

SUMMARY OF ACTUARIAL REPORTS

OKLAHOMA STATE PENSION COMMISSION

February 26, 2019



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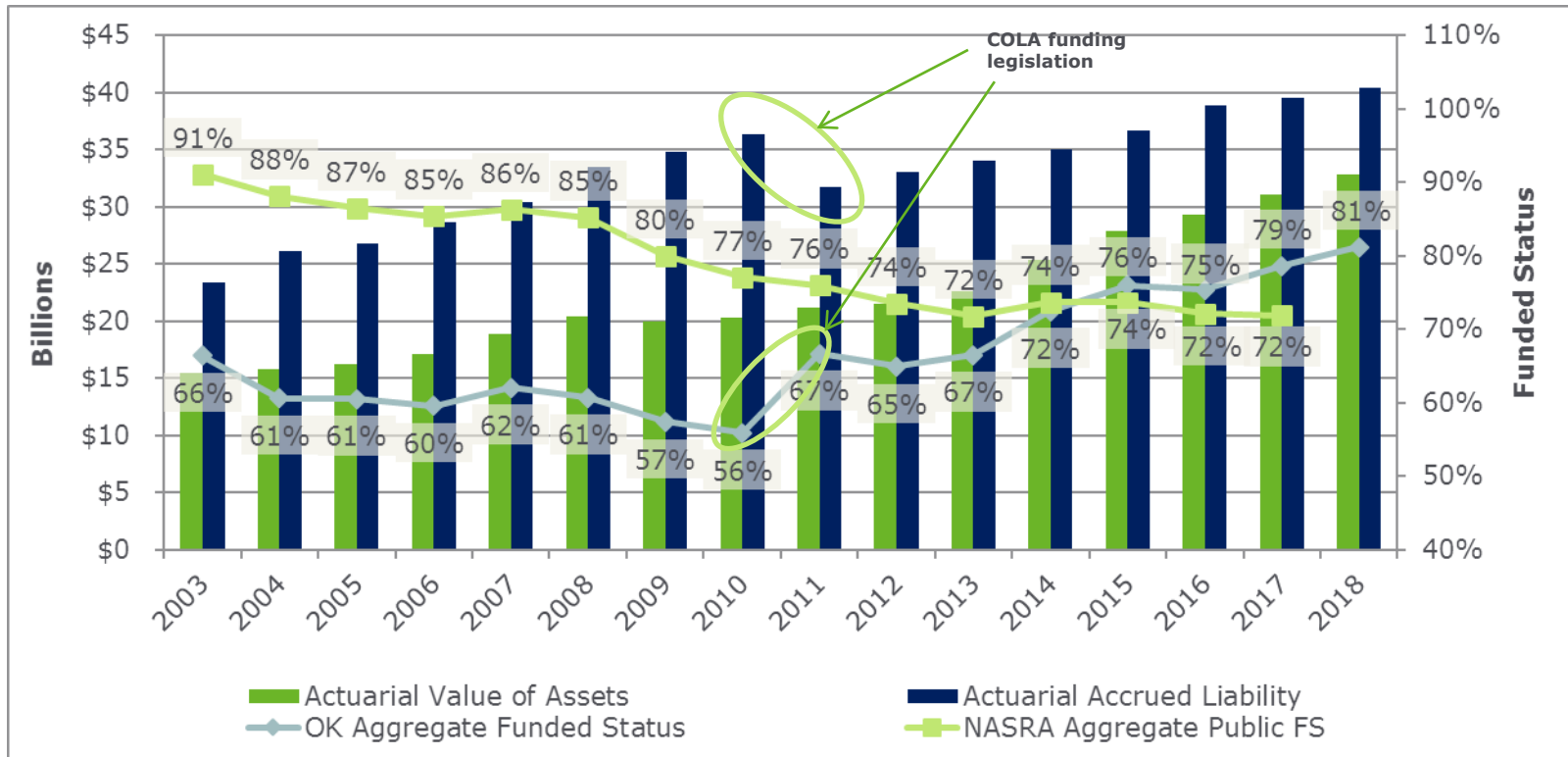
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INTRODUCTION

- **NEPC is asked to review the Oklahoma State defined benefit pension plans from an actuarial standpoint on an annual basis**
- **Oklahoma Retirement System is comprised of seven plans:**
 - Teachers' Retirement System of Oklahoma ("Teachers')
 - Oklahoma Public Employees Retirement ("PERS")
 - Oklahoma Firefighters Pension and Retirement System ("Firefighters")
 - Oklahoma Police Pension and Retirement System ("Police")
 - Oklahoma Law Enforcement Retirement System ("Law Enforcement")
 - State of Oklahoma Uniform Retirement System for Justices and Judges ("Judges")
 - Retirement Plan for Full-Time Employees of the Department of Wildlife Conservation ("Wildlife")
- **Information contained in this report is based on July 1, 2018 Actuarial Valuation reports from plan actuaries¹**
 - Funded status is based on each plan's funding policy
- **The goals of this presentation are:**
 - To present the funded position of the seven pension plans, on a funding basis and GASB 67 basis
 - To review the comprehensive return performance of both asset and liabilities
 - To assess the actuarial assumptions and methods for reasonability
 - To note changes in legislation that affected, or may affect, the plans

1. Retirement Horizons, Inc., Cavanaugh Macdonald Consulting, and Gabriel, Roeder, Smith & Company

FUNDED STATUS HISTORY VS. AVERAGE PUBLIC FUND



- The Oklahoma plans' aggregate funded status has seen continued improvement since 2010 and has surpassed the funded status of the average public plan¹**
 - House Bill 2132 in 2011 regarding COLA funding had a significant effect on plan funded status
 - Equity markets have had consistently strong returns for the last decade

1. Average public plan results from the Public Fund Survey Summary Findings by the National Association of State Retirement Administrators

SYSTEM SUMMARY – FUNDED POSITION

Plan	Actuarial Value of Assets (in millions)	Actuarial Accrued Liability (in millions)	Funded Status as of 7/1/2018	Funded Status as of 7/1/2017
Teachers	\$16,486.9	\$22,615.9	72.9%	70.4%
Public Employees (PERS)	\$9,658.1	\$9,884.1	97.7%	94.5%
Firefighters	\$2,619.2	\$3,845.5	68.1%	65.4%
Police	\$2,586.1	\$2,515.8	102.8%	101.8%
Law Enforcement	\$1,006.4	\$1,118.7	90.0%	88.5%
Judges	\$336.4	\$293.1	114.8%	112.6%
Wildlife	\$114.4	\$125.1	91.4%	90.2%
Total	\$32,807.4	\$40,398.3	81.2%	78.6%

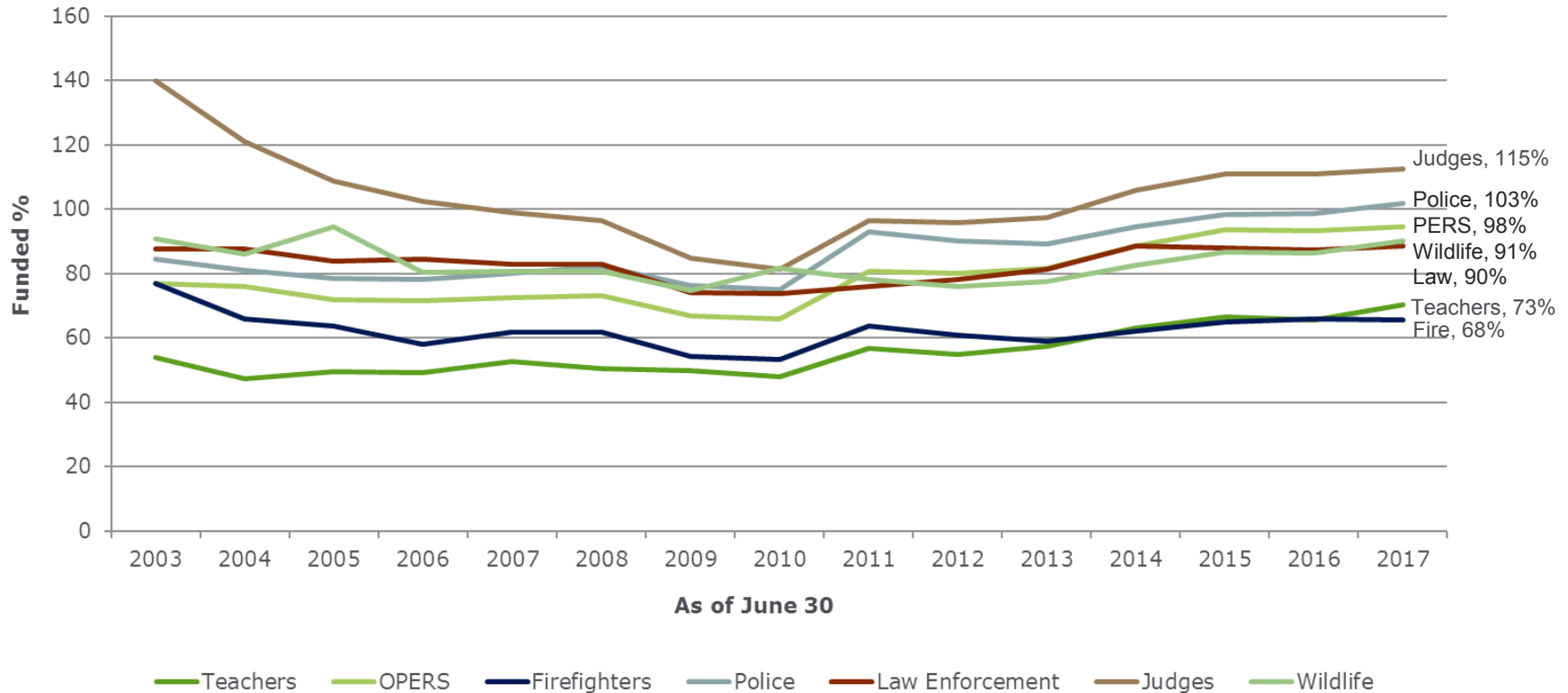
- **Overall funded status of the plans increased about 2.5% since fiscal 2017, from 78.6% to 81.2%**
 - Five plans are now over 90% funded, and two plans are now over 100% funded
 - For comparison, the average public pension plan was 71.9% funded in FY 2017¹
- **Continuing strong equity markets in fiscal 2018 led to a 9.4% average asset return over the past fiscal year, in aggregate**
 - However, return on an Actuarial Value basis was 8.3% due to delayed recognition of prior years' gains
 - This actuarial (smoothed) value used in funded status percentage calculation
 - Total plan liabilities grew by 2.3% over the last year

SYSTEM SUMMARY – FUNDED POSITION – GASB 67

Plan	Fiduciary Net Position (in millions)	Total Pension Liability (in millions)	Funded Status as of 7/1/2018	Discount Rate
Teachers	\$16,145.1	\$22,196.5	72.7%	7.5%
Public Employees (PERS)	\$9,360.9	\$9,556.0	98.0%	7.0%
Firefighters	\$2,719.9	\$3,845.5	70.7%	7.5%
Police	\$2,563.4	\$2,515.8	101.9%	7.5%
Law Enforcement	\$998.6	\$1,105.8	90.3%	7.5%
Judges	\$334.9	\$290.4	115.3%	7.0%
Wildlife	\$114.3	\$125.1	91.4%	7.0%
Total	\$32,237.2	\$39,635.0	81.3%	7.4%

- **Under GASB 67, the overall funded status of the plans were 81.3% under vs. 81.2% for funding purposes**
- **GASB 67 uses Market Value of Assets instead of Actuarial Value, and may use a different discount rate than for funding purposes**
 - For fiscal 2018, each plan’s actuary has determined that all the plans’ projected benefits would be covered by projected assets, therefore discount rates remained unchanged from the funding valuations
- **Values exclude GASB 74 OPEB liabilities and assets**

FUNDED STATUS HISTORY – INDIVIDUAL PLAN BASIS



Sources: 2000 to 2009: Buck Consultants, Milliman Consultants and Actuaries, and Gabriel, Roeder, Smith & Company
 2010 to 2016: Buck Consultants, Cavanaugh Macdonald Consulting, and Gabriel, Roeder, Smith & Company
 2017: Conduent Consultants, Cavanaugh Macdonald Consulting, and Gabriel, Roeder, Smith & Company
 2018: Retirement Horizons, Inc., Cavanaugh Macdonald Consulting, and Gabriel, Roeder, Smith & Company



SYSTEM SUMMARY – STATE COSTS AND CONTRIBUTIONS

- The following table summarizes the State-only contribution requirements for the 2019 and 2018 fiscal years

Pension Plan	FY 2019		FY 2018			
	Required Contribution as % Pay	Required Contribution (\$m)	Required Contribution as % Pay	Required Contribution (\$m)	Actual Contribution (\$m)	Est. Actual Contribution as % Pay
Teachers*	7.7%	\$338.83	7.7%	\$330.13	\$318.17	7.2%
OPERS	8.2%	\$133.99	10.1%	\$174.28	\$277.99	17.4%
Firefighters	36.0%	\$107.54	41.2%	\$115.48	\$100.33	33.6%
Police	0.0%	\$0.00	0.0%	\$0.00	\$39.03	12.1%
Law Enforcement	25.8%	\$22.22	27.0%	\$23.35	\$23.67	27.5%
Judges	1.1%	\$0.36	5.0%	\$1.65	\$6.68	19.8%
Wildlife	18.9%	\$2.31	19.5%	\$2.49	\$3.10	25.3%
Total as % of Payroll	9.0%		9.7%			11.4%
Total Dollars (\$m)		\$605.25		\$647.38	\$768.98	

* Teachers plan contribution is estimated.

- For fiscal year ending 2019, the recommended contribution is 9.0% of payroll, or \$605 million, a significant decline from 2018
- For fiscal year 2018, the recommended contribution to the Oklahoma pension plans was \$647 million, however the actual contribution was \$769 million
- The contribution amounts for each plan are not tied to the calculation of the actuarially determined contributions amounts (see the following page)
 - In 2018, five plans received more than what was required
 - The Police plan has no required contribution for 2019, but will receive the statutory contribution of 14% of insurance premiums taxes
 - In 2019, Judges and Justices plan requires only 1% of payroll for next year, but will receive 22% of payroll, per current statute

SYSTEM SUMMARY – MANDATED CONTRIBUTION RATES AND FUNDING SOURCES

Mandated Employee and Employer Contribution Rates as of July 1, 2018

Pension Plan	Employee Contribution Rate (% of payroll)	Employer + Federal Contribution rate (% of payroll)	Municipality / Agency Contribution rate (% of payroll)	State Contribution	
Teachers	7.0%	Universities: 9.3% Fed Grant matching: 7.8%		5% of tax and lottery revenue	Total 17% of payroll
OPERS	3.5%			16.5% of payroll	
Firefighters	9.0%		14.0%	36% of insurance premium tax	
Police	8.0%		13.0%	14% of insurance premium tax + a % of special tax credit fund	
Law Enforcement	8.0%		11.0%	5.0% of insurance premium tax + 1.2% of drivers license tax	
Judges	8.0%			20.5% of payroll**	
Wildlife	5.0%				

* Scheduled to decrease to 7.7% in fiscal 2019

** Scheduled to increase to 22.0% in fiscal 2019

Actual Contributions by Type for Fiscal Year Ending June 30, 2018 (in \$millions)

Pension Plan	Employee Contribution	Employer + Federal Contribution	Municipality / Agency Contribution	State Contribution	Total
Teachers	\$312.87	\$442.42		\$318.17	\$1,073.46
OPERS	\$66.93			\$277.99	\$344.92
Firefighters	\$26.09		\$41.59	\$100.33	\$168.01
Police	\$24.75		\$40.14	\$39.03	\$98.00
Law Enforcement	\$6.67		\$10.37	\$23.67	\$40.71
Judges	\$2.61			\$6.68	\$8.00
Wildlife	\$0.61			\$3.10	\$3.71
Total	\$440.52	\$442.42	\$92.09	\$768.98	\$1,736.80

CONTRIBUTION HISTORY – STATE AND MUNICIPALITIES

Required State and Employer Contribution - after reduction for estimated Employee contributions

	07/01/09	07/01/10	07/01/11	07/01/12	07/01/13	07/01/14	07/01/15	07/01/16	07/01/17	07/01/18
Teachers*	\$742.3	\$822.4	\$588.0	\$620.0	\$603.0	\$550.7	\$762.0	\$758.0	\$729.0	\$748.0
OPERS	\$389.2	\$402.0	\$240.0	\$257.0	\$259.0	\$200.8	\$164.6	\$182.0	\$174.3	\$134.0
Firefighters**	\$187.2	\$195.7	\$142.0	\$159.0	\$162.0	\$142.4	\$139.2	\$141.5	\$155.5	\$150.2
Police**	\$132.5	\$146.8	\$65.0	\$79.0	\$90.0	\$63.9	\$44.7	\$51.0	\$40.8	\$42.1
Law Enforcement**	\$48.1	\$50.1	\$48.6	\$44.7	\$43.8	\$31.8	\$33.3	\$34.0	\$33.0	\$31.9
Judges	\$10.8	\$12.5	\$7.0	\$7.0	\$7.0	\$4.9	\$3.5	\$3.7	\$1.7	\$0.4
Wildlife	\$4.4	\$3.2	\$3.8	\$4.3	\$4.3	\$3.7	\$3.2	\$3.0	\$2.5	\$2.3
Total	\$1,514.4	\$1,632.7	\$1,094.4	\$1,171.0	\$1,169.1	\$998.2	\$1,150.4	\$1,173.2	\$1,136.7	\$1,108.8

Actual State and Employer Contributions

	07/01/09	07/01/10	07/01/11	07/01/12	07/01/13	07/01/14	07/01/15	07/01/16	07/01/17	07/01/18
Teachers*	\$620.6	\$638.0	\$682.0	\$701.0	\$707.0	\$728.0	\$725.0	\$705.2	\$760.6	TBD
OPERS	\$260.0	\$253.0	\$263.0	\$270.0	\$280.0	\$292.2	\$296.0	\$288.3	\$278.0	TBD
Firefighters**	\$82.2	\$92.0	\$101.0	\$111.0	\$115.6	\$130.1	\$131.5	\$128.5	\$141.9	TBD
Police**	\$54.6	\$56.0	\$61.0	\$66.0	\$66.9	\$72.8	\$74.0	\$73.2	\$79.2	TBD
Law Enforcement**	\$23.1	\$25.0	\$26.0	\$28.0	\$29.7	\$32.3	\$33.0	\$32.0	\$34.0	TBD
Judges	\$8.7	\$3.0	\$4.0	\$4.0	\$4.6	\$5.3	\$5.8	\$6.2	\$6.7	TBD
Wildlife	\$4.4	\$3.2	\$4.1	\$4.1	\$4.3	\$4.3	\$3.7	\$4.8	\$3.1	TBD
Total	\$1,053.5	\$1,070.2	\$1,141.1	\$1,184.1	\$1,208.1	\$1,264.9	\$1,269.0	\$1,238.1	\$1,303.5	TBD

Percent of Required State and Employer Contribution Actually Contributed

	07/01/09	07/01/10	07/01/11	07/01/12	07/01/13	07/01/14	07/01/15	07/01/16	07/01/17	07/01/18
Teachers*	83.6%	77.6%	116.0%	113.1%	117.2%	132.2%	95.1%	93.0%	104.3%	TBD
OPERS	66.8%	62.9%	109.6%	105.1%	108.1%	145.5%	179.8%	158.4%	159.5%	TBD
Firefighters**	43.9%	47.0%	71.1%	69.8%	71.4%	91.4%	94.5%	90.8%	91.2%	TBD
Police**	41.2%	38.1%	93.8%	83.5%	74.3%	113.9%	165.7%	143.5%	194.1%	TBD
Law Enforcement**	48.1%	49.9%	53.5%	62.6%	67.8%	101.4%	99.7%	94.0%	103.2%	TBD
Judges	80.8%	24.0%	57.1%	57.1%	65.9%	108.1%	168.8%	169.1%	404.4%	TBD
Wildlife	100.0%	100.0%	107.9%	96.1%	99.8%	116.7%	115.7%	159.3%	124.3%	TBD
Total	69.6%	65.5%	104.3%	101.1%	103.3%	126.7%	110.3%	105.5%	114.7%	TBD

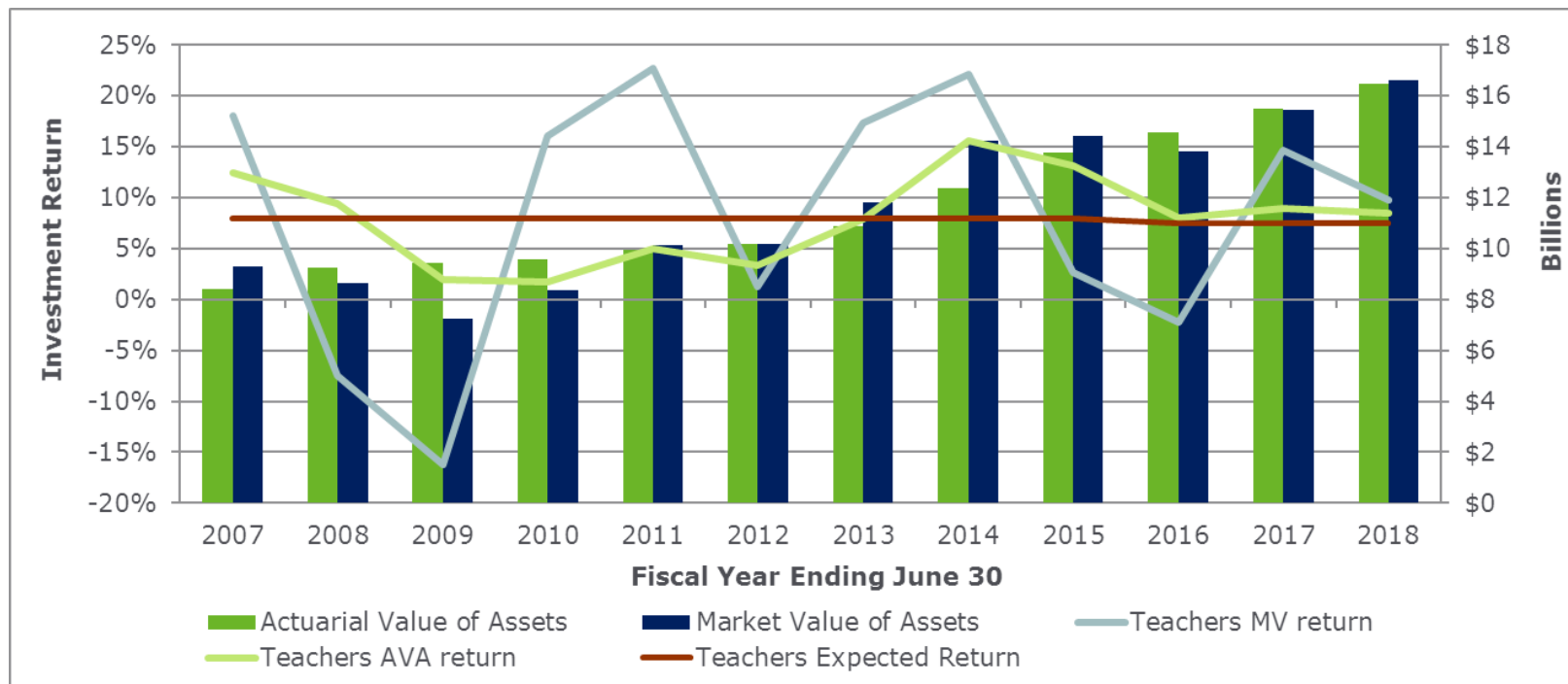
* Teachers plan contributions include State, Employer, and Federal funds

** Contributions include State and Agency or Municipality funds

- **Actual contributions exceeded actuarially recommended amounts by \$167m in fiscal 2018**



EXPECTED RETURN – TEACHERS PLAN



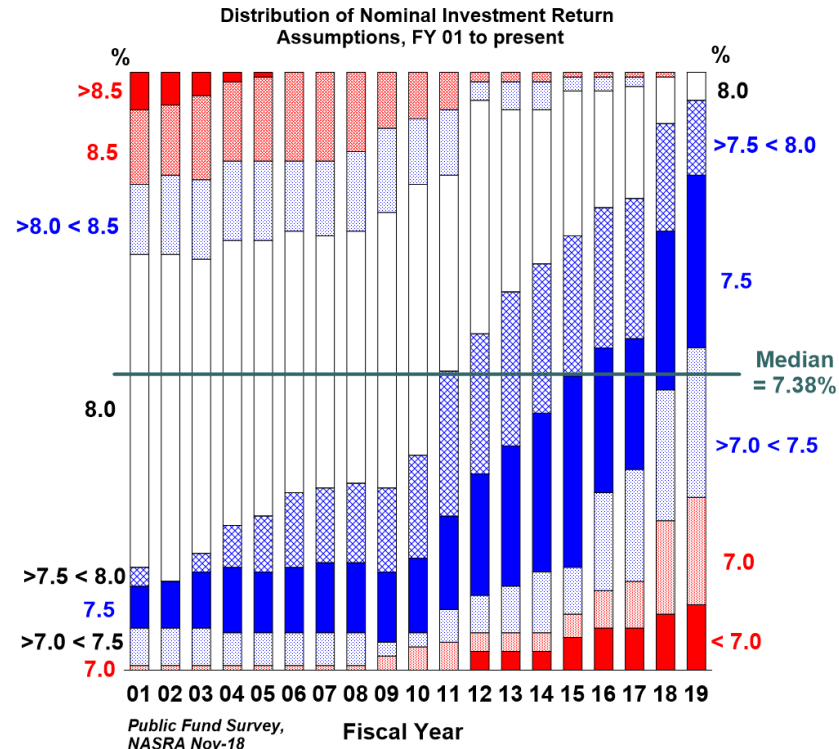
- **The Teachers’ plan is shown as an example of the benefit of using actuarial value of assets vs. market value**
- **Actuarial Value return lags Market Value return as gains and losses are smoothed in over 5 years**
 - Helps smooth fluctuations in funded status and keep expected return close to assumed rate
- **Currently, actuarial value of assets is less than market value as past gains are still being recognized**



Source: Gabriel, Roeder, Smith & Company.

SYSTEM SUMMARY – CHARACTERISTICS AND ASSUMPTIONS

- **Median discount rate for public plans is estimated to be 7.38% in fiscal 2019**
- **Investment return assumptions for Oklahoma plans are in line with other public funds**
 - 7.5% for Teachers, Fire, Police, and Law Enforcement
 - 7.0% for PERS, Judges, and Wildlife



SYSTEM SUMMARY - CHARACTERISTICS AND ASSUMPTIONS

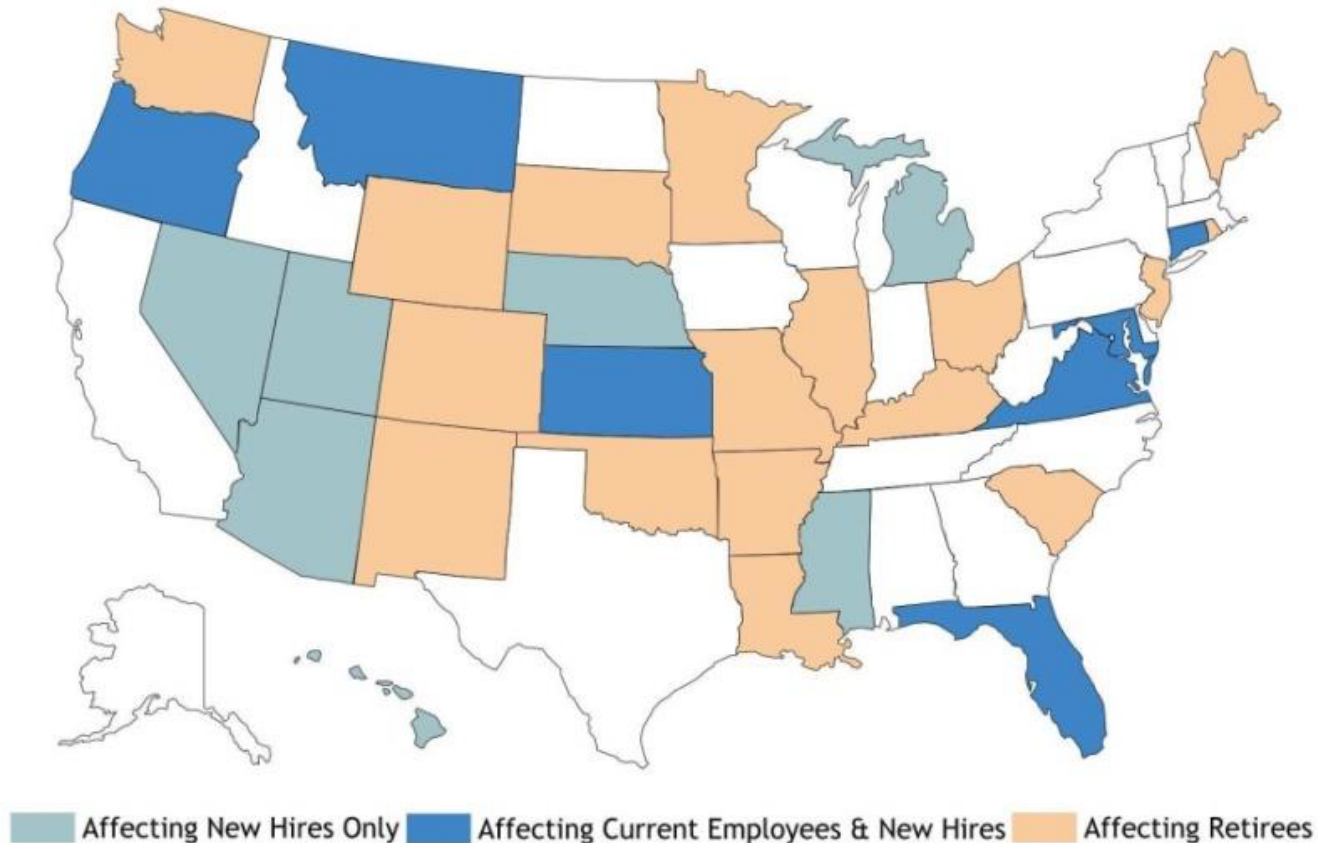
- **All plans have in place long term amortization schedules to fund the Unfunded Accrued Liability**
 - However some schedules are “open” (re-determined each year) and some “closed” (declining by one year each year)
 - Some plans which had closed amortization schedules are currently amortizing their unfunded liability over shorter timeframes, which result in higher recommended contributions
 - The amortization periods for the Oklahoma pension plans are as follows:
 - 9 years – closed (Judges and OPERS)
 - 11 years – closed (Law Enforcement)
 - 11 years – open (Wildlife) - based on the average future working lifetime for active members
 - 14 years - open (Teachers)
 - The amortization period is set as the funding period for the current actuarial valuation, not in excess of 20 years
 - 26 years – closed (Firefighters) – reset in 2014
 - 30 years – open (Police) – reset in 2018
- **All plans employ similar actuarial asset valuation methods, where gains and losses are smoothed over 5 years**
- **Four of the plans have adopted the RP-2014 mortality tables, which have increased longevity assumptions over previous tables and therefore increased plan liabilities**
 - PERS, Law Enforcement, Judges and Justices, and Wildlife plans
 - The Society of Actuaries recently published new mortality tables based on public employee data

SYSTEM SUMMARY – 2018 LEGISLATIVE CHANGES

- **HB 1340 authorized a one-time stipend payment effective October 1, 2018**
 - For members who have been retired at least five years in an amount equal to the lesser of 2% of the gross annual benefit or \$1,000 subject to a \$350 minimum for members who had at least 20 years of service.
- **The bill also changed the definition on a “nonfiscal retirement bill” for the Oklahoma public retirement systems to include one-time payments that do not permanently increase retirement benefits payable where the maximum amount of such payments is dependent on the System’s funded ratio after the payment.**

LEGISLATIVE UPDATES – NATIONWIDE COLA CHANGES

State Retirement Systems Undergoing COLA Reductions 2009-2018



Source: NASRA, "Significant Reforms to State Retirement Systems", December 2018

SUMMARY AND CONCLUSIONS

- **In aggregate, the State's plans are 81.2% funded as of June 30, 2018**
 - All plans saw an increase in funded status in fiscal 2018
 - Five of the seven plans are now over 90% funded
- **Actual State contributions exceeded recommended amounts by \$167m in fiscal 2018**
 - Five plans received more than the Actuarially Determined Contribution amount
 - The statutory contribution rates and funding sources are not tied to actuarial contribution calculations
- **The plans' assumptions are within a reasonable range**
 - All plans use 7.5% or 7.0% to discount liabilities, where median public fund return is 7.38%
 - Four plans have updated their mortality assumptions to the RP-2014 mortality tables
- **GASB 67 reporting found the Oklahoma plans at 81.3% funded, using market value of assets**
 - For fiscal 2018, each plan's actuary had determined that each plans' projected benefits would be covered by projected assets, therefore discount rates remained unchanged from funding valuations