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# **FY2021 ACTUARIAL VALUATION OVERVIEW**

Chris Rupe

Joint Fiscal Office

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# Key Findings

- 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 very 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](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](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
	<b>+\$185,576,705 (6.0%)</b>	<b>+\$173,011,683 (4.4%)</b>
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
	<b>+\$466,432,837 (23.8%)</b>	<b>+\$471,303,626 (24.2%)</b>
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
	<b>+\$161,673,625 (7.9%)</b>	<b>+\$155,937,144 (7.7%)</b>
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%
<b>FY2021 Investment Income (Actuarial Value)</b>	<b>\$194,857,120</b>	<b>\$198,785,933</b>
<b>FY2021 Actuarial Value Rate of Return</b>	<b>9.56%</b>	<b>9.87%</b>
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
	<b>+\$23,903,080 (2.3%)</b>	<b>+\$17,074,541(0.9%)</b>
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
<b>Start FY2021 Unfunded Liability (AVA)</b>	<b>\$1,040,465,119</b>	<b>\$1,933,289,366</b>
<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>	<b>-\$131,304,523</b>	<b>-\$177,140,109</b>
Salary Experience	\$4,448,937	<b>-\$9,493,027</b>
COLA	\$35,588,639	\$22,593,555
Net Turnover	<b>-\$3,446,914</b>	\$10,518,767
Investments	<b>-\$52,180,733</b>	<b>-\$57,785,688</b>
Mortality	\$4,440,365	<b>-\$1,761,346</b>
Retirements	\$19,015,951	\$16,872,089
Disability	\$158,342	\$560,942
Other gain/loss	\$3,195,331	\$6,407,934
<b>End FY2021 Unfunded Liability (AVA)</b>	<b>\$1,064,368,199</b>	<b>\$1,950,363,905</b>

# 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.

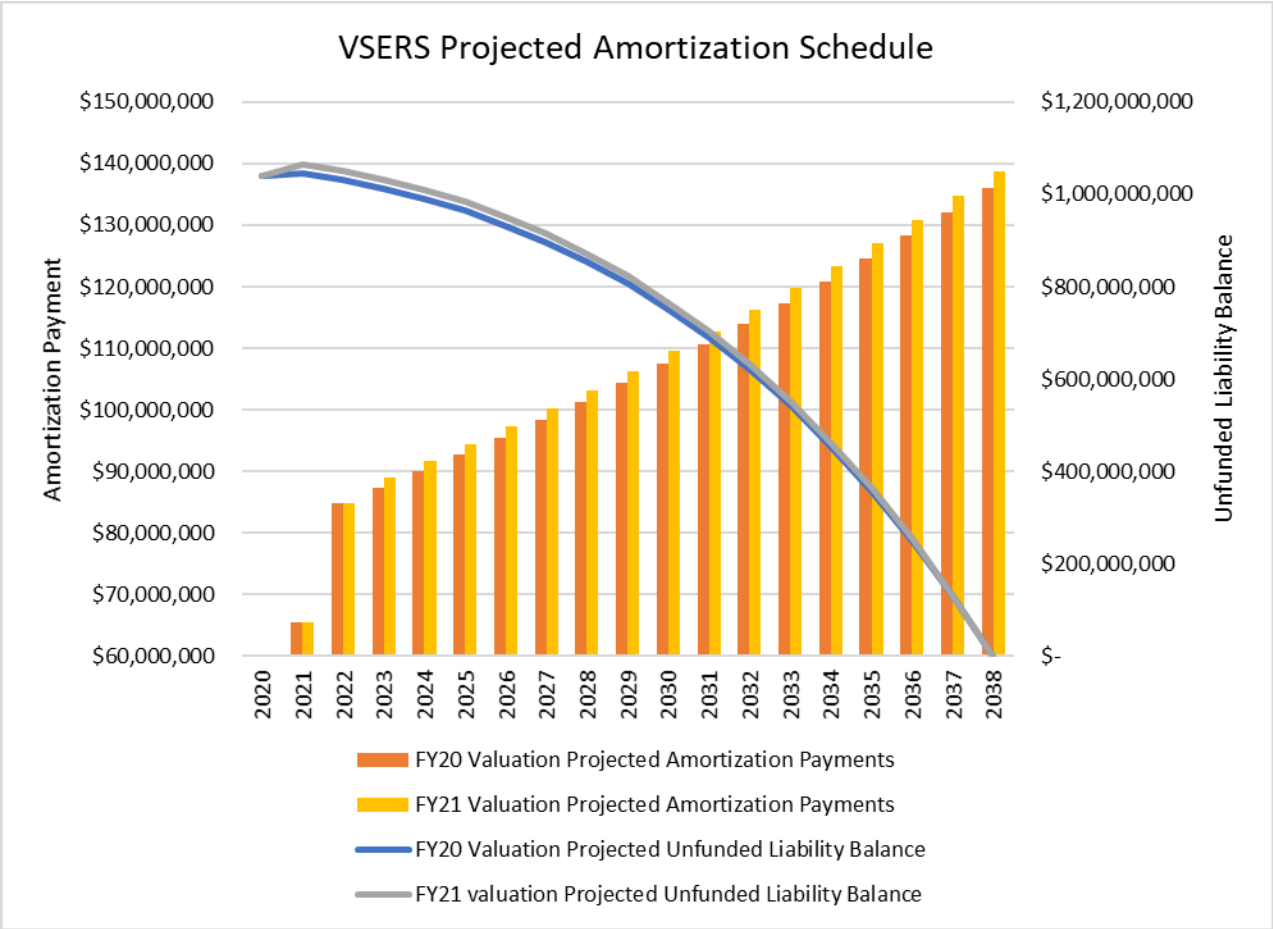
This is due to the slightly larger unfunded liability balance to amortize, plus a slightly higher employer normal cost that reflects a 0.40% administrative expense assumption.

	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)
	<b>+5,970,631 (4.98%)</b>	<b>+\$8,955,147 (4.56%)</b>
FY2023 Estimated ADEC (as predicted in FY2020 Valuations)	\$123,742,634	\$202,092,699
Amount of Unexpected Increase in FY2023 ADEC	<b>\$2,195,766</b>	<b>\$3,068,952</b>

# 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.

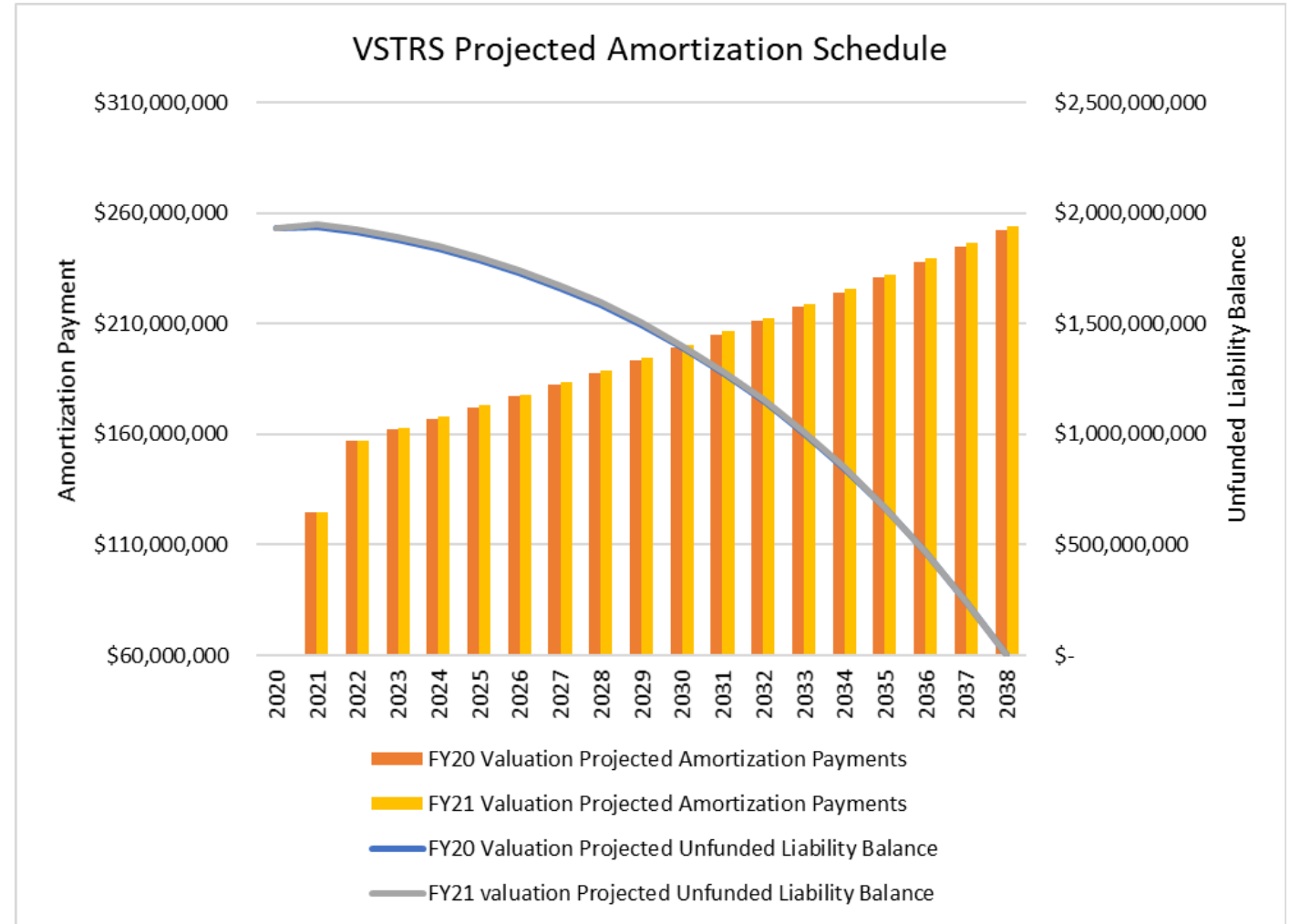




# VSTRS Amortization Schedule

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.

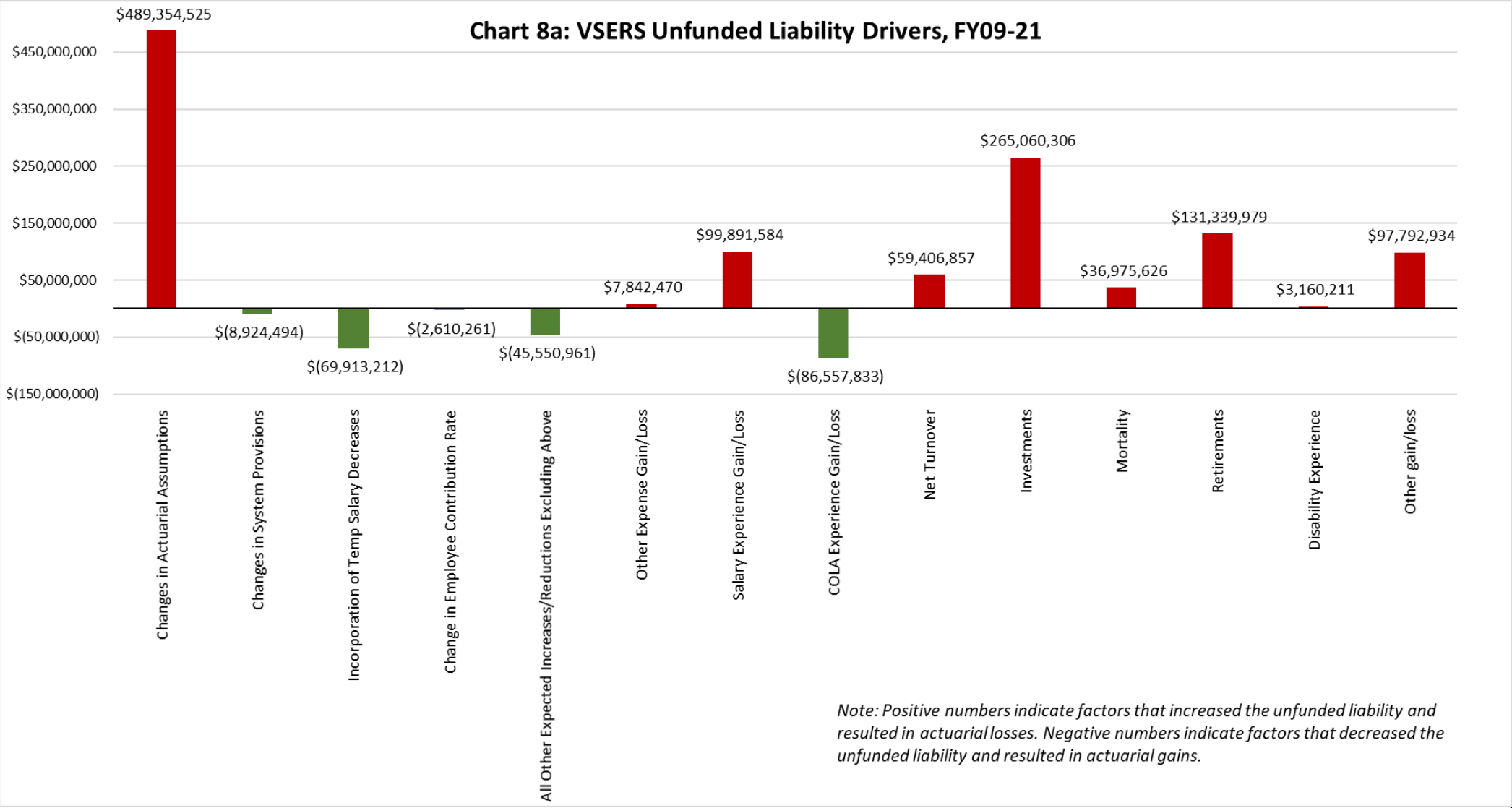


# Demographic Changes

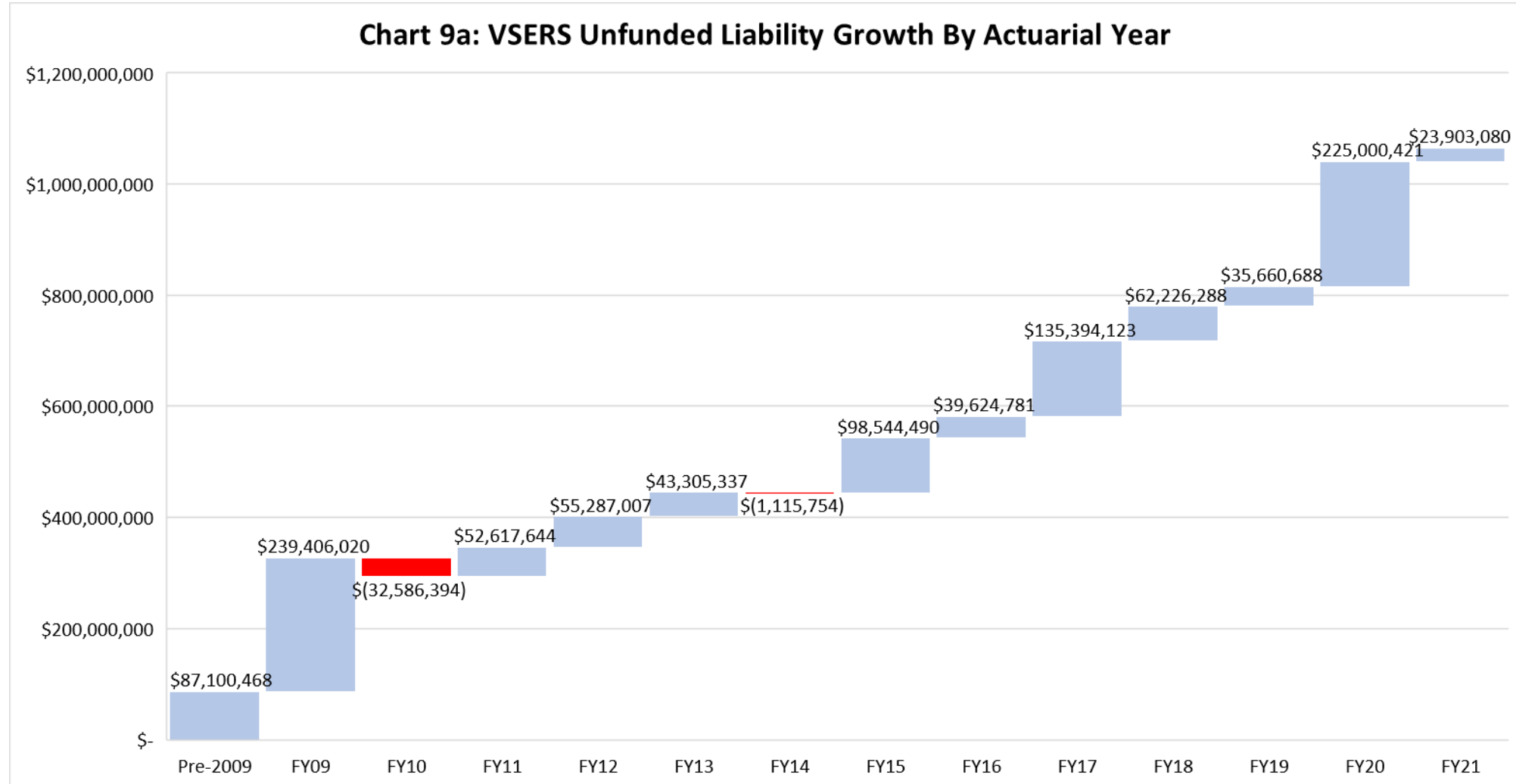
	FY2020	FY2021
<b>VSERS</b>		
Active Members	8,539	8,192
Deferred/Terminated Vested	768	771
Retired Members/Beneficiaries	7,424	7,716
Total Non-Actives	8,192	8,487
Ratio of Non-Active to Active	0.96	1.04
Avg Active Salary	\$64,642	\$67,421
Avg Active Age	45.6	45.7
Avg Active Yrs of Service	10.8	10.9
Retiree/Beneficiary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

	FY2020	FY2021
<b>VSTRS</b>		
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

# Unfunded Liability Drivers - VSERS



# Unfunded Liability Growth by Year- VSERS

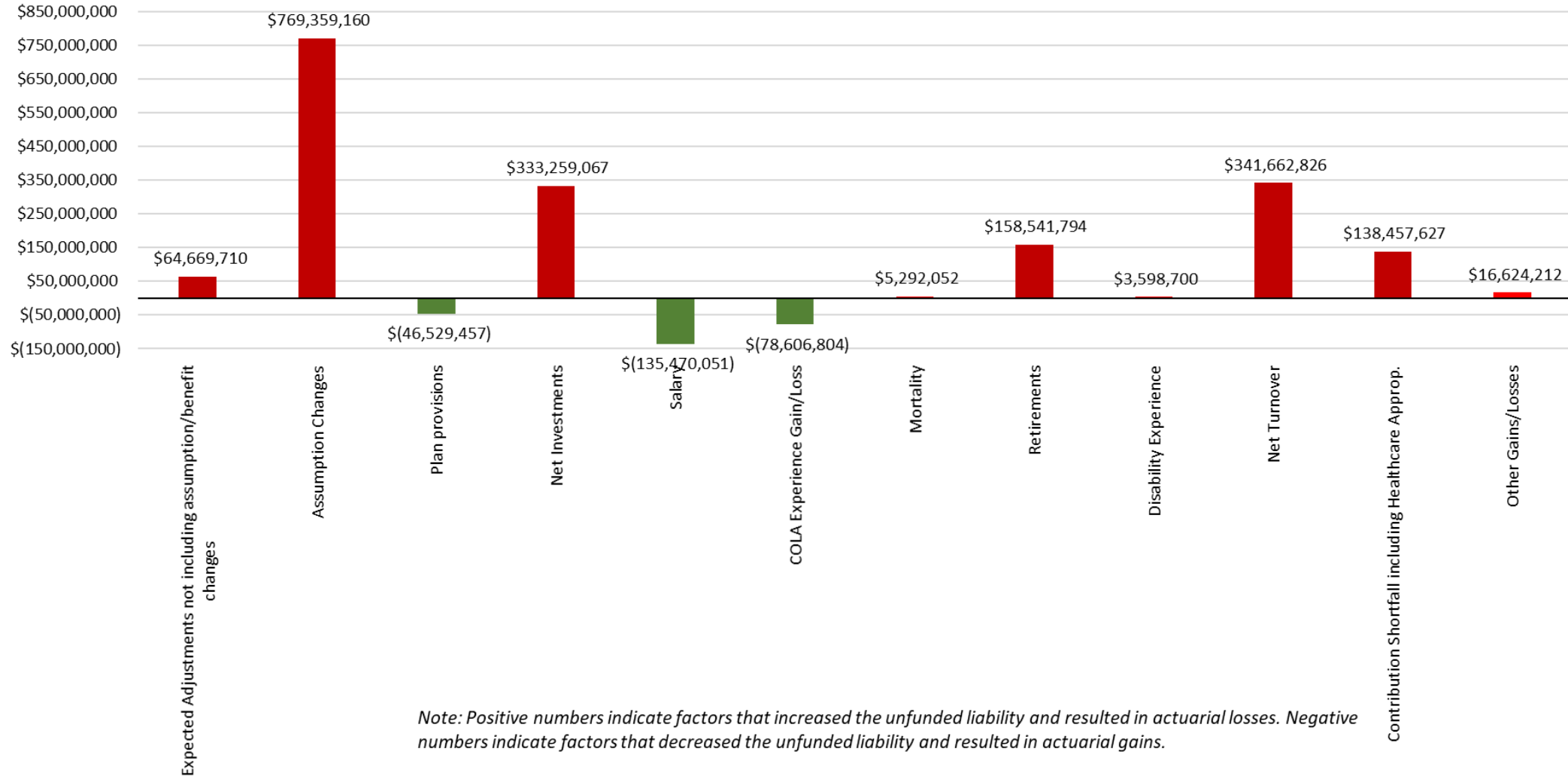


# Unfunded Liability Drivers - VSERS

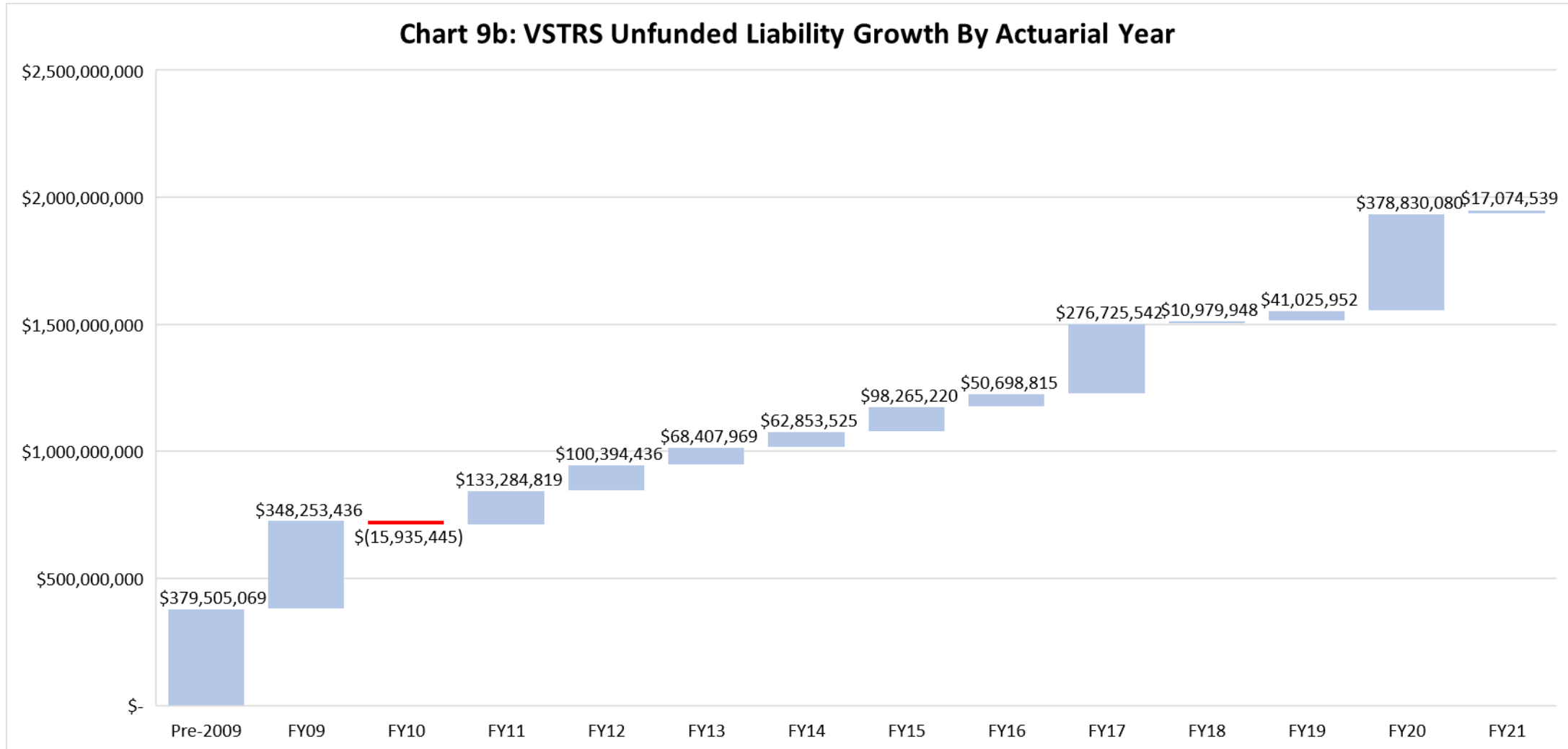
VSERS Drivers of Unfunded Liability Growth, FY2007-2021																		
	Fiscal Year		Amortization Period Begins 2009															
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021		Total FY07-21	Total FY09-21
Beginning FY Unfunded Liability	\$ 9,044,004	\$ (11,043,959)	\$ 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

Chart 8b: VSTRS Unfunded Liability Drivers, FY09-21



# Unfunded Liability Growth by Year- VSTRS



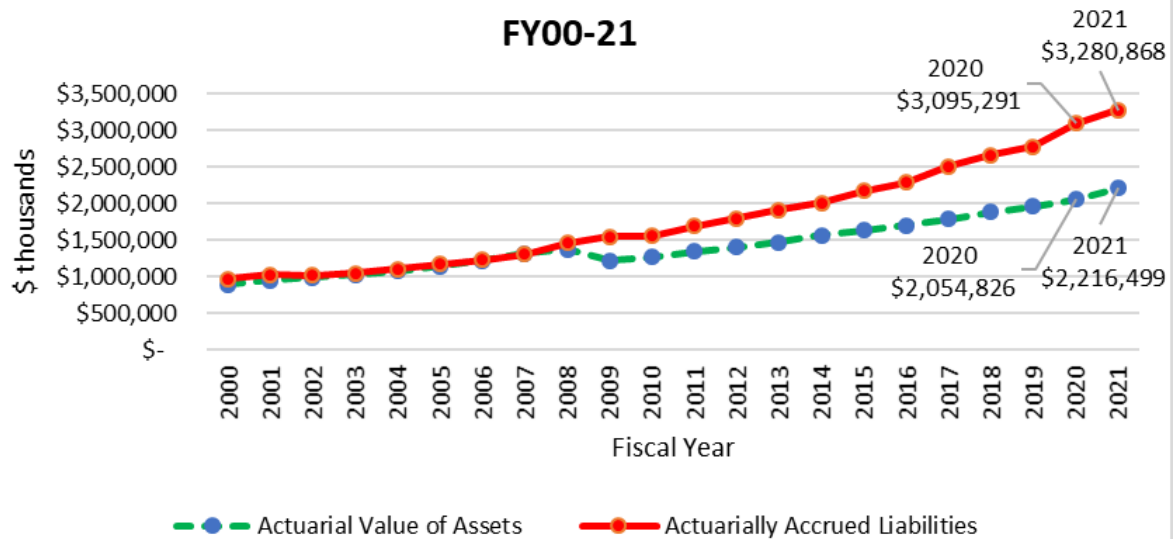
# Unfunded Liability Drivers - VSTRS

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	

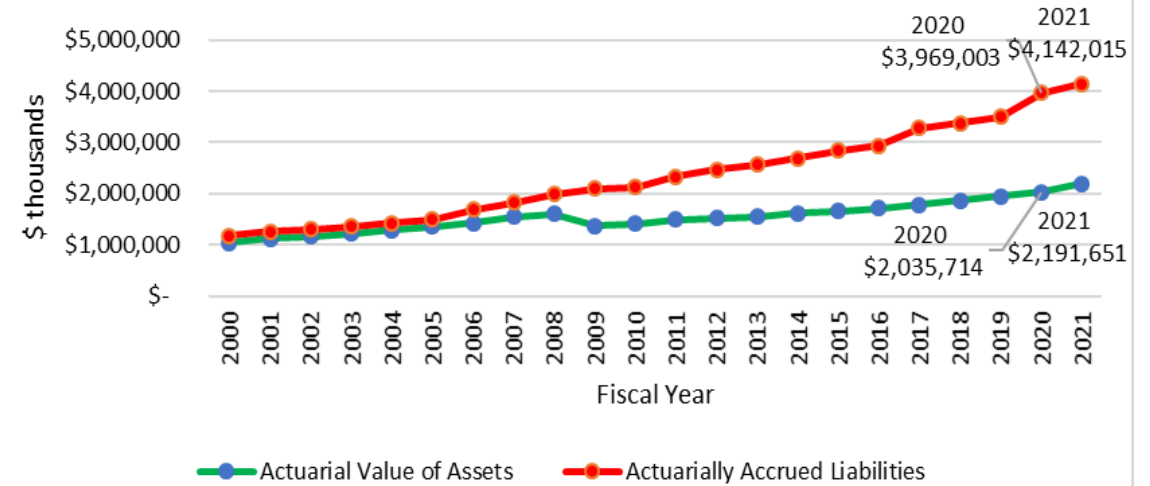


# Updated Charts

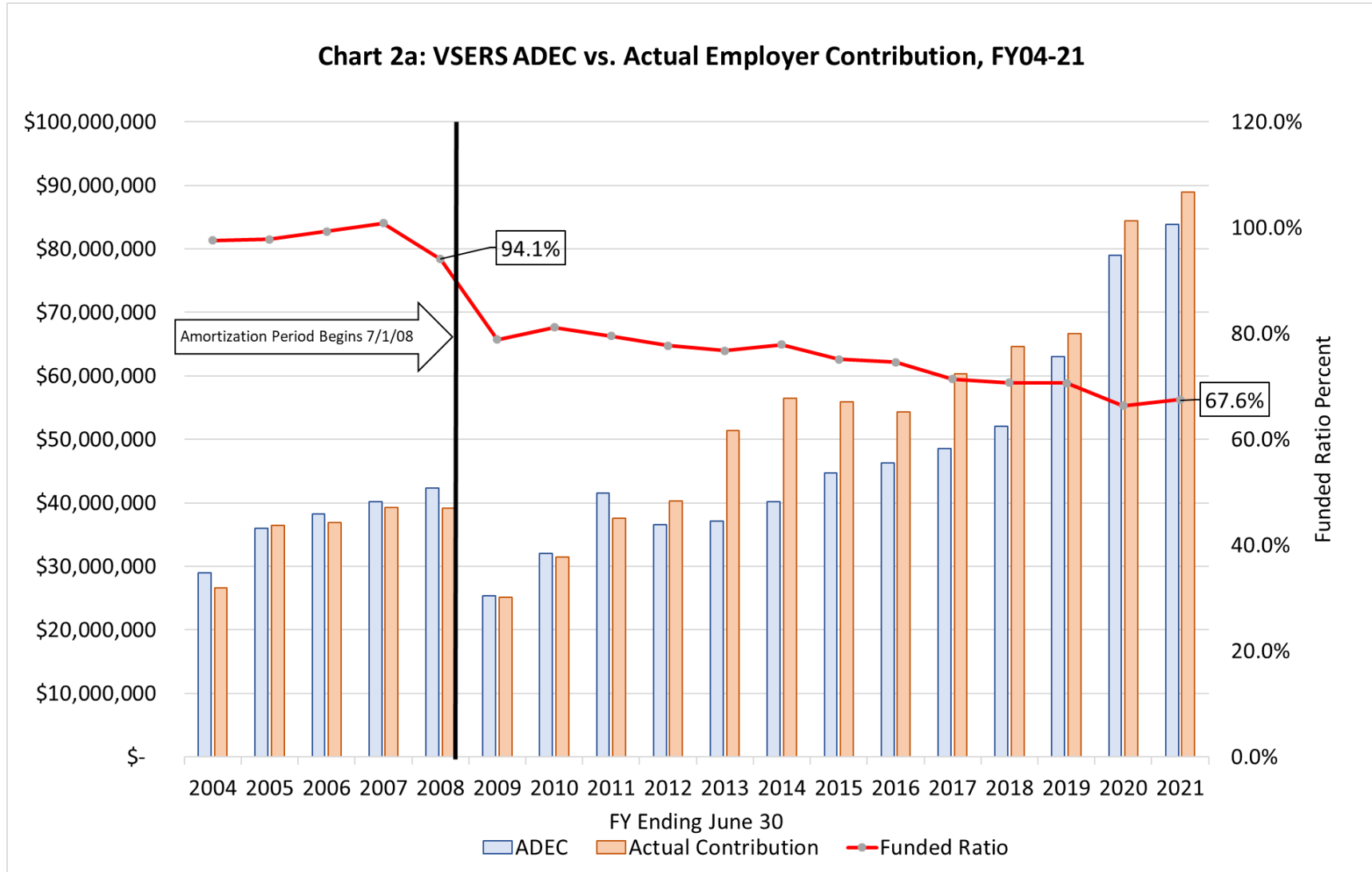
**Chart 1a: VSERS Growth in Assets and Liabilities  
FY00-21**



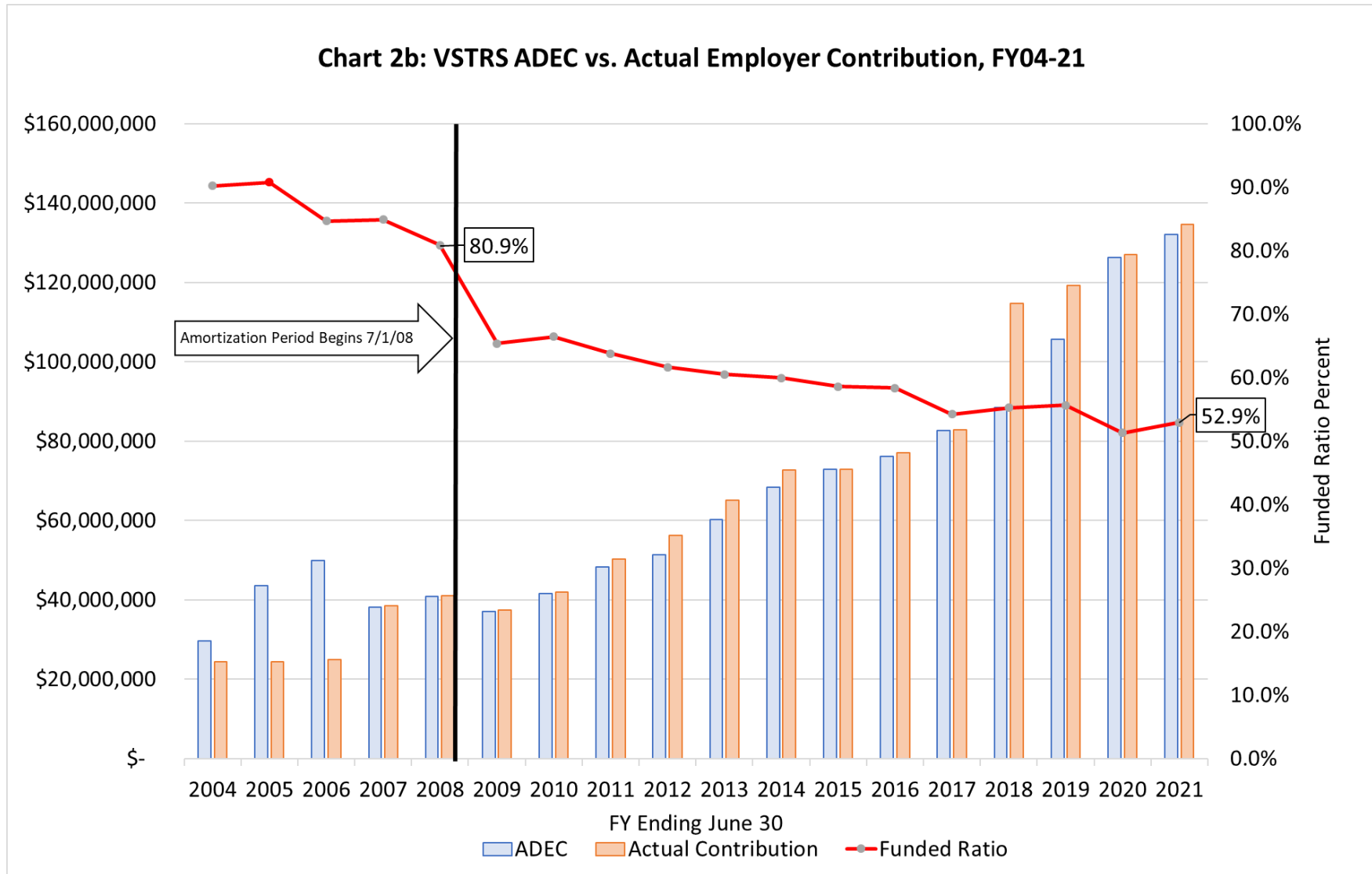
**Chart 1b: VSTRS Growth in Assets and Liabilities  
FY00-21**



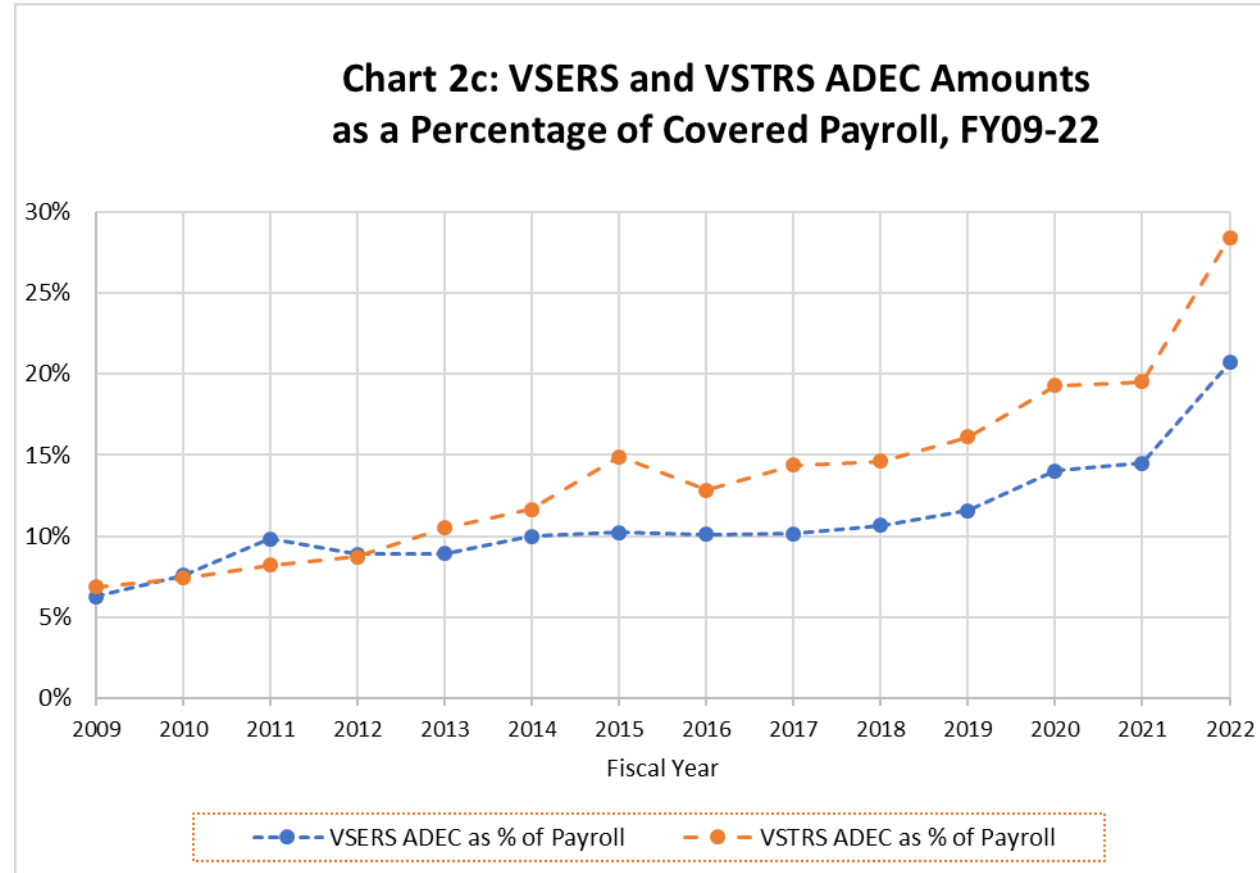
# Updated Charts



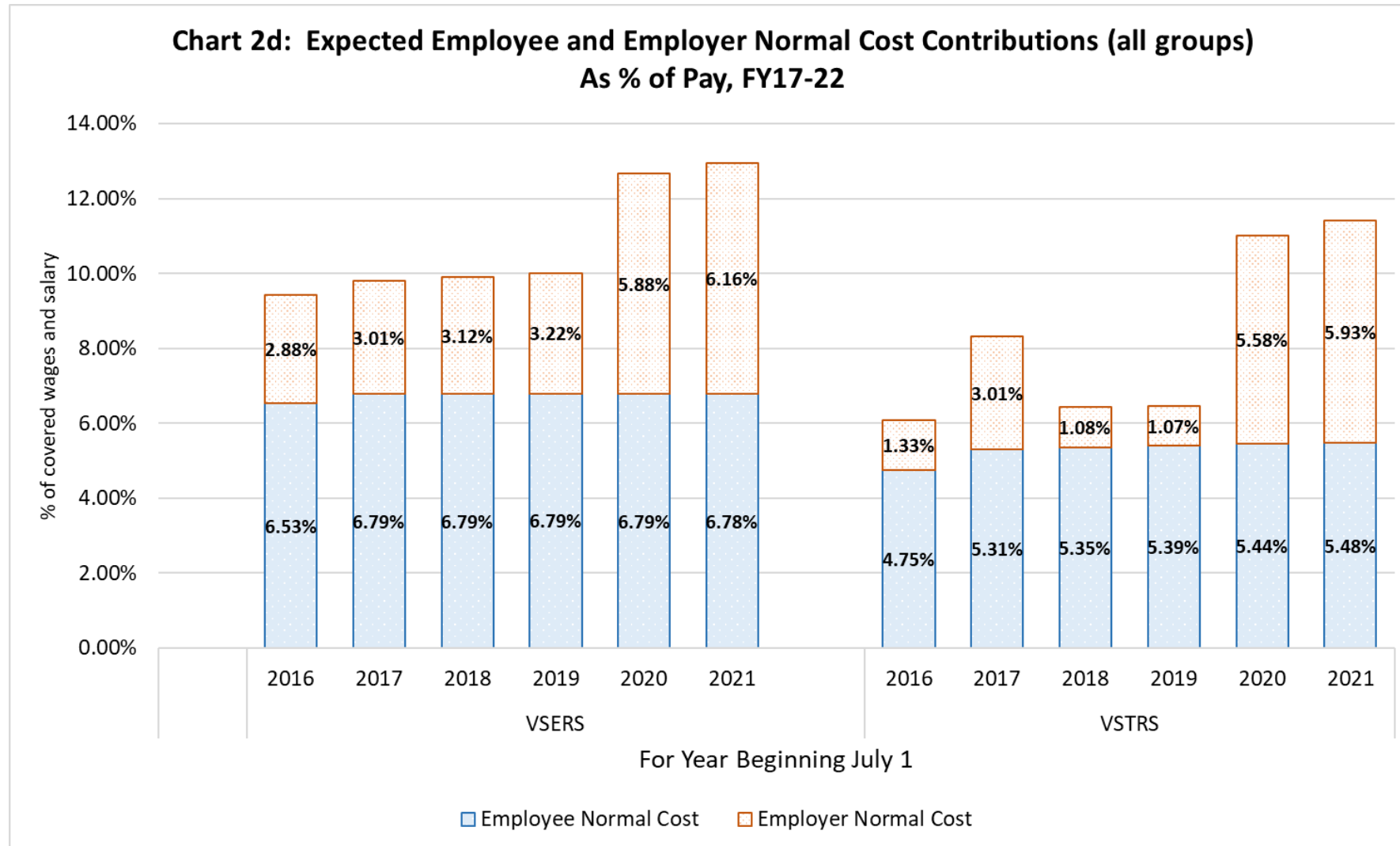
# Updated Charts



# Updated Charts

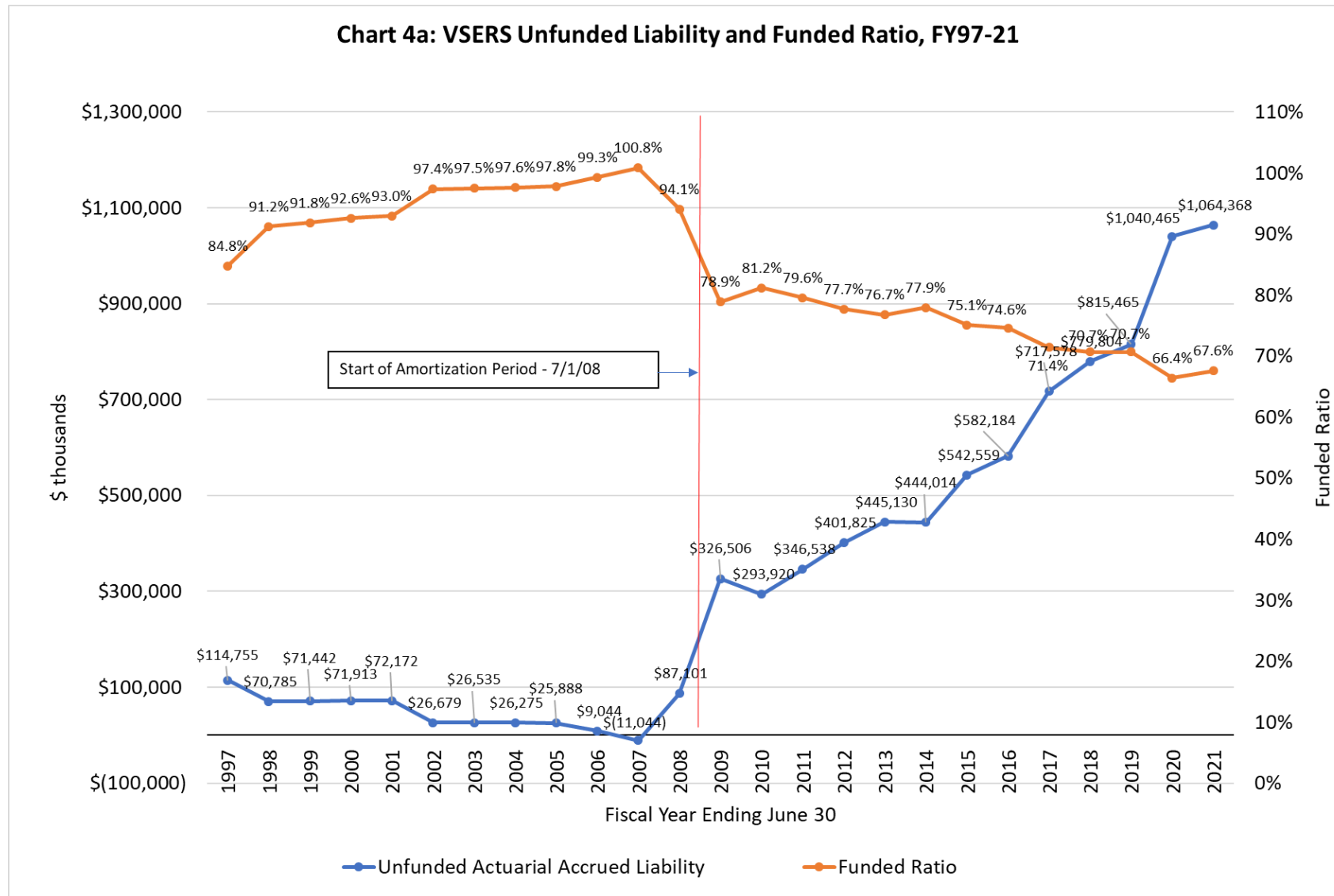


# Updated Charts



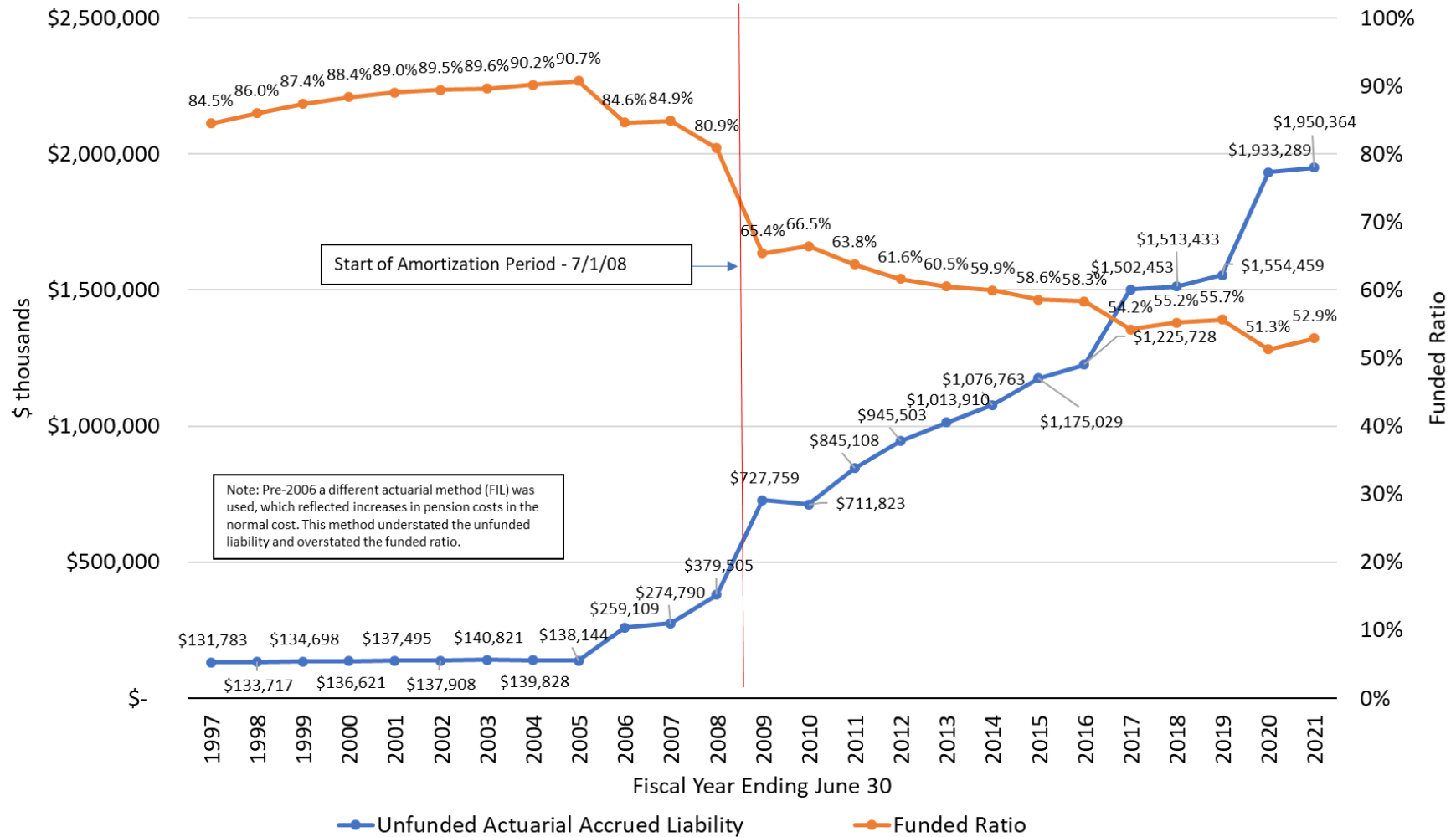
Note: Effective July 1, 2021 the employer normal cost includes a 0.40% administrative expense assumption.

# Updated Charts

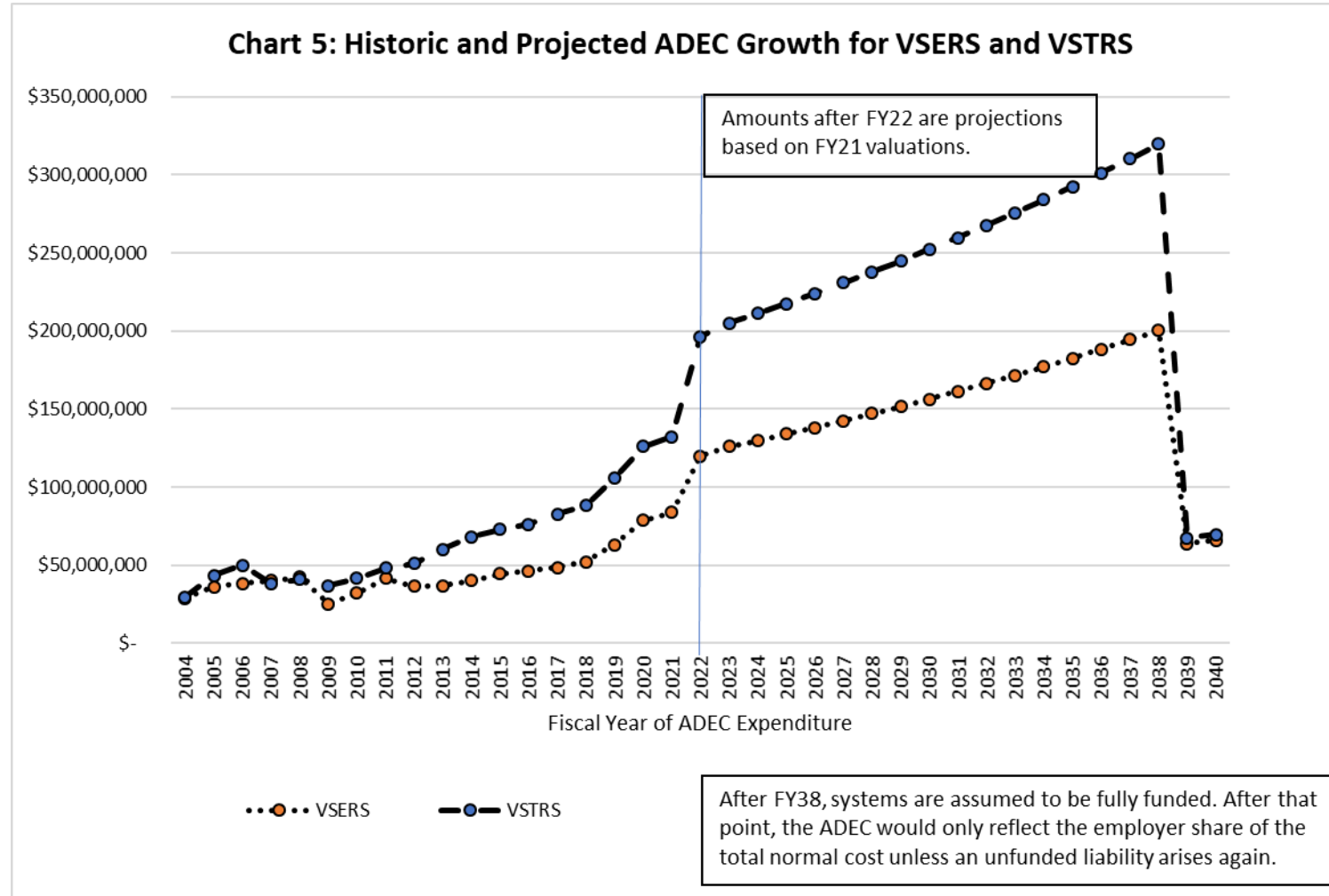


# Updated Charts

Chart 4b: VSTRS Unfunded Liability and Funded Ratio, FY97-21

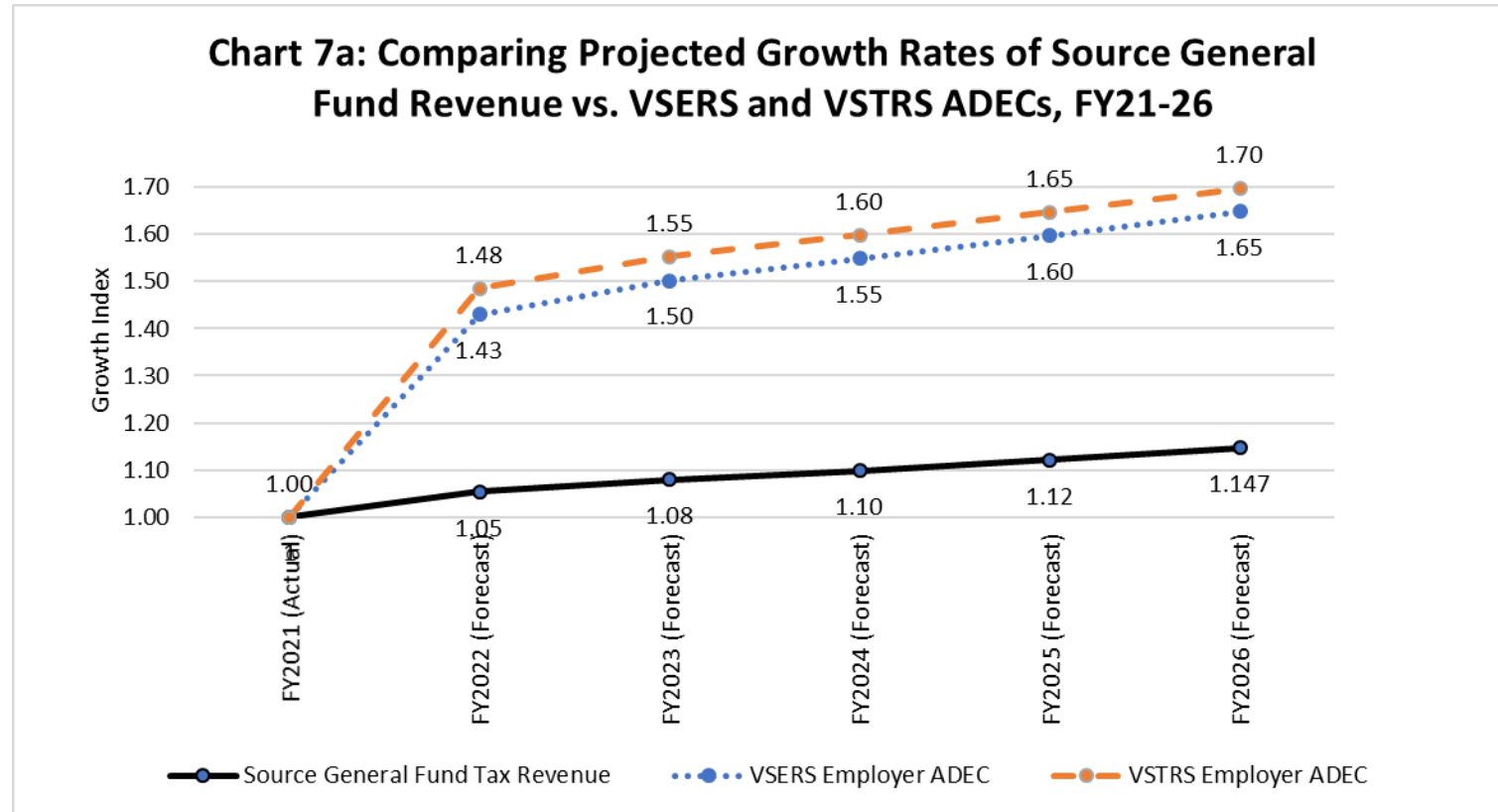


# Updated Charts

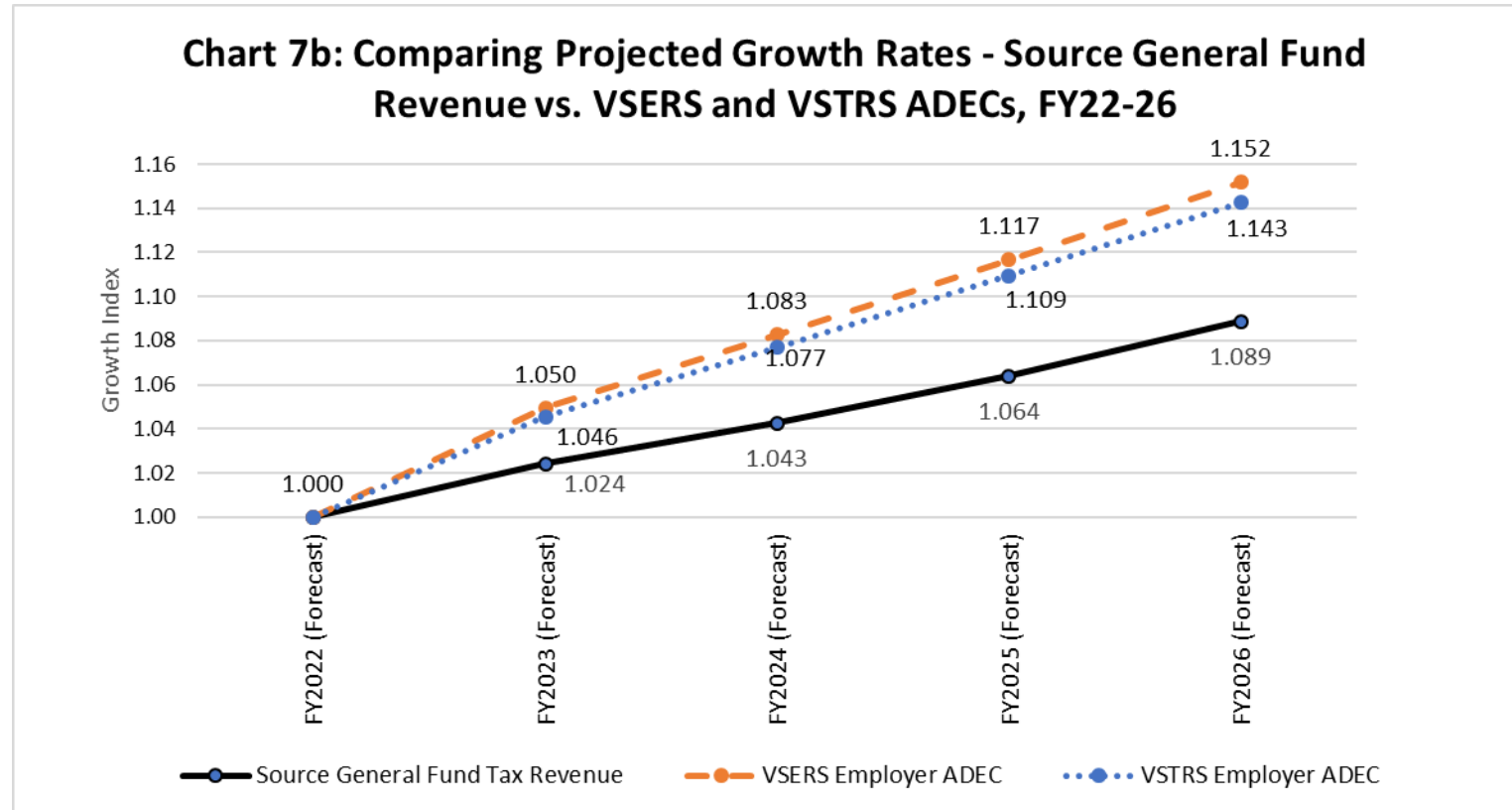




# Updated Charts



# Updated Charts

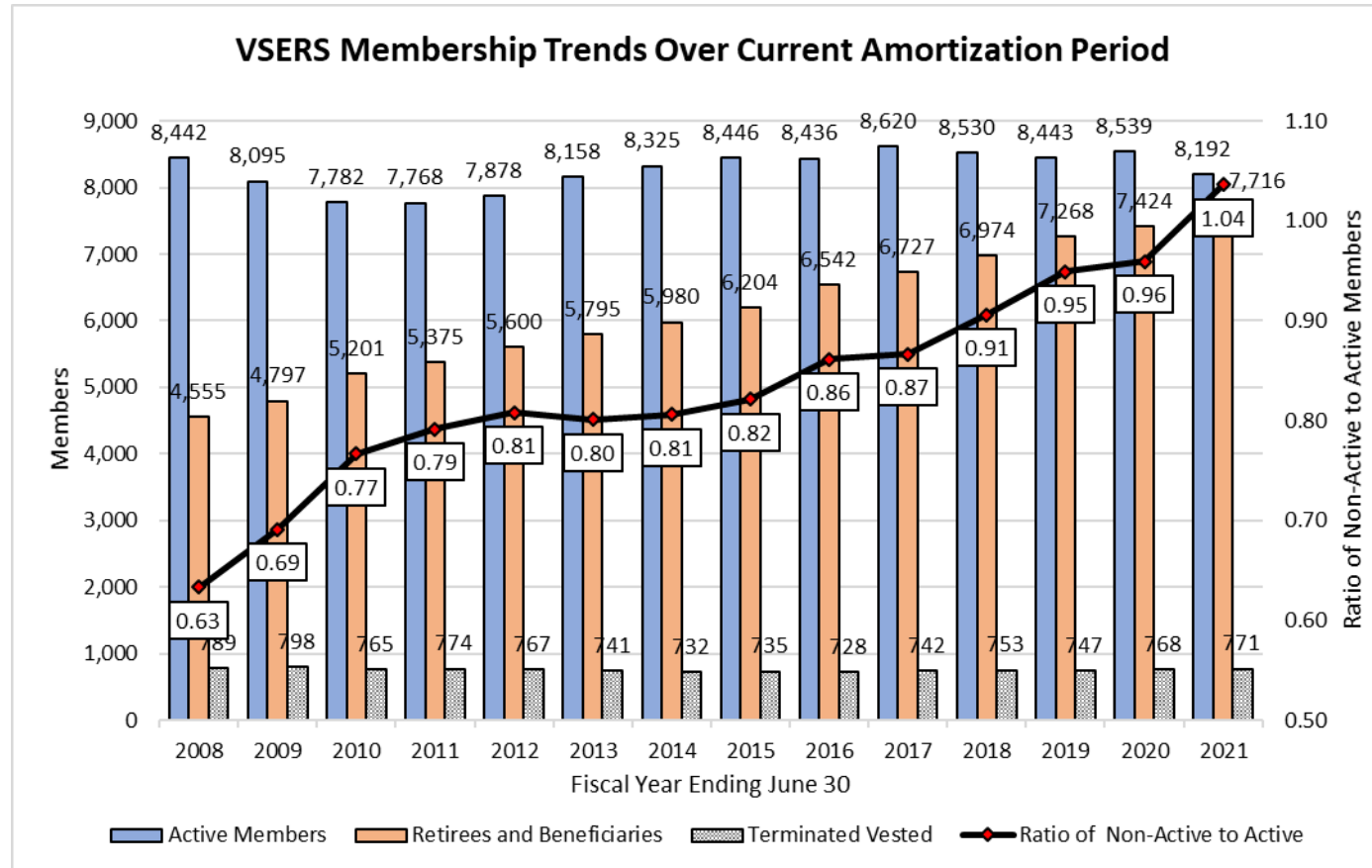


# Updated Charts

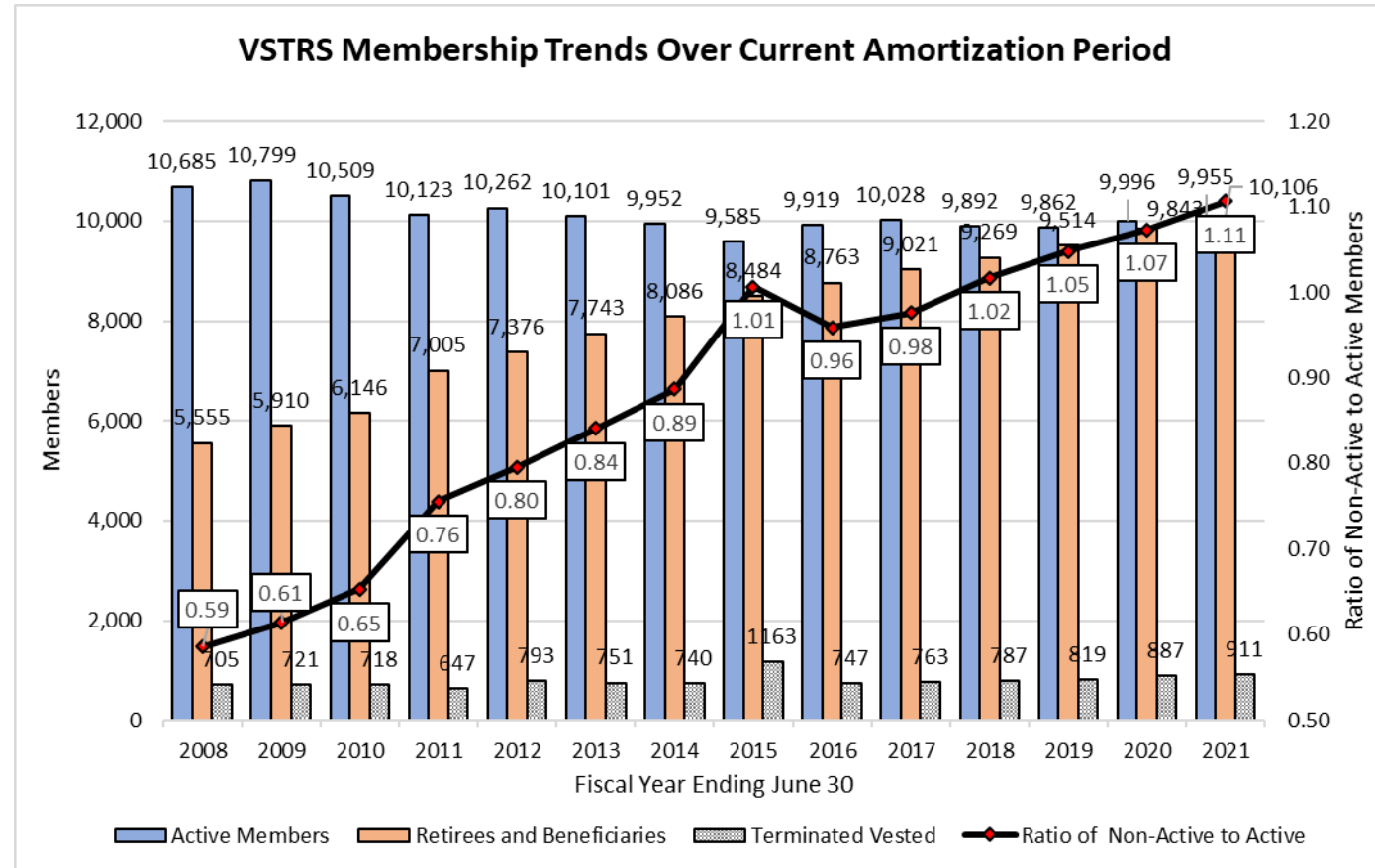
Average Investment Returns on an Actuarial Basis (as of FY20)		
	VSERS	VSTRS
<b>5-Year Average</b>	6.78%	6.94%
<b>10-Year Average</b>	7.04%	7.15%
<b>15-Year Average</b>	6.16%	6.15%
<b>20-Year Average</b>	6.39%	6.47%
<i>Source: FY20 Actuarial Valuations</i>		

Average Investment Returns on an Actuarial Basis (as of FY21)		
	VSERS	VSTRS
<b>5-Year Average</b>	7.40%	7.54%
<b>10-Year Average</b>	7.17%	7.25%
<b>15-Year Average</b>	6.36%	6.31%
<b>20-Year Average</b>	6.50%	6.55%
<i>Source: FY21 Actuarial Valuations</i>		

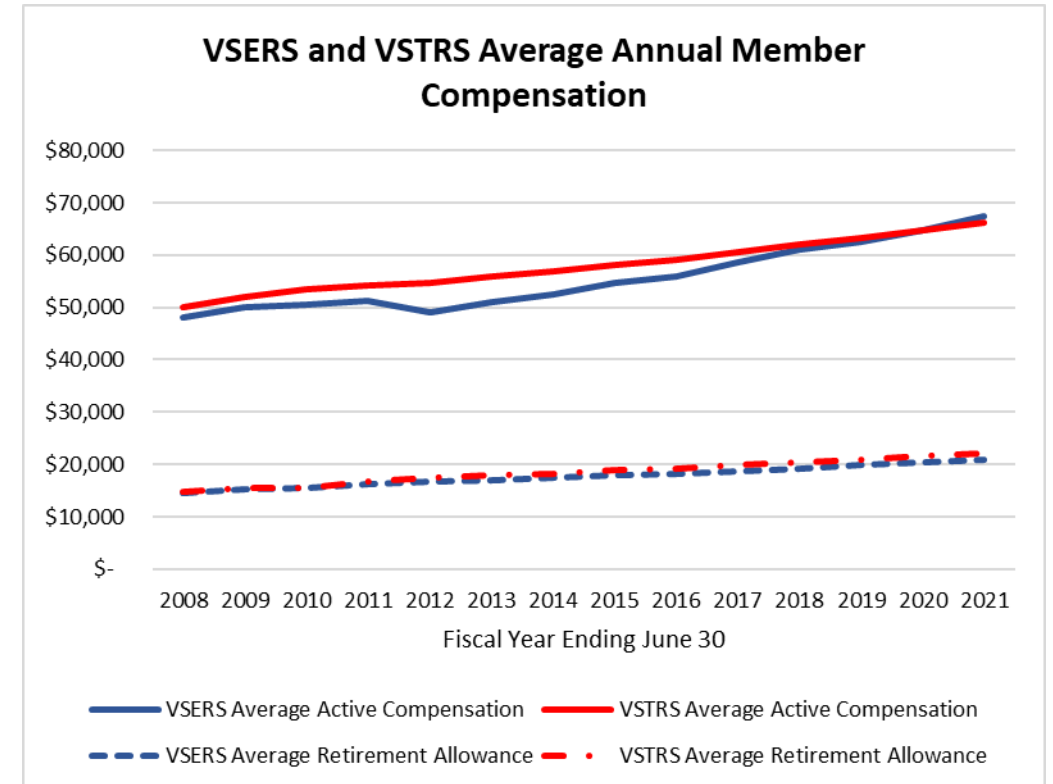
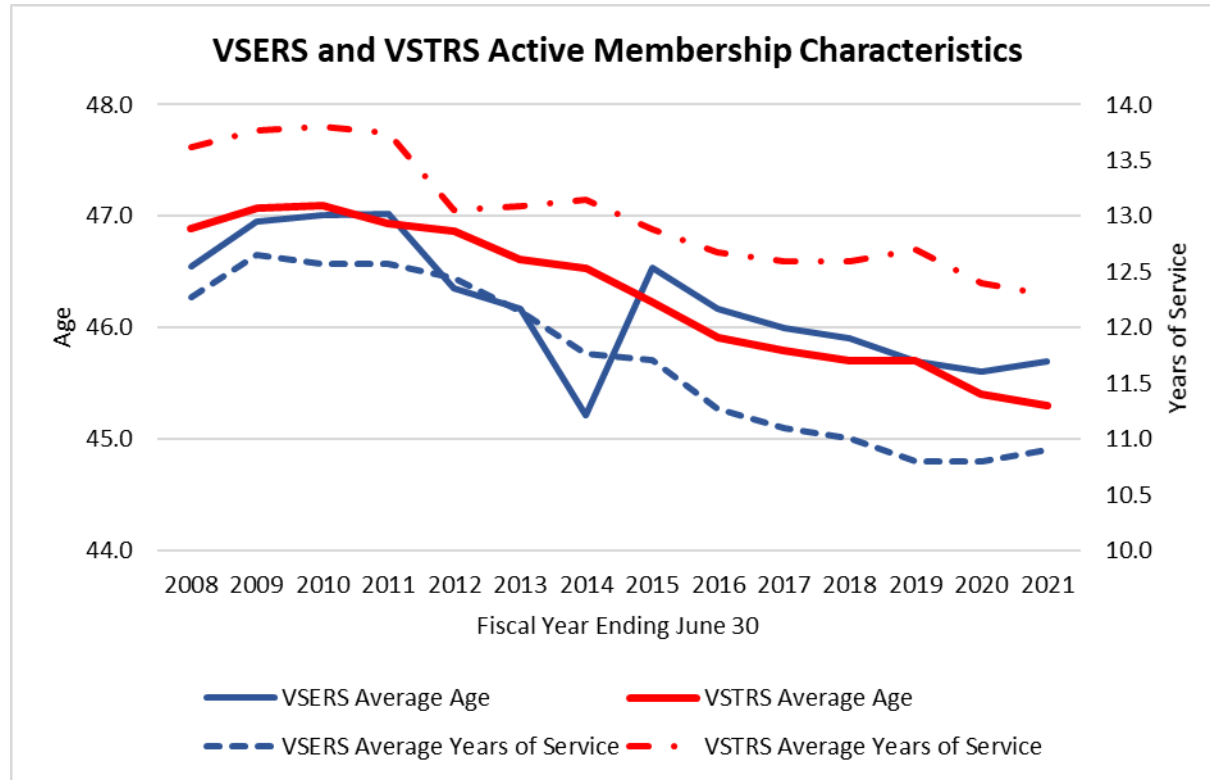
# Updated Charts



# Updated Charts

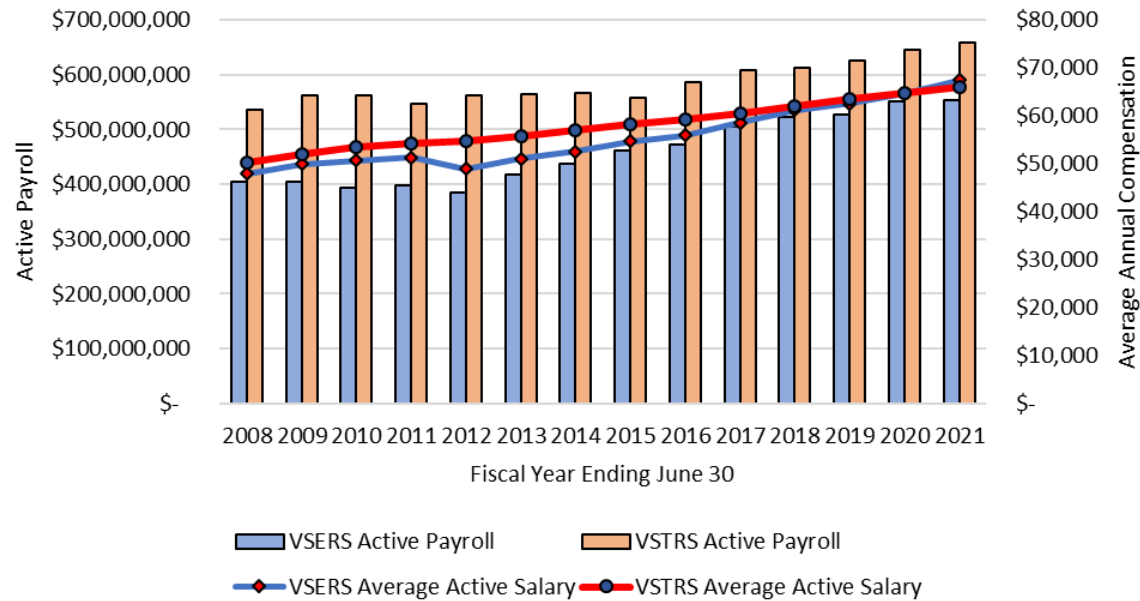


# Updated Charts



# Updated Charts

## VSERS and VSTRS Active Salary Trends



## VSERS and VSTRS Retirement Allowance Trends

