investment	384,996,680	52,038,767
Salary	(129,391,882)	(125,779,835)
COLA	(102,730,234)	(88,185,397)
Mortality	18,350,215	20,000,804
Retirement	184,010,383	162,532,393
Disability	3,761,046	2,670,773
Net Turnover	320,448,149	319,901,420
Contribution Shortfall incl. Health Care Approp.	175,907,621	101,499,179
Other Gains/Losses	(502,768)	(663,448)
Ending FY Unfunded Liability	\$1,933,289,366	\$1,933,289,366

Cumulative Changes to UAAL – VSERS System

Components of Change in the Unfunded Actuarial Liability -VSERS		
Category	Cumulative 2007-2020	Cumulative 2011-2020
Beginning FY Unfunded liability	\$ 9,044,004	\$ 293,920,094
Changes in Actuarial Assumptions	480,841,346	489,354,525
Changes in System Provisions	47,465,002	22,252
Incorporation of Temp Salary Decreases	(69,913,212)	-
Change in employee contribution rate	(2,610,261)	(2,610,261)
All other expected increases/reductions	(57,597,843)	(79,843,570)
Other expense gain/loss	8,798,318	9,482,240
Salary experience gain/loss	88,151,220	95,627,506
COLA experience gain/loss	(123,583,917)	(110,469,758)
Net Turnover (new mmbers, terminations)	77,509,729	61,630,140
Investment gain/Loss	317,484,349	56,205,931
Mortality gain/loss	40,982,471	40,657,045
Retirements gain/loss	128,594,128	97,520,027
Disability experience gain/loss	2,590,399	2,357,312
Other gain/loss	92,709,386	86,611,636
Ending FY Unfunded Liability	\$ 1,040,465,119	\$ 1,040,465,119

Note: Investment losses from Great Recession period (2008,2009,2010) total \$284.7 million.

What to Expect

- In an effort to mitigate these sudden changes, the Treasurer, who is a trustee of VSERS and VSTRS, has convened working groups to evaluate possible options to lower the UAAL and ADEC for FY22 to FY21 levels.
- Many of the options under study involve changes to plan design for active employees who have not yet retired.
- The Treasurer is expected to issue a report to the Legislature by the end of this week to present the findings of this work.
- The types of options under evaluation include changes to the Cost of Living Adjustment structure, changing the number of years that are included when calculating AFC, increasing employee contributions, moving all actives to a Rule of 90, changes to the number of years required to vest, and changes to the maximum benefit level.
- **It is difficult to find any single option that will feasibly reach the cost reduction goals for either plan.** Reaching the goals will require a mix of multiple options implemented (and costed out) together rather than in isolation.
- **It is likely that the path toward achieving the reduction goals in this manner will be smoother for VSERS than for VSTRS.** The hole is deeper for VSTRS and the options under study do not generate the same savings for both plans.

Questions?

crupe@leg.state.vt.us

Thank you!



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