

PENSION OVERVIEW

SENATE COMMITTEE ON GOVERNMENT OPERATIONS



Vermont Legislative
JOINT FISCAL OFFICE

Chris Rupe
Joint Fiscal Office
January 7, 2021

Key Terms

ADEC: Actuarially Determined Employer Contribution. The amount that must be contributed to the pension systems each year to fully fund the normal cost, plus make an amortization payment toward the unfunded liability.

Amortization: The method of paying off a debt (the unfunded liability) with interest through installments. Vermont uses a closed, 30-year pension amortization from FY09-FY38. Payments are structured to grow in 3% increments in future years and be sufficient to fully pay off the unfunded liability (reach 100% funded) by FY2038.

Normal Cost: The amount of the accrued liabilities allocated to the current plan year. The normal cost is the present value of the cost of the future retirement benefits earned by the active workforce each year.

OPEB: Other Post-Employment Benefits (subsidized retiree health care)

Unfunded Liability: The deficit between the cost of earned retirement benefits and the assets available to pay those benefits.

VSERS: Vermont State Employees' Retirement System

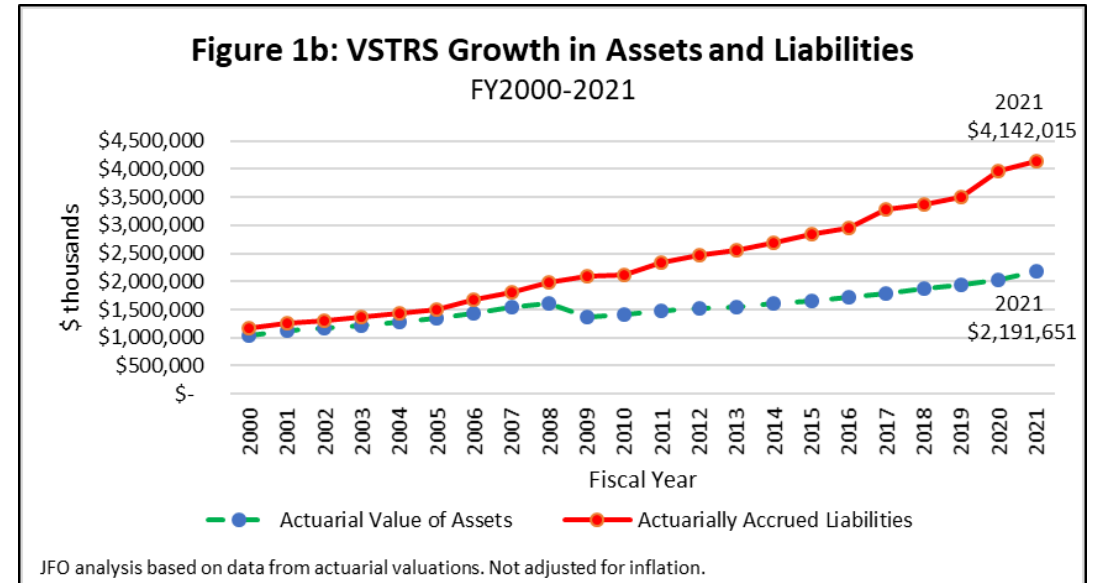
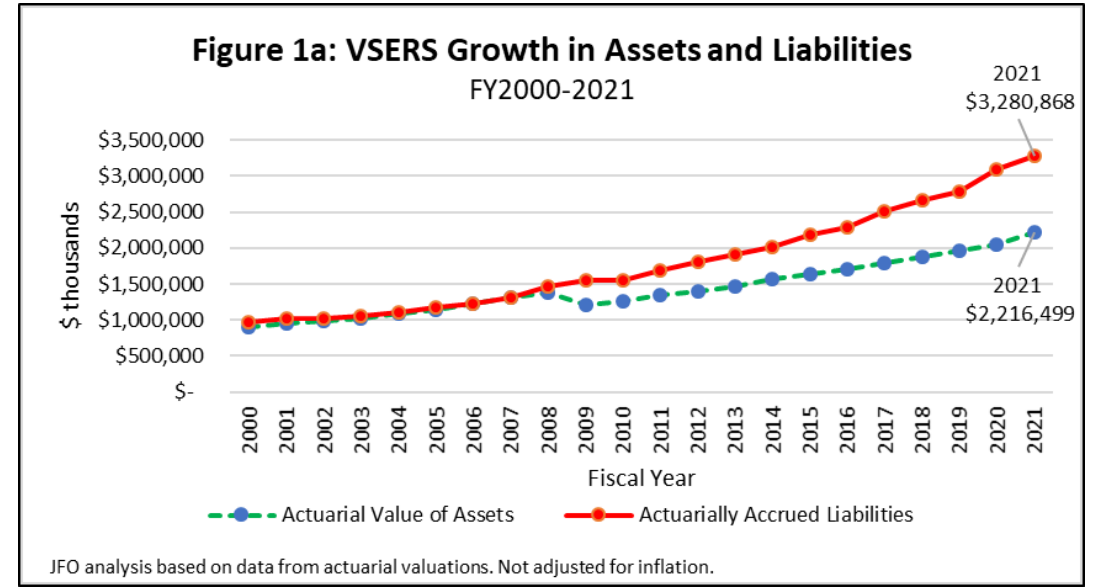
VSTRS: Vermont State Teachers' Retirement System

Overview

Prior to the Great Recession, both pension systems were in much stronger financial position.

Since the Great Recession, the liabilities have grown at a faster rate than the assets.

The shortfall between the liabilities and the assets (the unfunded liability) has, in turn, grown over time.



ADEC History

As the unfunded liability has grown, the ADECs (employer pension costs) have also grown very significantly.

- VSERS FY09 ADEC: \$25.9 million
- VSERS FY23 ADEC: \$125.9 million (CAGR: 12.1%)
- VSTRS FY09 ADEC: \$37.1 million
- VSTRS FY23 ADEC: \$205.2 million (CAGR: 13.0%)

The employer has excessively funded the ADEC in the current amortization period. Cumulatively, from FY09 through FY21 the ADECs have been overfunded by:

- VSERS: \$87.3 million
- VSTRS: \$60.8 million

However, the funded ratios have continued to decline.

VSERS ADEC is funded through a payroll charge (19.5%) on the funds of government that employ active members.

VSTRS ADEC is funded through direct appropriation. Normal Cost is funded by Education Fund, and the unfunded liability payment is funded by General Fund. A small portion of both costs are paid by local education agencies on federally funded staff.

Figure 2a: VSERS ADEC vs. Actual Employer Contribution, FY2004-2021

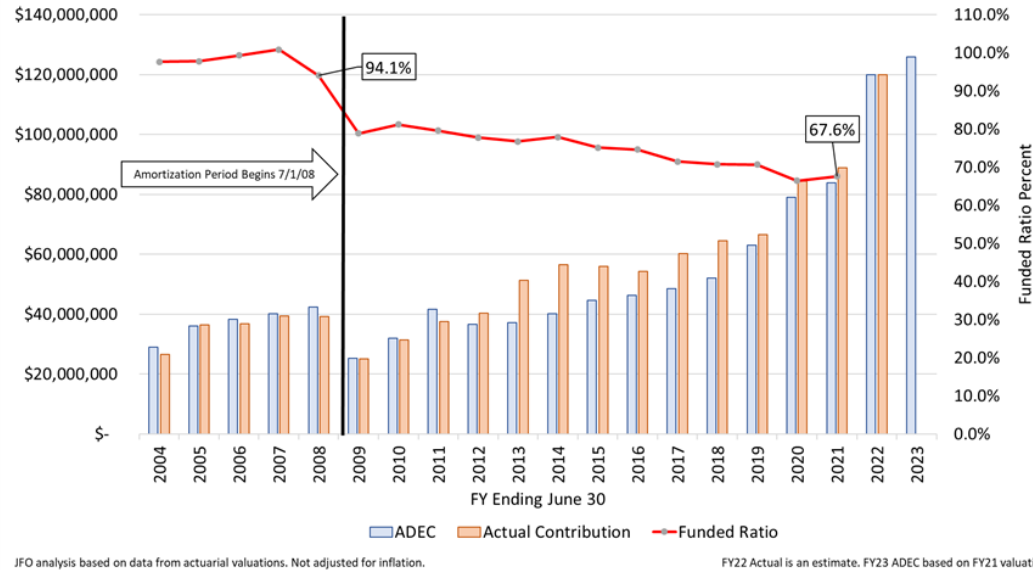
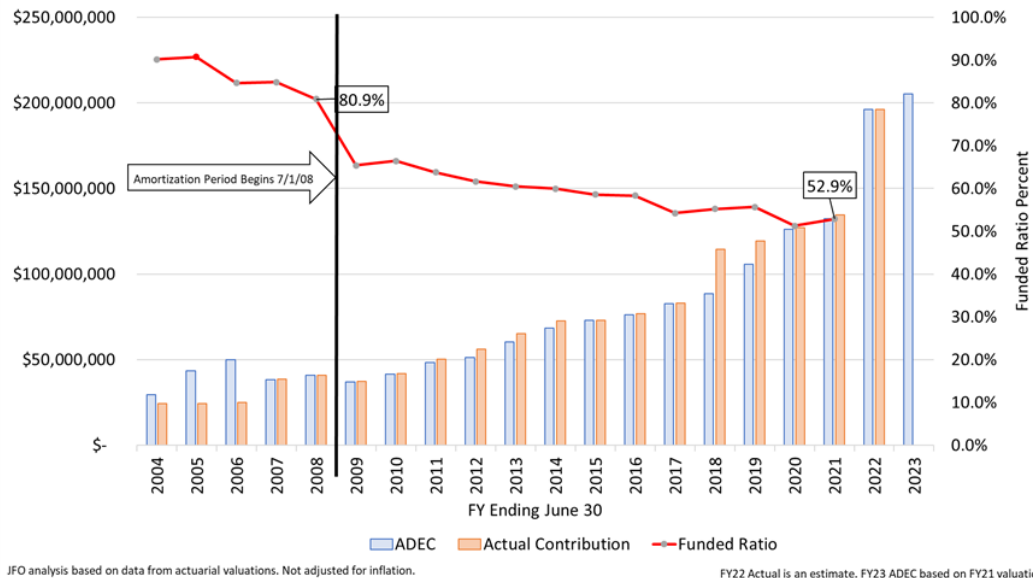


Figure 2b: VSTRS ADEC vs. Actual Employer Contribution, FY2004-2021



ADEC History

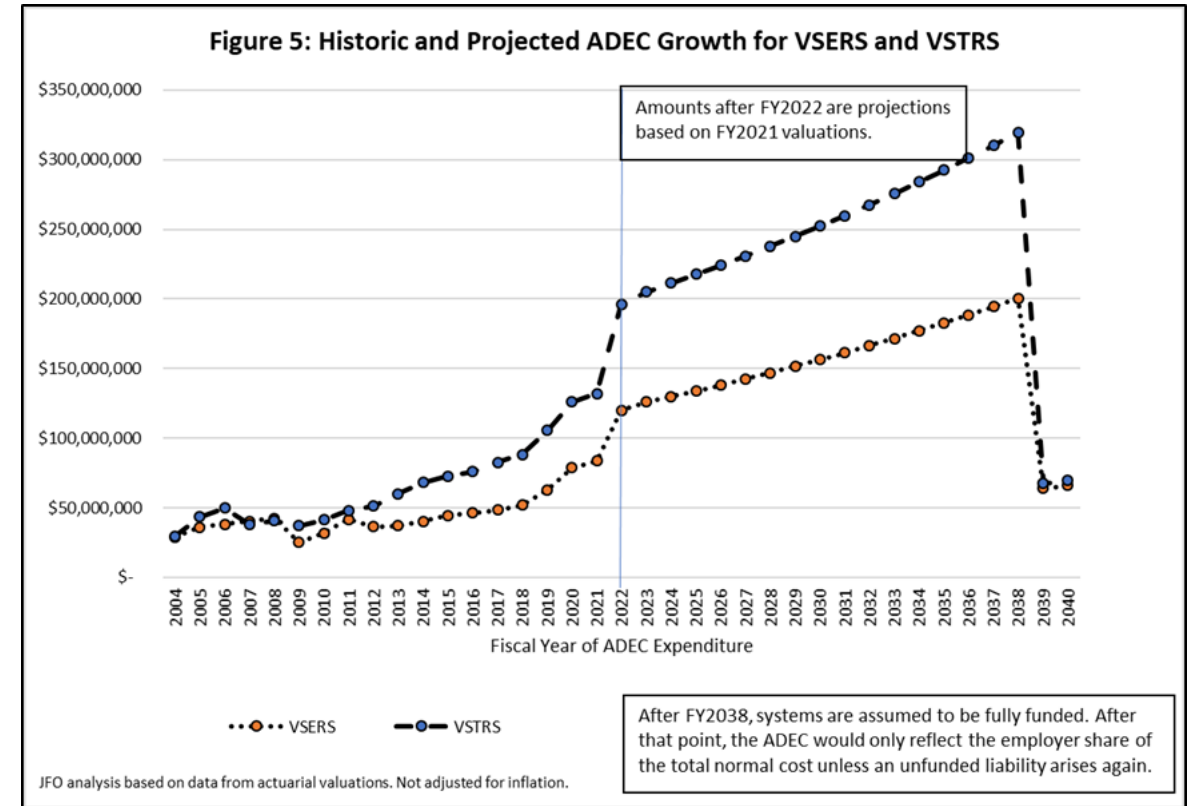
From FY21-22, the ADECs increased by approximately \$36.1 million (VSERS) and \$64.1 million (VSTRS), mainly due to changes to plan assumptions:

- Revised demographic assumptions
- Lower assumed rate of return, from 7.5% to 7.0%

In a status quo situation with all assumptions met, ADECs would be expected to continue increasing at approximately 3%/year until FY2038 (when they would be over \$500 million combined) or upon reaching full funding.

Once there is no unfunded liability left to amortize, the payments would only reflect the amount of normal cost that isn't funded by employee contributions.

Unfunded liabilities commonly occur even when ADECs are fully funded. It is not realistic to expect to never have one after 2038.



Unfunded Liabilities

At the start of the amortization period, **VSERS** had an unfunded liability of \$87.1 million. At the end of FY21, this shortfall was \$1,064.4 million.

- Changes to actuarial assumptions
- Salary experience deviating from assumptions.
- Investment performance (Great Recession)
- Mortality and Retirement experience.

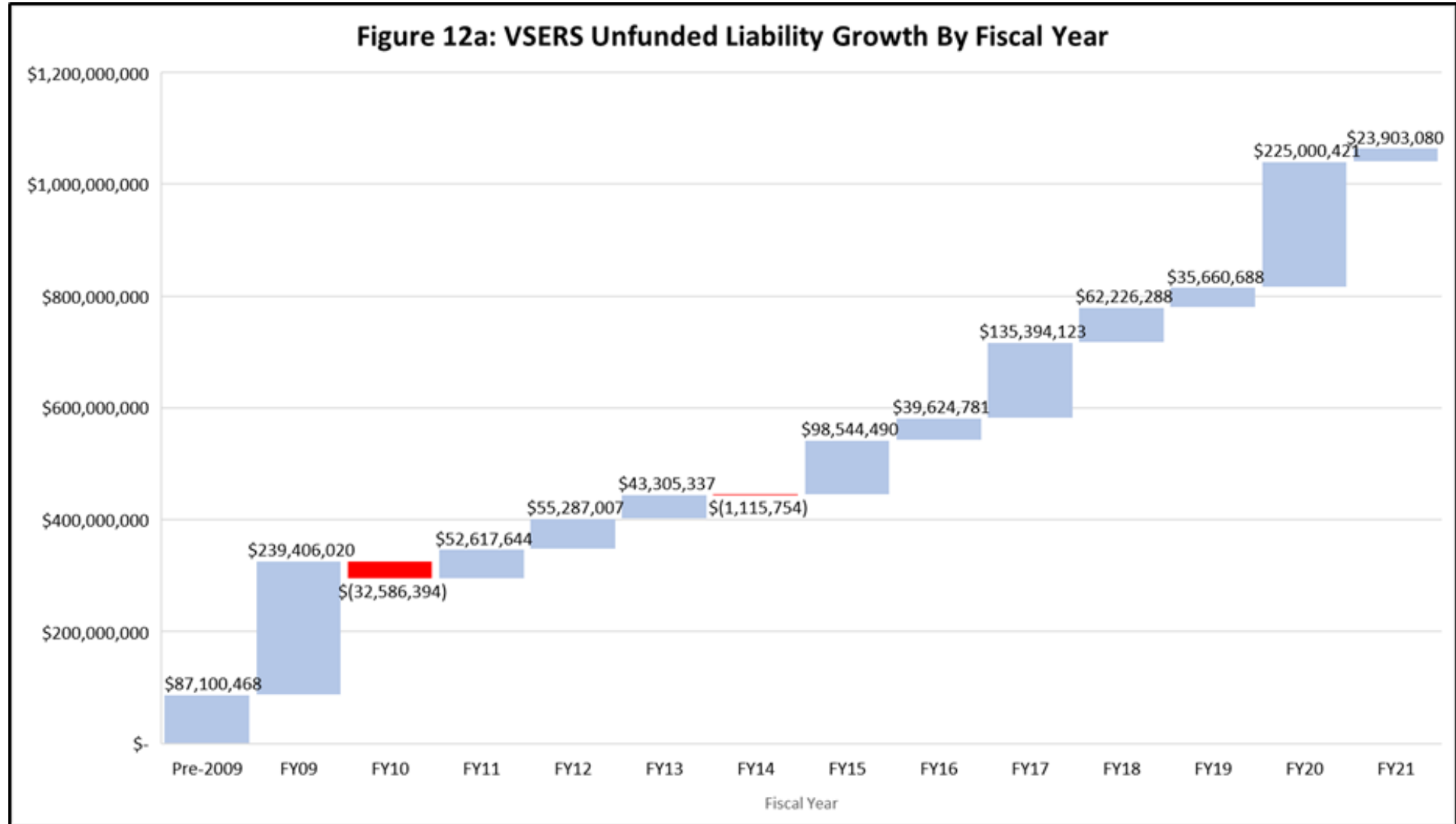
Payments into the system from employees/employer have largely “treaded water” with accumulating interest and normal cost and paid down just \$45.6 million of the unfunded liability. More principal will be paid down in future years.

Underfunding by the employer did not cause this growth in unfunded liabilities.

- The ADEC was over-funded by the employer cumulatively by \$87.3 million (FY09-21).
- VSERS was fully funded in FY07.

Table 10a: VSERS Unfunded Liability Drivers (Cumulative), FY2009-2021		
	Total FY09-21	% of Total Unfunded Liability
Beginning FY Unfunded Liability	\$ 87,100,468	8.2%
Changes in Actuarial Assumptions	\$ 489,354,525	46.0%
Changes in System Provisions	\$ (8,924,494)	-0.8%
Incorporation of Temp Salary Decreases	\$ (69,913,212)	-6.6%
Change in Employee Contribution Rate	\$ (2,610,261)	-0.2%
All Other Expected Increases/Reductions		
Excluding Above	\$ (45,550,961)	-4.3%
Normal Cost	\$ 603,451,027	
Contributions In	\$ (1,148,210,900)	
Interest	\$ 499,208,912	
Experience (Gain)/Losses		
Other Expense Gain/Loss	\$ 7,842,470	0.7%
Salary Experience Gain/Loss	\$ 99,891,584	9.4%
COLA Experience Gain/Loss	\$ (86,557,833)	-8.1%
Net Turnover	\$ 59,406,857	5.6%
Investments	\$ 265,060,306	24.9%
Mortality	\$ 36,975,626	3.5%
Retirements	\$ 131,339,979	12.3%
Disability Experience	\$ 3,160,211	0.3%
Other gain/loss	\$ 97,792,934	9.2%
Ending FY Unfunded Liability	\$ 1,064,368,199	
JFO analysis based on data from actuarial valuations.		

Unfunded Liabilities



Unfunded Liabilities

At the start of the amortization period, **VSTRS** had an unfunded liability of \$379.5 million. At the end of FY21, this grew to \$1,950.4 million.

- Changes to actuarial assumptions
- Investment performance (Great Recession)
- Net Turnover and Retirement experience
- Legacy OPEB funding practices

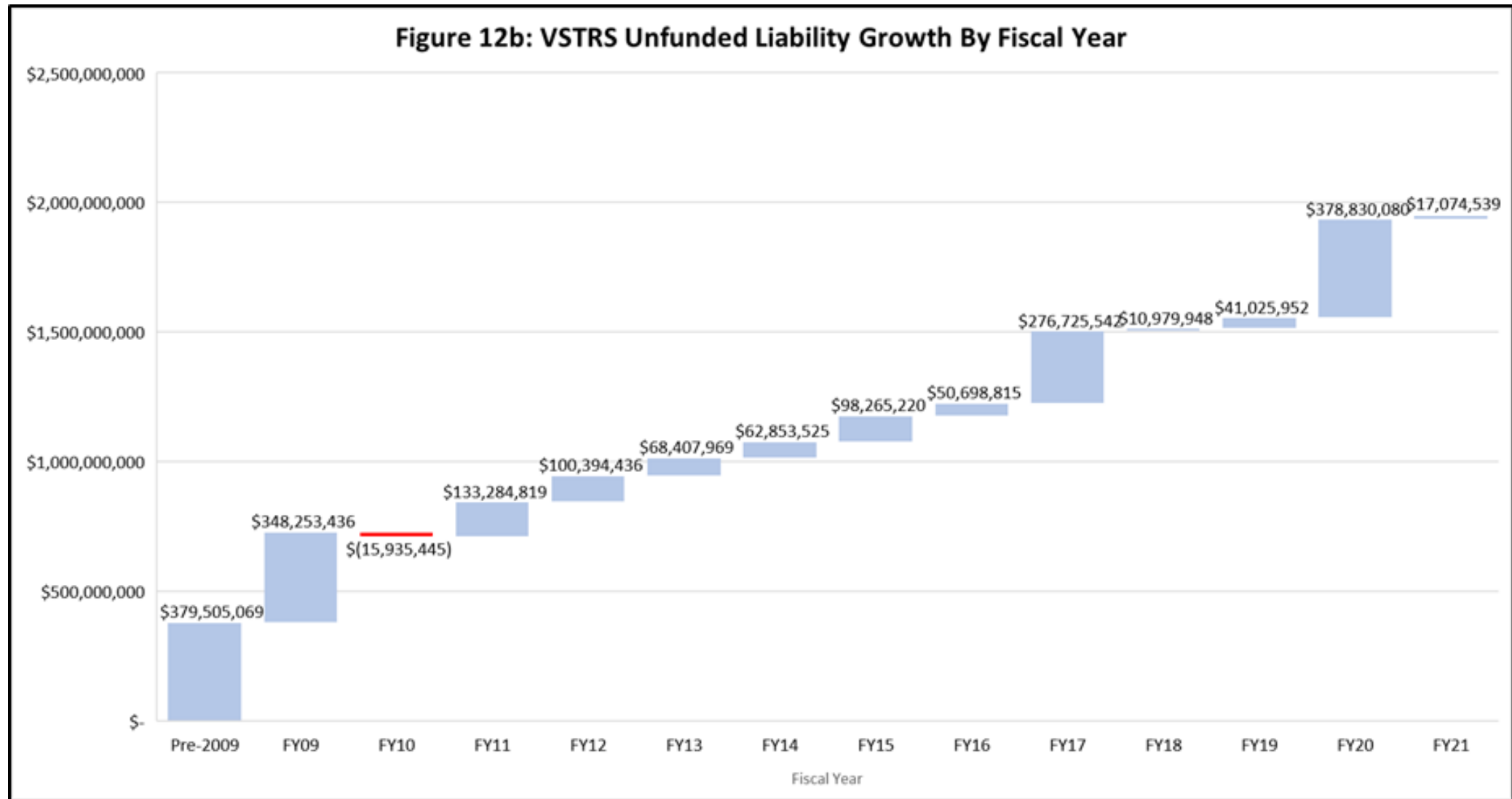
Payments into the system from employees/employer have not fully kept pace with growing interest and normal costs. But more principal will be paid down in future years.

Employer underfunded the ADEC prior to 2007, which contributed in part to the starting unfunded liability balance. Although the employer fully funded the ADEC during the current amortization period, the legacy OPEB funding practices (pre-2015) also added to the unfunded liability similarly to a contribution shortfall.

Employer ADEC underfunding and prior OPEB funding practices are responsible for approximately \$28 million of the ADEC cost and \$353 million of the unfunded liability, per Treasurer's estimates. But employer underfunding is NOT what drove the major increases in ADEC/unfunded liability from FY21-22.

	Total FY09-21	% of Total Unfunded Liability
Beginning FY Unfunded Liability	\$ 379,505,069	19.5%
<u>Expected Adjustments not including assumption/benefit changes</u>	\$ 64,669,710	3.3%
Normal Cost	\$ 517,571,560	
Contributions In Interest	\$ (1,499,632,849)	
	\$ 1,046,730,999	
Assumption Changes	\$ 769,359,160	39.4%
Plan provisions	\$ (46,529,457)	-2.4%
Net Investments	\$ 333,259,067	17.1%
Salary	\$ (135,470,051)	-6.9%
COLA Experience Gain/Loss	\$ (78,606,804)	-4.0%
Mortality	\$ 5,292,052	0.3%
Retirements	\$ 158,541,794	8.1%
Disability Experience	\$ 3,598,700	0.2%
Net Turnover	\$ 341,662,826	17.5%
Contribution Shortfall including Healthcare Approp. (OPEB)	\$ 138,457,627	7.1%
Other Gains/Losses	\$ 16,624,212	0.9%
Ending FY Unfunded Liability	\$ 1,950,363,905	
JFO analysis based on data from actuarial valuations.		

Unfunded Liabilities



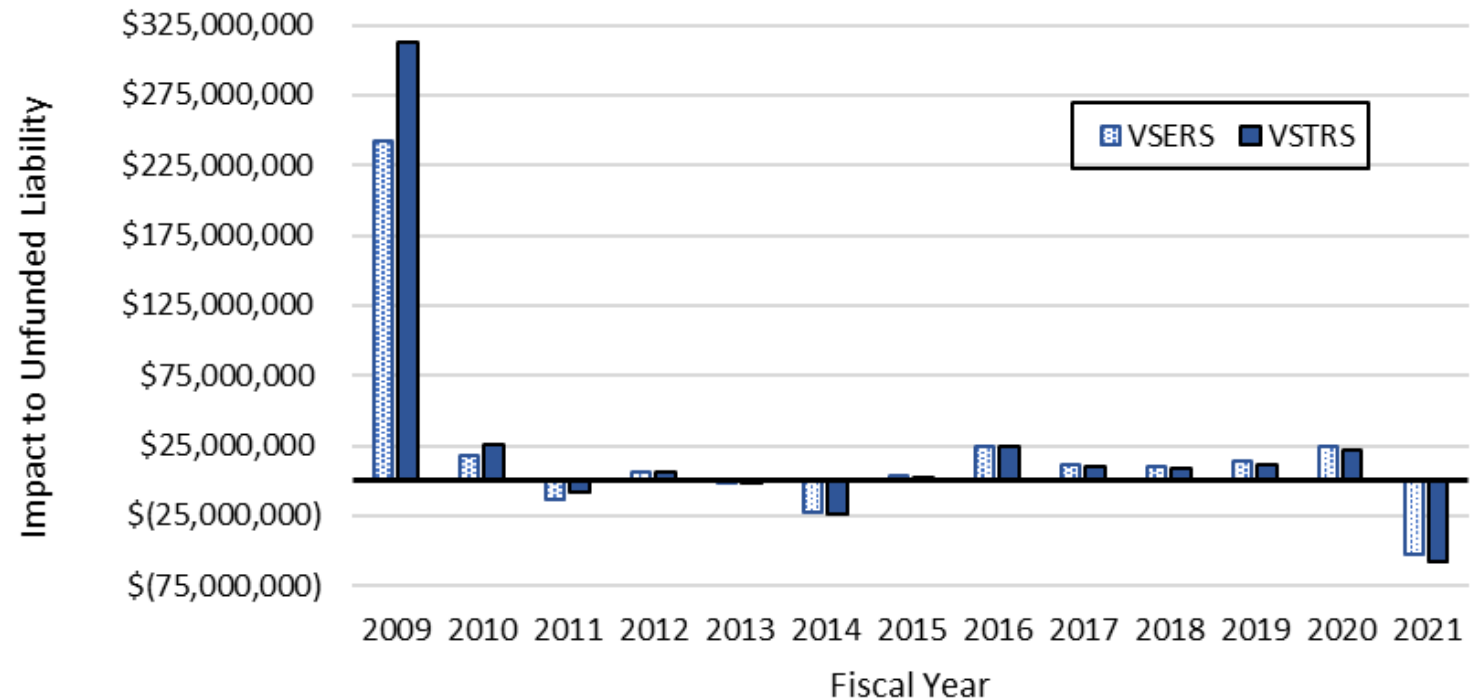
Investment Performance

Virtually all of the investment experience losses are due to the impacts of the Great Recession.

Smaller actuarial gains/losses have occurred in the most recent decade, but those were mostly offset by unusually strong gains in FY2021 (24.62% preliminary return).

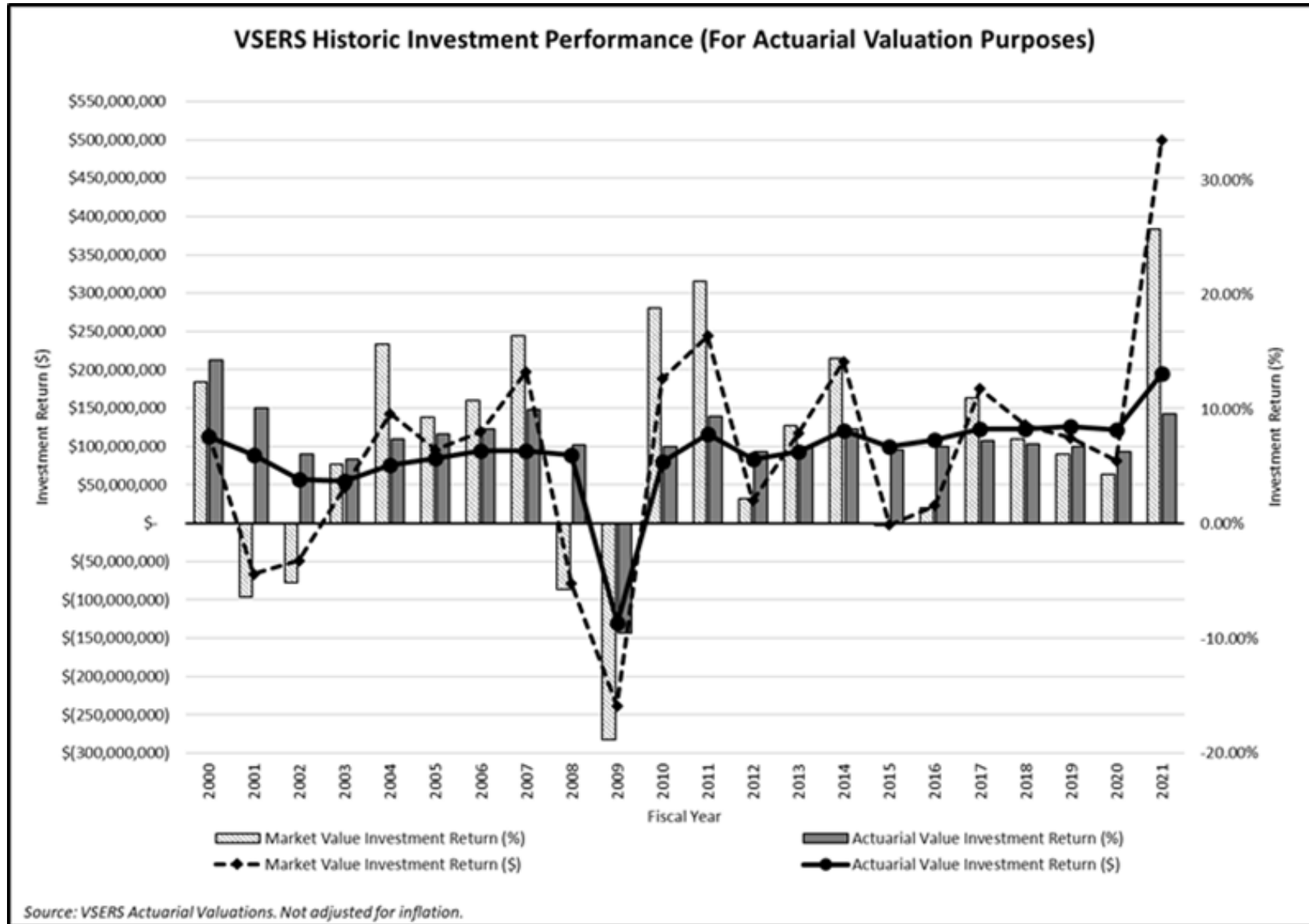
We still have not dug out of the “hole” from the Great Recession.

Figure 8: Impact of Investment Experience on Unfunded Liabilities



Positive values indicate actuarial losses (growth in unfunded liability). Negative values indicate actuarial gains (reduction in unfunded liability). Zero values indicate actuarial assumption was met. JFO analysis of data from actuarial valuations. Not adjusted for inflation.

Investment Performance



Demographic Trends

Both pension systems have seen a very significant increase in the number of people receiving benefits vs. the number of active members. Both systems now have more non-actives than actives, and the size of the active workforce has not increased.

Large cohorts of Baby Boomers have retired since the Great Recession battered the investment portfolios.

Pension systems are designed to pay out benefits, but when more and more money is being paid out in benefits it makes it harder to increase assets through investment growth alone.

- Risk of higher employer pension costs
- Greater concern for liquidity/less tolerance for investment risk

Figure A.5: VSERS Membership Trends

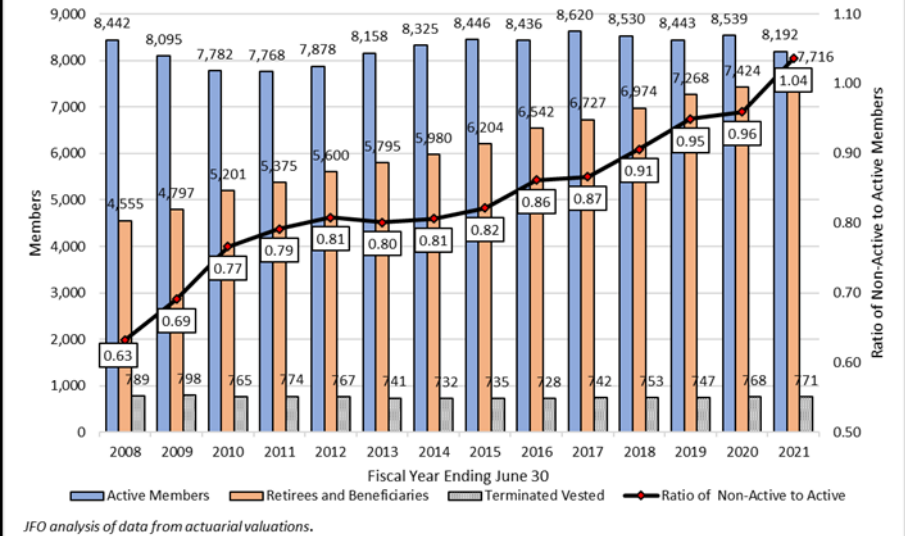
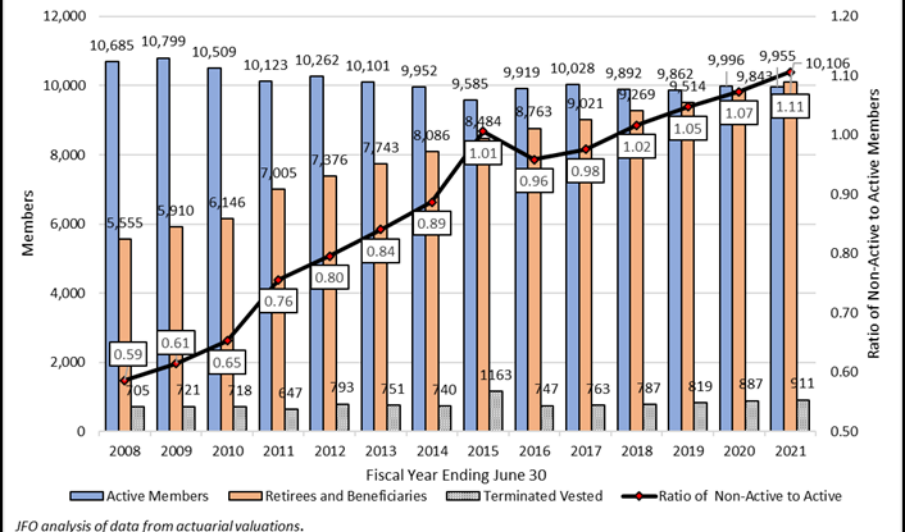


Figure A.6: VSTRS Membership Trends



OPEB

- Subsidized retiree health care (OPEB) is another very significant source of the state's retirement liabilities.
- Unlike pensions, OPEB is paid on a “paygo” basis with minimal prefunding. The state pays the bills to provide benefits to today's retirees as they are due.
- Prefunding OPEB saves tax dollars long term by using investment gains to fund future benefit costs. However, prefunding requires increased expenditures in the near term above the paygo levels to build up enough assets to invest.
- Prefunding alone would cut the state's unfunded liabilities by more than **\$1.68 billion!**
 - Using a 7.0% discount rate instead of 2.2%.
 - Requires a statutory prefunding policy plus an ongoing commitment to pay the required amounts until the system is fully funded.

FY21 Actuarial Valuations

- Pension funds had a very, very strong investment year in FY2021.
- But – most of the benefits of that strong investment year will not be recognized until future years.
- Assets grew faster than liabilities (a good thing!). Unfunded liabilities grew slightly in dollar terms, but funded ratios also improved slightly.
- Higher than expected COLAs and retirements resulted in actuarial losses.
- Some negative amortization occurred due to timing reasons –assumption changes significantly increased the unfunded liability and normal cost in FY2021, so interest accrued on larger balances. But the amortization payments made in FY2021 were calculated based on FY2019 data (pre-assumption changes).
- Overall, future pension costs are expected to be relatively close to what the prior (FY2020) valuation predicted.

VSERS FY21 Valuation: https://www.vermonttreasurer.gov/sites/treasurer/files/VSERS/VSERS-reports/VSTRS-actuarial-valuation/Vermont%20State%20Employees%E2%80%99%20Retirement%20System_Actuarial%20Valuation.pdf

VSTRS FY21 Valuation: https://www.vermonttreasurer.gov/sites/treasurer/files/VSTRS/PDF/2021/Vermont%20State%20Teachers%E2%80%99%20Retirement%20System_Actuarial%20Valuation.pdf

Change in Assets and Liabilities

For both systems:

Liabilities continued to grow – but assets grew faster than the liabilities.

Very strong investment year erased deferred market losses and created deferred market gains that will be recognized in future years.

Most of the “benefit” of the strong investment year will be realized in future years due to smoothing.

The MVA indicates the value of the assets at a point in time, but the AVA (smoothed) is used for funding purposes.

When $AVA > MVA$, deferred losses are present. When $AVA < MVA$, deferred gains are present.

	VSERS	VSTRS
FY2020 Accrued Liability	\$3,095,290,972	\$3,969,002,977
FY2021 Accrued Liability	\$3,280,867,677	\$4,142,014,660
	+\$185,576,705 (6.0%)	+\$173,011,683 (4.4%)
FY2020 Market Value of Assets	\$1,959,066,641	\$1,951,489,882
FY2021 Market Value of Assets	\$2,425,222,408	\$2,422,793,508
	+\$466,432,837 (23.8%)	+\$471,303,626 (24.2%)
FY2020 Actuarial Value of Assets	\$2,054,825,853	\$2,035,713,611
FY2021 Actuarial Value of Assets	\$2,216,499,478	\$2,191,650,755
	+\$161,673,625 (7.9%)	+\$155,937,144 (7.7%)
FY2020 AVA as % of MVA	104.9%	104.3%
FY2021 AVA as % of MVA	91.4%	90.5%

Investment Rate of Return

Both funds had very strong market returns in FY2021.

Investment gains offset deferred market losses from prior years. A year ago, the systems had combined deferred losses of \$180M. Now, they have combined deferred gains of \$440M.

When all else is equal, the funded ratio is expected to continue increasing as those gains are recognized in the actuarial math in upcoming years.

	VSERS	VSTRS
FY2021 Investment Income (Market Value)	\$499,339,262	\$514,152,415
FY2021 Market Value Rate of Return	25.71%	26.64%
FY2021 Investment Income (Actuarial Value)	\$194,857,120	\$198,785,933
FY2021 Actuarial Value Rate of Return	9.56%	9.87%
Deferred Market Gains to be Recognized in Future Years (MVA – AVA)	\$208,722,930	\$231,142,753

Change in Unfunded Liabilities

- Unfunded Liabilities increased slightly for both systems (in dollar terms but not relative terms).
- However, the funded ratios also increased/improved.
 - This is because the assets grew at a faster rate than the liabilities.
 - YOY Funded Ratio improvement relatively small due to smoothing of investment gains.

	VSERS	VSTRS
FY2020 Unfunded Liability (AVA)	\$1,040,465,119	\$1,933,289,366
FY2021 Unfunded Liability (AVA)	\$1,064,368,199	\$1,950,363,905
	+\$23,903,080 (2.3%)	+\$17,074,541(0.9%)
FY2020 Funded Ratio (AVA)	66.4%	51.3%
FY2021 Funded Ratio (AVA)	67.6%	52.9%

Changes to Unfunded Liabilities

- Both systems saw significant actuarial gains from investment performance.
- These gains, however, were offset by other actuarial losses:
 - COLA experience
 - Retirement experience higher than assumed.
- VSERS = net experience loss of \$11.2 million
- VSTRS = net experience gain of \$12.1 million.
- Negative amortization due to higher interest costs in FY2021 prior to higher ADECs kicking in for FY2022 further added to UL.

	VSERS	VSTRS
Start FY2021 Unfunded Liability (AVA)	\$1,040,465,119	\$1,933,289,366
<u>Expected Increases/Reductions</u>	<u>\$12,683,162</u>	<u>\$29,161,313</u>
<i>Normal Cost</i>	\$70,795,127	\$72,122,496
<i>Interest</i>	\$73,192,558	\$134,178,925
<i>Contributions In</i>	<i>-\$131,304,523</i>	<i>-\$177,140,109</i>
Salary Experience	\$4,448,937	<i>-\$9,493,027</i>
COLA	\$35,588,639	\$22,593,555
Net Turnover	<i>-\$3,446,914</i>	\$10,518,767
Investments	<i>-\$52,180,733</i>	<i>-\$57,785,688</i>
Mortality	\$4,440,365	<i>-\$1,761,346</i>
Retirements	\$19,015,951	\$16,872,089
Disability	\$158,342	\$560,942
Other gain/loss	\$3,195,331	\$6,407,934
End FY2021 Unfunded Liability (AVA)	\$1,064,368,199	\$1,950,363,905

ADEC

From FY2022 to FY2023, ADECs are projected to grow slightly more than the previously assumed 3% rate.

The FY2023 combined ADECs will be \$5.3 million higher than what was expected in the prior valuation.

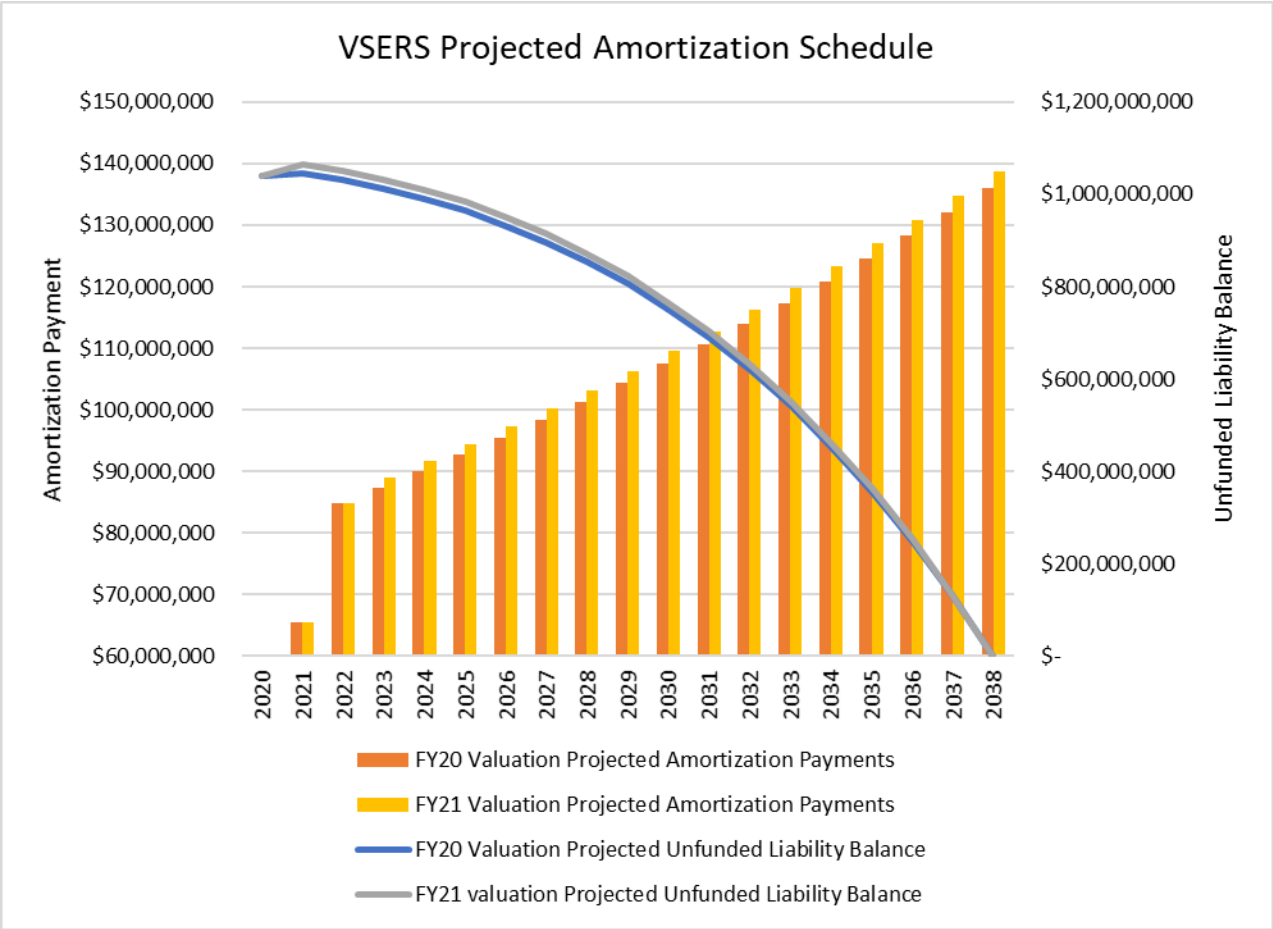
This is due to the slightly larger unfunded liability balance to amortize, plus a slightly higher employer normal cost that reflects a 0.40% administrative expense assumption.

	VSERS	VSTRS
FY2021 ADEC	\$83,876,570 (14.51% of pay)	\$132,141,701 (19.51% of pay)
FY2021 Actual Contrib.	\$88,944,172 (15.38% of pay)	\$134,541,278 (19.86% of pay)
FY2022 ADEC (FY2020 val.)	\$119,967,769 (20.73% of pay)	\$196,206,504 (28.44% of pay)
FY2023 ADEC (FY2021 val.)	\$125,938,400 (21.03% of pay)	\$205,161,651 (28.87% of pay)
	+5,970,631 (4.98%)	+\$8,955,147 (4.56%)
FY2023 Estimated ADEC (as predicted in FY2020 Valuations)	\$123,742,634	\$202,092,699
Amount of Unexpected Increase in FY2023 ADEC	\$2,195,766	\$3,068,952

VSERS Amortization Schedule

The FY21 valuation slightly increases the annual amortization payments expected in future years.

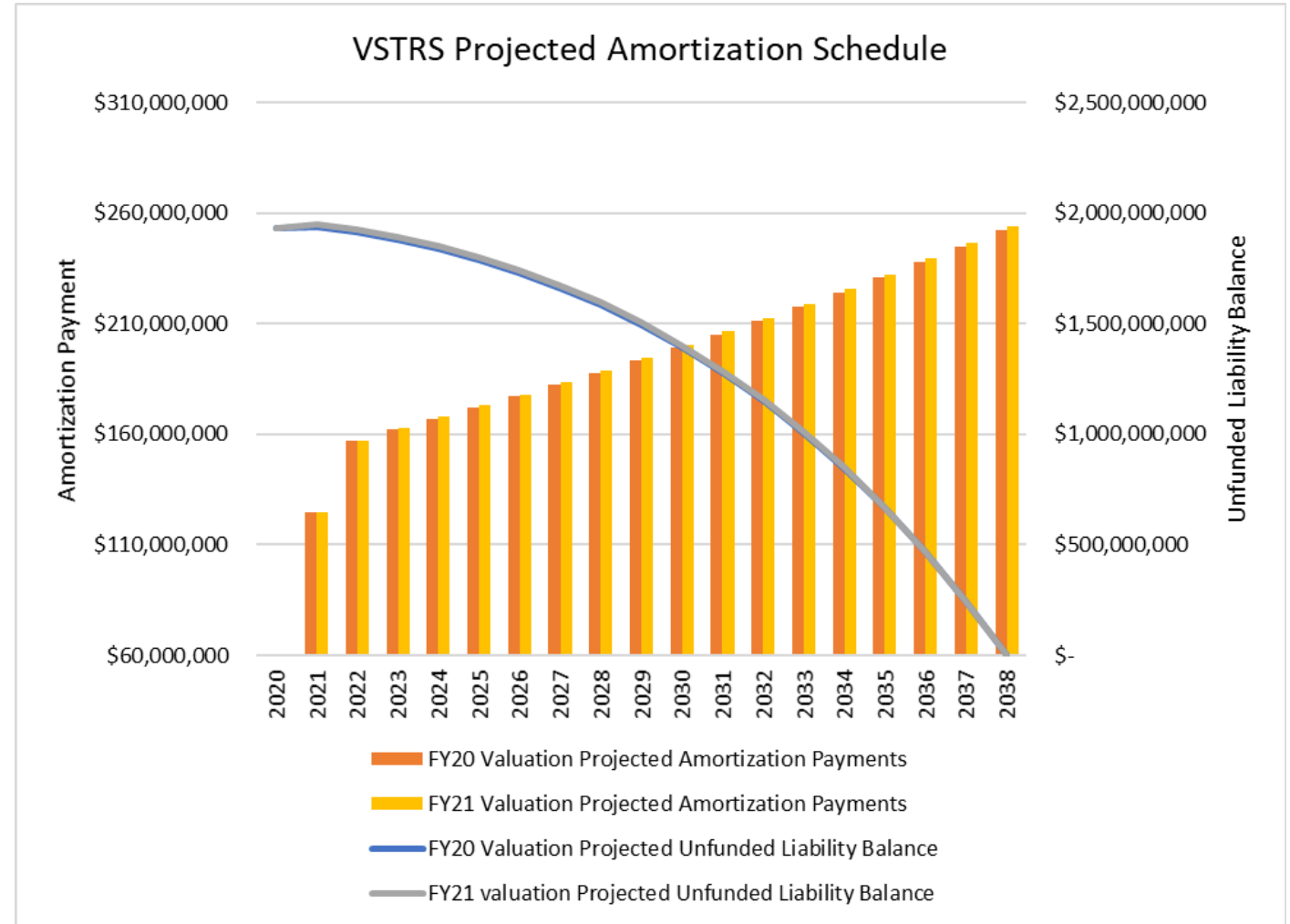
Cumulatively, VSERS amortization payment expenses are projected to increase by \$34.5 million from FY2023 through FY2038 compared to the prior valuation.



VSTRS Amortization Schedule

The FY21 valuation slightly increases the annual amortization payments expected in future years.

Cumulatively, VSTRS amortization payment expenses are projected to increase by \$20.0 million from FY2023 through FY2038 compared to the prior valuation.



Demographic Changes

	FY2020	FY2021
VSERS		
Active Members	8,539	8,192
Deferred/Terminated Vested	768	771
Retired Members/Beneficiaries	7,424	7,716
Total Non-Actives	8,192	8,487
Ratio of Non-Active to Active	0.96	1.04
Avg Active Salary	\$64,642	\$67,421
Avg Active Age	45.6	45.7
Avg Active Yrs of Service	10.8	10.9
Retiree/Beneficiary Benefits	\$150,974,104	\$161,473,057
Retiree/Beneficiary Avg Annual Benefit	\$20,336	\$20,927

	FY2020	FY2021
VSTRS		
Active Members	9,996	9,955
Deferred/Terminated Vested	887	911
Retired Members/Beneficiaries	9,843	10,106
Total Non-Actives	10,730	11,017
Ratio of Non-Active to Active	1.07	1.11
Avg Active Salary	\$64,616	\$66,091
Avg Active Age	45.4	45.3
Avg Active Yrs of Service	12.4	12.3
Retiree/Beneficiary Benefits	\$212,287,265	\$223,092,411
Retiree/Beneficiary Avg Annual Benefit	\$21,567	\$21,880

Questions?

Unfunded Liability Drivers - VSERS

VSERS Drivers of Unfunded Liability Growth, FY2007-2021																		
	Fiscal Year		Amortization Period Begins 2009															
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021		Total FY07-21	Total FY09-21
Beginning FY Unfunded Liability	\$ 9,044,004	\$ (11,043,959)	\$ 87,100,468	\$ 326,506,488	\$ 293,920,094	\$ 346,537,738	\$ 401,824,745	\$ 445,130,082	\$ 444,014,328	\$ 542,558,818	\$ 582,183,599	\$ 717,577,722	\$ 779,804,010	\$ 815,464,698	\$ 1,040,465,119		\$ 9,044,004	\$ 87,100,468
Changes in Actuarial Assumptions	\$ (15,744,285)	\$ 7,231,106	\$ -	\$ -	\$ 26,425,205	\$ 31,587,726	\$ 33,541,162	\$ 35,135,438	\$ 84,606,837	\$ 6,099,167	\$ 49,130,291	\$ -	\$ -	\$ 222,828,699			\$ 480,841,346	\$ 489,354,525
Changes in System Provisions	\$ -	\$ 56,389,496	\$ (8,946,746)	\$ -	\$ 22,252	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -			\$ 47,465,002	\$ (8,924,494)
Incorporation of Temp Salary Decreases	\$ -	\$ -	\$ -	\$ (69,913,212)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -			\$ (69,913,212)	\$ (69,913,212)
Change in Employee Contribution Rate	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (2,610,261)	\$ -	\$ -	\$ -	\$ -			\$ (2,610,261)	\$ (2,610,261)
All Other Expected Increases/Reductions																	\$ -	\$ -
Excluding Above	\$ 2,523,380	\$ (1,887,100)	\$ 5,158,736	\$ 16,450,711	\$ 3,408,119	\$ (4,722,236)	\$ (17,592,939)	\$ (18,717,376)	\$ (17,086,501)	\$ (4,699,308)	\$ (8,507,716)	\$ (2,213,895)	\$ 2,639,467	\$ (12,351,185)	\$ 12,683,162		\$ (44,914,681)	\$ (45,550,961)
Normal Cost	\$ 36,113,361	\$ 39,091,226	\$ 44,574,324	\$ 42,730,487	\$ 38,979,778	\$ 41,517,079	\$ 39,217,558	\$ 42,234,214	\$ 44,725,724	\$ 41,057,178	\$ 42,703,770	\$ 49,737,692	\$ 52,027,002	\$ 53,151,094	\$ 70,795,127		\$ 678,655,614	\$ 603,451,027
Contributions In	\$ (35,798,190)	\$ (41,609,832)	\$ (48,324,859)	\$ (54,536,763)	\$ (60,584,812)	\$ (68,388,004)	\$ (81,856,395)	\$ (88,682,529)	\$ (89,600,885)	\$ (88,695,721)	\$ (97,032,971)	\$ (105,542,404)	\$ (107,734,805)	\$ (125,926,229)	\$ (131,304,523)		\$ (1,225,618,922)	\$ (1,148,210,900)
Interest	\$ 2,208,209	\$ 631,506	\$ 8,909,271	\$ 28,256,987	\$ 25,013,153	\$ 22,148,689	\$ 25,045,898	\$ 27,730,939	\$ 27,788,660	\$ 42,939,235	\$ 45,821,485	\$ 53,590,817	\$ 58,347,270	\$ 60,423,950	\$ 73,192,558		\$ 502,048,627	\$ 499,208,912
Experience (Gain)/Losses																	\$ -	\$ -
Other Expense Gain/Loss	\$ -	\$ 955,848	\$ (2,531,248)	\$ 891,478	\$ 1,487,355	\$ 1,369,818	\$ 1,416,950	\$ 1,193,828	\$ 2,169,411	\$ 1,844,878	\$ -	\$ -	\$ -	\$ -			\$ 8,798,318	\$ 7,842,470
Salary Experience Gain/Loss	\$ (7,261,077)	\$ (30,350)	\$ (79,064)	\$ (105,795)	\$ 35,867,925	\$ 10,916,553	\$ 23,416,670	\$ 4,183,550	\$ (8,216,692)	\$ 4,731,224	\$ 14,254,036	\$ 7,120,663	\$ (344,400)	\$ 3,697,977	\$ 4,448,937		\$ 92,600,157	\$ 99,891,584
COLA Experience Gain/Loss	\$ (252,995)	\$ (1,184,450)	\$ 8,272,076	\$ (19,948,790)	\$ (7,391,265)	\$ 2,278,408	\$ (7,319,398)	\$ (6,030,176)	\$ (11,711,910)	\$ (29,591,395)	\$ (15,467,145)	\$ 726,790	\$ (11,993,826)	\$ (23,969,841)	\$ 35,588,639		\$ (87,995,278)	\$ (86,557,833)
Net Turnover	\$ 1,638,107	\$ 13,017,851	\$ (819,098)	\$ 2,042,729	\$ 1,963,014	\$ 5,652,331	\$ 6,472,581	\$ 7,304,431	\$ 6,521,689	\$ 8,317,659	\$ 13,064,871	\$ 7,931,592	\$ 1,588,998	\$ 2,812,974	\$ (3,446,914)		\$ 74,062,815	\$ 59,406,857
Investments	\$ (23,408,590)	\$ 23,651,900	\$ 242,482,443	\$ 18,552,665	\$ (13,637,923)	\$ 5,767,759	\$ (130,930)	\$ (22,572,946)	\$ 3,052,108	\$ 24,616,058	\$ 11,338,110	\$ 10,076,141	\$ 13,757,751	\$ 23,939,803	\$ (52,180,733)		\$ 265,303,616	\$ 265,060,306
Mortality	\$ 10,151,465	\$ (1,704,255)	\$ (1,459,717)	\$ (6,662,067)	\$ 4,824,200	\$ 4,809,926	\$ 4,487,254	\$ 5,949,161	\$ 4,016,775	\$ 4,361,697	\$ 9,160,867	\$ 4,854,533	\$ 1,885,105	\$ (3,692,473)	\$ 4,440,365		\$ 45,422,836	\$ 36,975,626
Retirements	\$ 13,164,074	\$ 3,106,026	\$ (5,165,508)	\$ 19,969,509	\$ 7,040,422	\$ 8,036,027	\$ 1,549,045	\$ 2,414,112	\$ 3,543,687	\$ 23,347,399	\$ 12,223,344	\$ 17,048,638	\$ 13,424,864	\$ 8,892,489	\$ 19,015,951		\$ 147,610,079	\$ 131,339,979
Disability Experience	\$ (898,042)	\$ 486,572	\$ (710,461)	\$ 1,355,018	\$ (487,913)	\$ (312,627)	\$ 172,204	\$ (735,311)	\$ 755,213	\$ 1,207,277	\$ 1,124,342	\$ 491,425	\$ (291,792)	\$ 434,494	\$ 158,342		\$ 2,748,741	\$ 3,160,211
Other gain/loss	\$ -	\$ (1,888,217)	\$ 3,204,607	\$ 4,781,360	\$ (6,903,747)	\$ (10,096,678)	\$ (2,707,262)	\$ (9,240,465)	\$ 30,893,873	\$ 2,000,386	\$ 49,073,123	\$ 16,190,401	\$ 14,994,521	\$ 2,407,484	\$ 3,195,331		\$ 95,904,717	\$ 97,792,934
Ending FY Unfunded Liability	\$ (11,043,959)	\$ 87,100,468	\$ 326,506,488	\$ 293,920,094	\$ 346,537,738	\$ 401,824,745	\$ 445,130,082	\$ 444,014,328	\$ 542,558,818	\$ 582,183,599	\$ 717,577,722	\$ 779,804,010	\$ 815,464,698	\$ 1,040,465,119	\$ 1,064,368,199		\$ 1,064,368,199	\$ 1,064,368,199

Unfunded Liability Drivers - VSTRS

VSTRS Drivers of Unfunded Liability Growth, FY2007-2021																		
	Fiscal Year		Amortization Period Begins 2009															
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total FY07-21	Total FY09-21	
Beginning FY Unfunded Liability	\$ 259,108,435	\$ 274,790,333	\$ 379,505,069	\$ 727,758,505	\$ 711,823,060	\$ 845,107,879	\$ 945,502,315	\$ 1,013,910,284	\$ 1,076,763,809	\$ 1,175,029,029	\$ 1,225,727,844	\$ 1,502,453,386	\$ 1,513,433,334	\$ 1,554,459,286	\$ 1,933,289,366	\$ 259,108,435	\$ 379,505,069	
Expected Adjustments not including assumption/benefit changes	\$ 1,550,581	\$ 2,390,471	\$ 6,838,673	\$ 32,206,808	\$ 11,653,535	\$ (550,458)	\$ (2,670,835)	\$ (7,108,974)	\$ (5,728,960)	\$ 12,768,859	\$ 11,629,574	\$ (1,769,543)	\$ (7,906,560)	\$ (13,853,722)	\$ 29,161,313	\$ 68,610,762	\$ 64,669,710	
Normal Cost	\$ 41,245,249	\$ 42,871,112	\$ 35,690,059	\$ 39,336,165	\$ 35,846,531	\$ 35,205,405	\$ 36,673,377	\$ 36,150,845	\$ 36,629,593	\$ 33,880,724	\$ 35,383,370	\$ 40,127,656	\$ 39,773,702	\$ 40,751,637	\$ 72,122,496	\$ 601,687,921	\$ 517,571,560	
Contributions In	\$ (61,968,307)	\$ (64,096,137)	\$ (60,652,640)	\$ (67,678,259)	\$ (82,538,491)	\$ (88,065,116)	\$ (97,722,641)	\$ (105,637,497)	\$ (108,603,224)	\$ (112,821,300)	\$ (119,271,111)	\$ (152,955,987)	\$ (158,598,351)	\$ (167,948,124)	\$ (177,140,108)	\$ (1,625,697,293)	\$ (1,499,632,849)	
Interest	\$ 22,273,639	\$ 23,615,496	\$ 31,801,254	\$ 60,548,902	\$ 58,345,495	\$ 52,309,253	\$ 58,378,429	\$ 62,377,678	\$ 66,244,671	\$ 91,709,435	\$ 95,517,315	\$ 111,058,788	\$ 110,918,089	\$ 113,342,765	\$ 134,178,925	\$ 1,092,620,134	\$ 1,046,730,999	
Assumption Changes	\$ -	\$ 45,302,660	\$ -	\$ -	\$ 54,067,732	\$ 43,012,727	\$ 44,499,276	\$ 46,354,354	\$ 94,966,380	\$ -	\$ 190,792,964	\$ (38,599,369)	\$ -	\$ 334,265,096		\$ 814,661,820	\$ 769,359,160	
Plan provisions	\$ -	\$ 120,335	\$ -	\$ (46,529,457)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		\$ (46,409,122)	\$ (46,529,457)	
Net Investments	\$ (32,083,462)	\$ 26,035,387	\$ 312,726,392	\$ 26,279,596	\$ (8,517,121)	\$ 6,447,642	\$ (356,798)	\$ (23,737,319)	\$ 2,526,059	\$ 24,080,857	\$ 10,258,663	\$ 8,436,965	\$ 11,592,854	\$ 21,306,965	\$ (57,785,688)	\$ 327,210,992	\$ 333,259,067	
Salary	\$ (3,581,940)	\$ 167,082	\$ 16,569	\$ (213,758)	\$ (24,546,383)	\$ (18,940,673)	\$ (26,621,253)	\$ (2,246,986)	\$ (8,024)	\$ (11,832,939)	\$ (10,257,198)	\$ (10,510,812)	\$ (10,407,130)	\$ (10,408,437)	\$ (9,493,027)	\$ (138,884,909)	\$ (135,470,051)	
COLA Experience Gain/Loss	\$ (217,412)	\$ (1,312,463)	\$ 9,112,436	\$ (22,127,398)	\$ (5,771,530)	\$ 2,591,239	\$ (18,895,595)	\$ (7,796,599)	\$ (8,375,695)	\$ (25,808,649)	\$ (8,993,747)	\$ 1,386,560	\$ (7,683,366)	\$ (8,838,015)	\$ 22,593,555	\$ (80,136,679)	\$ (78,606,804)	
Mortality	\$ 11,249,513	\$ 47,304	\$ (751,028)	\$ (12,196,378)	\$ 2,167,726	\$ 4,238,443	\$ 4,851,424	\$ 2,503,288	\$ (12,663,974)	\$ 8,795,806	\$ 4,776,996	\$ (747,793)	\$ 2,743,845	\$ 3,335,043	\$ (1,761,346)	\$ 16,588,869	\$ 5,292,052	
Retirements	\$ 50,324,971	\$ (7,984,293)	\$ (7,834,716)	\$ (13,027,972)	\$ 16,297,444	\$ 16,962,996	\$ 10,034,162	\$ 7,255,861	\$ 20,398,024	\$ 16,650,803	\$ 14,888,756	\$ 15,053,147	\$ 20,019,165	\$ 24,972,035	\$ 16,872,089	\$ 200,882,472	\$ 158,541,794	
Disability Experience	\$ -	\$ 723,288	\$ 819,381	\$ (452,396)	\$ 517,915	\$ 1,034,926	\$ 698,282	\$ 128,073	\$ (83,400)	\$ 138,601	\$ 18,161	\$ 36,314	\$ 128,020	\$ 53,881	\$ 560,942	\$ 4,321,988	\$ 3,598,700	
Net Turnover	\$ (32,133,353)	\$ 21,437,443	\$ 12,736,566	\$ (1,493,927)	\$ 32,780,627	\$ 56,985,971	\$ 40,978,113	\$ 34,812,142	\$ 20,849,237	\$ 27,649,895	\$ 33,675,285	\$ 29,368,302	\$ 21,031,002	\$ 21,770,846	\$ 10,518,767	\$ 330,966,916	\$ 341,662,826	
Contribution Shortfall including Healthcare																		
Approp.	\$ 20,573,000	\$ 16,876,994	\$ 17,670,950	\$ 19,287,498	\$ 21,240,905	\$ 23,121,145	\$ 25,101,767	\$ 27,156,759	\$ 2,630,383	\$ 2,248,220	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 175,907,621	\$ 138,457,627	
Other Gains/Losses	\$ -	\$ 910,528	\$ (3,081,787)	\$ 2,331,939	\$ 33,393,969	\$ (34,509,522)	\$ (9,210,574)	\$ (14,467,074)	\$ (16,244,810)	\$ (3,992,638)	\$ 29,936,088	\$ 8,326,177	\$ 11,508,122	\$ 6,226,388	\$ 6,407,934	\$ 17,534,740	\$ 16,624,212	
Ending FY Unfunded Liability	\$ 274,790,333	\$ 379,505,069	\$ 727,758,505	\$ 711,823,060	\$ 845,107,879	\$ 945,502,315	\$ 1,013,910,284	\$ 1,076,763,809	\$ 1,175,029,029	\$ 1,225,727,844	\$ 1,502,453,386	\$ 1,513,433,334	\$ 1,554,459,286	\$ 1,933,289,366	\$ 1,950,363,905	\$ 1,950,363,905	\$ 1,950,363,905	