

# SEMI-ANNUAL INVESTMENT REVIEW

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**Public Pension Oversight Board**

March 25, 2019

# ASSET ALLOCATION → *Drives 90% of Returns*

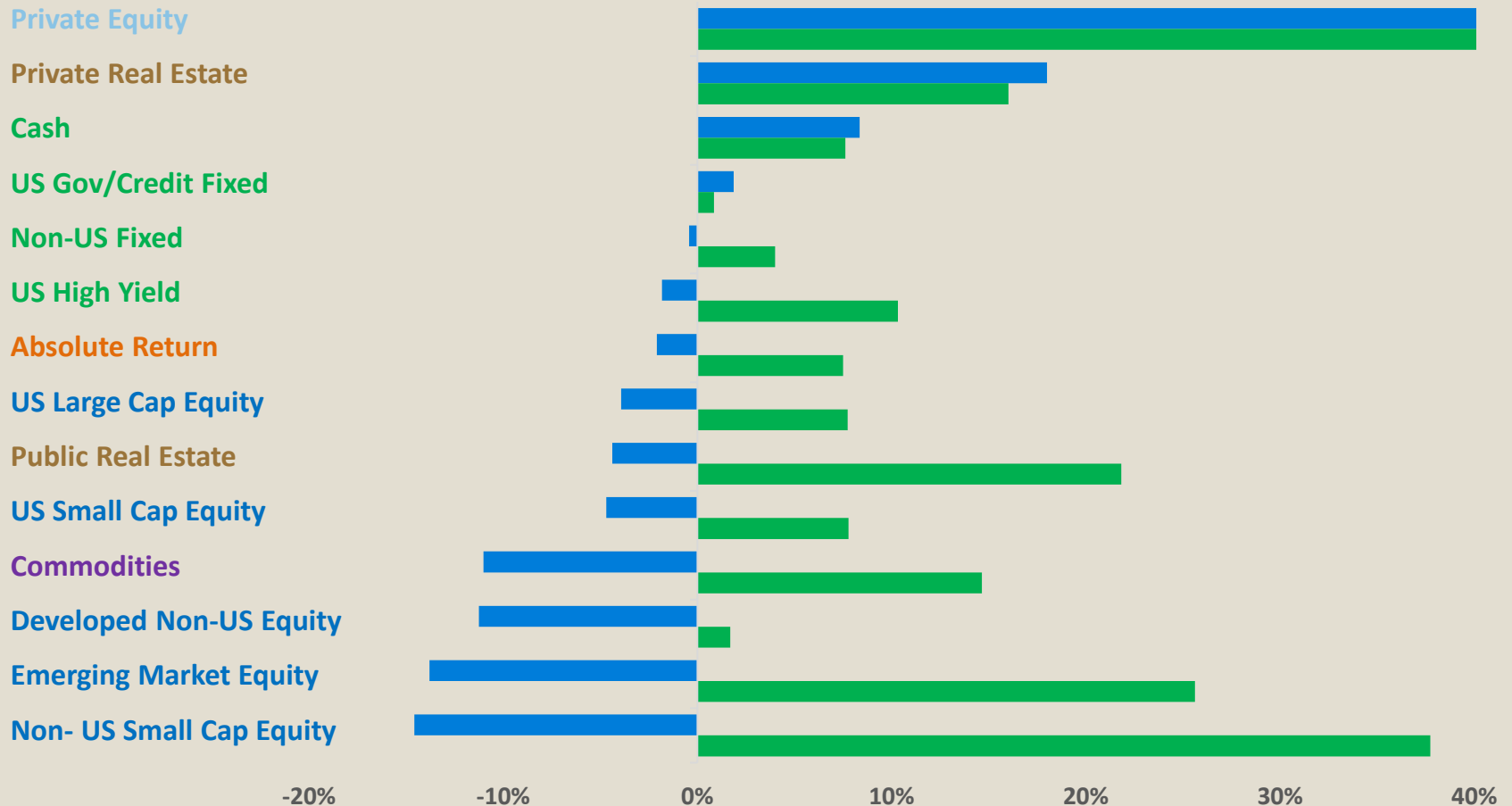
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	Asset Class	Description	Avg Peer %
Traditional Assets	<b>U.S. Equity</b>	Publicly traded stocks listed on U.S. exchange. Includes Large, Middle, and Small Capitalization companies. Very liquid, but tend to have higher volatility.	50%
	<b>Non-U.S. Equity</b>	Public stocks listed outside U.S. in local currency. Includes developed and emerging countries. Liquid, have higher return & risk expectation than U.S.	
	<b>Fixed Income</b>	Bonds and other assets with yield component. Includes investment grade (high quality), sovereign debt (global), and high yield (riskier) assets. Have lower expected return than equity, but less volatility given income component.	25%
Alternative Assets	<b>Real Estate</b>	Includes both private and public real estate investment trusts (REITs). Larger plans tend to invest in more private real estate, which consists of both core & non-core holdings. Illiquid in nature, but has provided stable returns over time.	25%
	<b>Private Equity/Credit</b>	Includes private equity, venture capital, distressed or other private debt strategies. Generally in form of limited partnership agreements. Illiquid in nature and have long investment horizon (7-12 years). Have higher expected return, but also can exhibit higher levels of risk.	
	<b>Real Return</b>	Includes real assets, such as commodities or timber, as well as inflation-linked securities, such as Treasury Inflation Protected Securities (TIPS). Tend to have low correlation to stocks and bonds. Can be less liquid than traditional assets.	
	<b>Absolute Return</b>	Funds that seek positive return regardless of market condition. Can include equity, fixed income, real estate, commodities, or other assets. Can include buying or "shorting" underlying securities. Expected to provide less volatile stream of positive returns over long term.	

# PERFORMANCE → *Market Performance*

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2017 vs. 2018

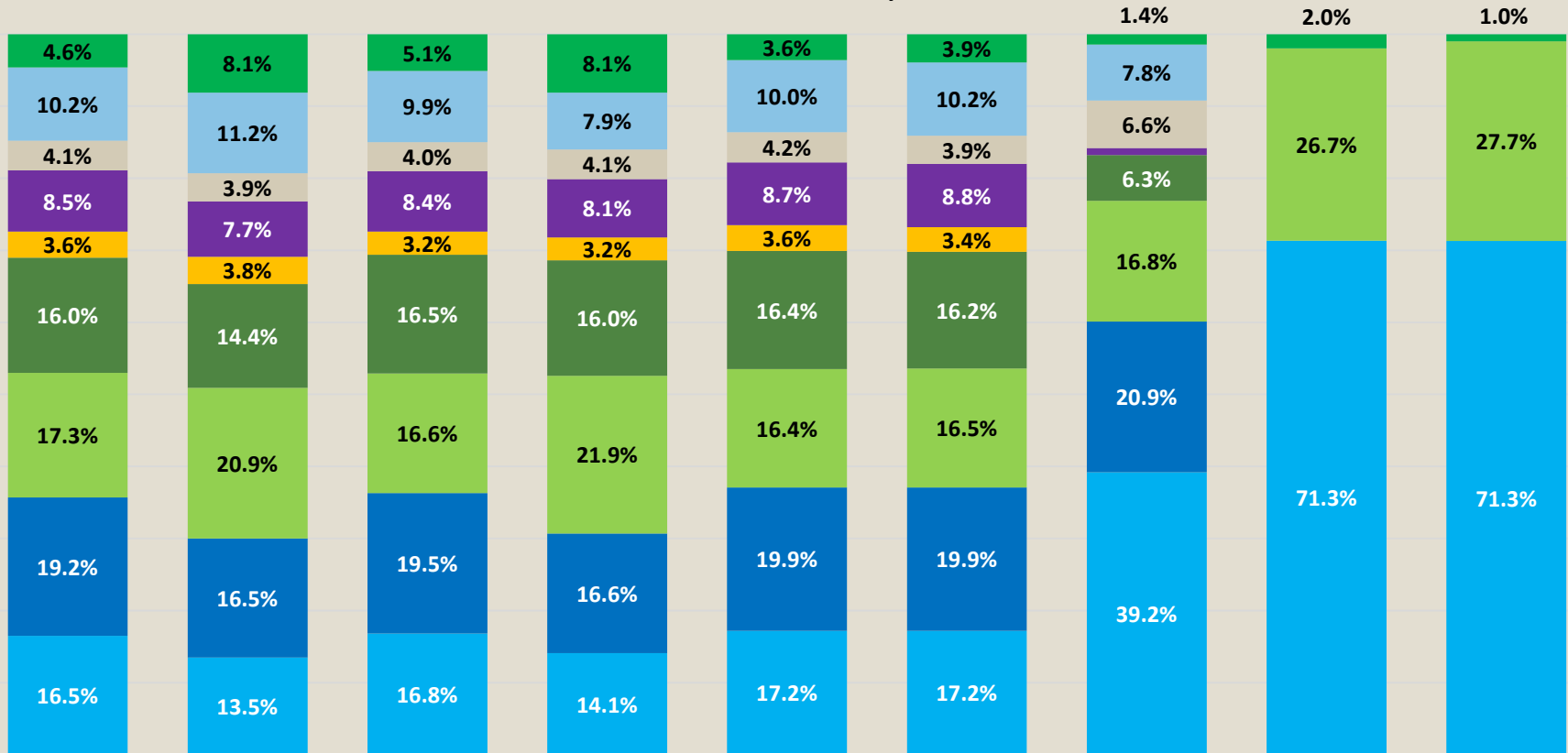


■ 2018 ■ 2017

# ASSET CLASSES → *Current Allocations*

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As of December 31, 2018



KRS TOTAL

KERS

KERS-H

SPRS

CERS

CERS-H

TRS

LRP

JRP

■ U.S. Equity ■ Non-U.S. Equity ■ Core Fixed Income ■ Credit Fixed Income ■ Absolute Return ■ Real Return ■ Real Estate ■ Private Equity ■ Cash

# INVESTMENTS → Pension *(as of December 31, 2018)*

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<i>As of December 31, 2018</i>	<b>MV</b>	<b>FYTD</b>	<b>1 –Year</b>	<b>3-Year</b>	<b>5-Year</b>	<b>10-Year</b>	<b>20-Year</b>	<b>AROR</b>
<b>KERS Pension (N)</b>	\$1.97B	<b>-1.6%</b>	<b>-1.0%</b>	<b>6.3%</b>	<b>5.1%</b>	<b>8.1%</b>	<b>5.4%</b>	5.25%
Policy Benchmark		-2.0%	-2.2%	6.3%	4.9%	8.4%	5.4%	
<b>KERS-Haz Pension (N)</b>	\$627.8M	<b>-2.4%</b>	<b>-2.0%</b>	<b>7.1%</b>	<b>5.2%</b>	<b>8.2%</b>	<b>5.4%</b>	6.25%
Policy Benchmark		-2.4%	-2.9%	6.8%	5.0%	8.5	5.4%	
<b>SPRS Pension (N)</b>	\$257.7M	<b>-1.9%</b>	<b>-1.6%</b>	<b>6.4%</b>	<b>4.7%</b>	<b>7.9%</b>	<b>5.3%</b>	5.25%
Policy Benchmark		-2.0%	-2.4%	6.5%	4.9%	8.4%	5.4%	
<b>CERS Pension (N)</b>	\$6.68B	<b>-2.4%</b>	<b>-2.1%</b>	<b>7.1%</b>	<b>5.2%</b>	<b>8.2%</b>	<b>5.4%</b>	6.25%
Policy Benchmark		-2.4%	-2.9%	6.8%	5.0%	8.5%	5.4%	
<b>CERS-Haz Pension (N)</b>	\$2.24B	<b>-2.4%</b>	<b>-2.0%</b>	<b>7.1%</b>	<b>5.2%</b>	<b>8.2%</b>	<b>5.4%</b>	6.25%
Policy Benchmark		-2.4%	-2.9%	6.8%	5.0%	8.5%	5.4%	
<b>TRS Pension (N)</b>	\$18.29B	<b>-6.5%</b>	<b>-5.1%</b>	<b>6.4%</b>	<b>5.4%</b>	<b>9.2%</b>	<b>5.5%</b>	7.50%
Policy Benchmark <sup>1</sup>		-4.9%	-4.2%	7.2%	6.7%	9.2%	-	
<b>LRP (N*)</b>	\$112.8M	<b>-2.2%</b>	<b>-1.4%</b>	<b>7.2%</b>	<b>7.7%</b>	<b>11.3%</b>	<b>6.5%</b>	6.50%
Policy Benchmark		-4.1%	-2.6%	7.1%	6.6%	10.2%	5.4%	
<b>JRP (N*)</b>	\$385.4M	<b>-2.0%</b>	<b>-1.2%</b>	<b>7.3%</b>	<b>7.6%</b>	<b>11.3%</b>	<b>6.5%</b>	6.50%
Policy Benchmark		-4.1%	-2.6%	7.1%	6.6%	10.2%	5.4%	

<b>Peer Groups Median Returns</b>	<b>1 –Year</b>	<b>3-Year</b>	<b>5-Year</b>	<b>10-Year</b>
LRC Calculated 42 plans	-2.6%	6.7%	5.7%	8.7%
Wilshire TUCS > \$1 Billion (G)	-2.7%	6.7%	5.5%	8.9%
BNY Mellon Public Funds (G)	-3.4%	5.1%		8.8%

(G) Gross of fee return, (N) Net of Fee Return \* JFRS 1- year returns are net of fee, longer term are gross <sup>1</sup> TRS did not benchmark overall performance prior to July 1, 2008

# PERFORMANCE → *New Years Bounce*

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- **What a difference a month can make**

- December returns were some of worse, January experienced strong bounce
- Equites (both US/Non) up approx. 8.0%, High Yield Bonds up 4% in January
- As result, short term trailing results can change significantly

<b>KERS NH</b> <i>preliminary returns</i>		
<b>Dec 31</b>	<i>as of</i>	<b>Jan 31</b>
-1.6%	<b>FYTD</b>	1.5%
6.3%	<b>3-Year</b>	8.5%
5.1%	<b>5-year</b>	6.0%
8.1%	<b>10-year</b>	9.0%
5.4%	<b>20-year</b>	5.4%

<b>CERS NH</b> <i>preliminary returns</i>		
<b>Dec 31</b>	<i>as of</i>	<b>Jan 31</b>
-2.4%	<b>FYTD</b>	0.8%
7.1%	<b>3-Year</b>	9.6%
5.2%	<b>5-year</b>	6.4%
8.2%	<b>10-year</b>	9.2%
5.4%	<b>20-year</b>	5.5%

<b>TRS<sup>1</sup></b> <i>preliminary returns</i>		
<b>Dec 31</b>	<i>as of</i>	<b>Jan 31</b>
-6.5%	<b>FYTD</b>	-0.7%
6.4%	<b>3-Year</b>	10.4%
5.4%	<b>5-year</b>	7.3%
9.2%	<b>10-year</b>	10.6%
5.5%	<b>20-year</b>	-

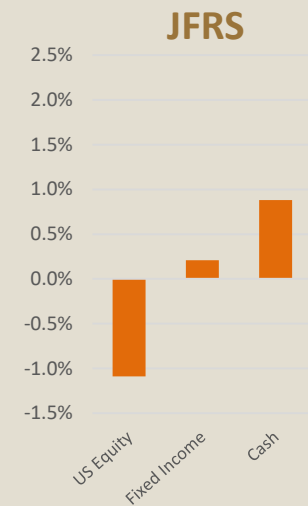
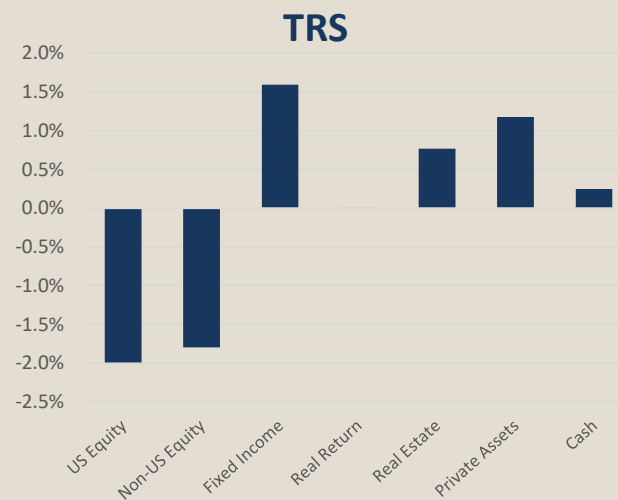
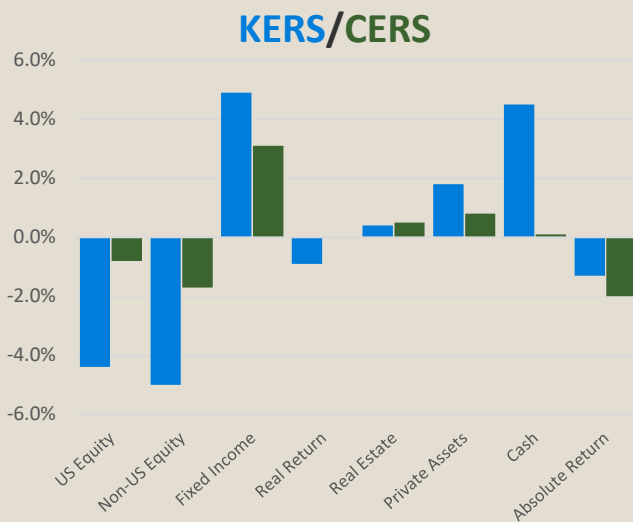
<sup>1</sup> TRS returns are gross of investment fees.  
20-Year return not unavailable.

# ASSET ALLOCATION → *Recent Changes*

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## % Change in Asset Allocation

From June 30, 2018 to December 31, 2018



- Portfolio rebalancing/decline in equity markets
- Fixed Income/PE stronger performers

- Continue to reduce Absolute Return

- Largely due to negative equity markets

- Did rebalance into some fixed income during 1Q of fiscal year

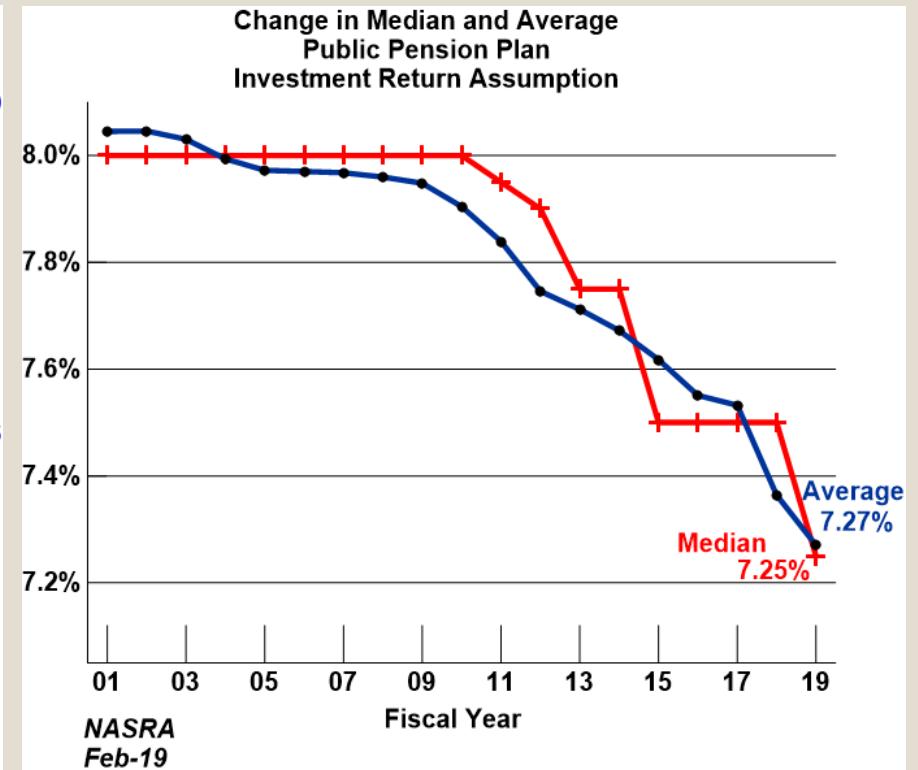
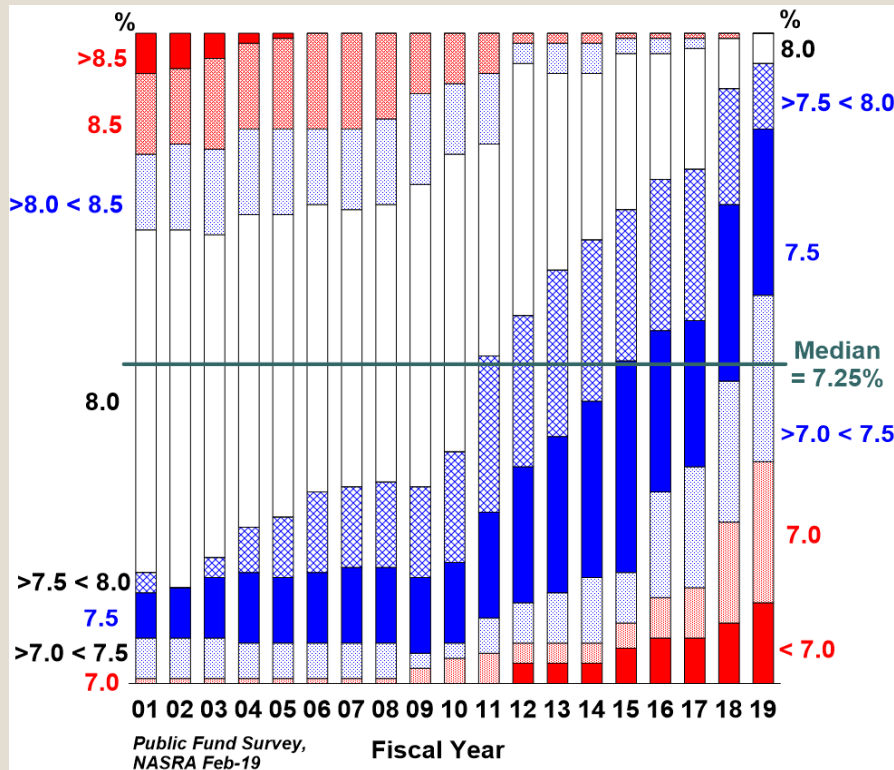
- Continue to add to Private Assets

- Market driven

# FOLLOW UP → Investment Return Assumptions

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- **NASRA has recently updated annual survey**
  - Median AROR of 7.25%, continues trend of plans lowering assumption





# APPENDIX A

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## Insurance Fund Investment Performance

# INVESTMENT PERFORMANCE → Insurance

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Period Ending December 31, 2018

	MV	FYTD	1 –Year	3-Year	5-Year	10-Year	AROR
<b>KRS Insurance (N)</b>	<b>\$5.0B</b>	<b>-3.2%</b>	<b>-1.8%</b>	<b>7.3%</b>	<b>5.2%</b>	<b>8.5%</b>	
Policy Benchmark		-3.5%	-2.7%	6.9%	5.4%	9.2%	6.25%
<b>KERS</b>	\$820.4M	-4.1%	-3.3%	6.6%	4.6%	8.2%	
Policy Benchmark		-3.4%	-2.7%	7.0%	5.2%	9.1%	6.25%
<b>KERS – H</b>	\$488.9M	-3.3%	-2.0%	7.2%	5.1%	8.5%	
Policy Benchmark		-3.2%	-2.3%	7.1%	5.3%	9.2%	6.25%
<b>CERS</b>	\$2.3B	-3.1%	-1.6%	7.4%	5.3%	8.6%	
Policy Benchmark		-3.5%	-2.7%	7.0%	5.2%	9.2%	6.25%
<b>CERS – H</b>	\$1.2B	-3.1%	-1.5%	7.5%	5.4%	8.6%	
Policy Benchmark		-3.5%	-2.7%	7.0%	5.2%	9.2%	6.25%
<b>SPRS</b>	\$182.6M	-3.1%	-1.5%	7.4%	5.3%	8.6%	
Policy Benchmark		-3.5%	-2.7%	7.0%	5.2%	9.2%	6.25%
<b>TRS Insurance (G)</b>	<b>\$1.1B</b>	<b>-7.4%</b>	<b>-3.4%</b>	<b>7.1%</b>	<b>4.6%</b>	-	
Policy Benchmark <sup>1</sup>		-8.1%	-4.7%	7.0%	-	-	8.0%

(N) Net of fees return <sup>1</sup> TRS did not have target asset allocation prior to June 30, 2014, thus not benchmark return was calculated

(G) Gross of fees return

# APPENDIX B

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## LRC Staff Calculated Peer Group Data



# LRC Staff Peer Group

Returns as of December 31, 2018

System	Return Data				Asset Allocation								
	1 Year	3 Year	5 year	10 Year	Global Eq	Global FI	Real Estate	Real Assets	RE/RA	HF	PA	Cash	
Tennessee Consolidated Retirement System													
Employee Retirement System of Texas	-1.7%	6.7%	5.4%	8.7%	39.8	27.7	10.5	2.4	12.8	4.0	15.2	0.4	
Utah Retirement System													
Vermont State Employees Retirement System	-4.4%	6.0%	3.9%	8.1%	49.0	34.4	6.5	0.0	6.5	7.3	2.7	0.1	
Virginia Retirement System	-1.3%	6.7%	6.0%	8.7%	39.1	30.8	0.0	14.0	14.0	2.8	12.8	0.5	
Washington Public Employees Pension System	1.6%	8.8%	7.5%	8.7%	31.0	22.5	18.2	4.8	23.0	0.0	22.2	1.3	
West Virginia Public Employees Retirement System	-2.7%	7.7%	6.1%	10.1%	48.5	17.5	11.6	0.0	11.6	11.6	10.8	0.0	
Wisconsin Retirement System	-3.3%	6.9%	5.2%	8.8%	44.7	22.6	7.2	16.3	23.5	0.0	8.7	0.5	
Wyoming Retirement System													

Standalone Teacher/Public School Retirement Plans													
Arkansas Teachers Retirement System													
California State Teachers' Retirement System	-3.2%	6.9%	6.0%	8.4%	49.0	13.0	15.0	2.0	17.0	9.0	10.0	2.0	
Connecticut Teachers Retirement Board	-4.5%	6.3%	4.9%	8.2%	50.1	19.7	7.0	12.0	19.0	0.0	7.9	3.5	
Teacher's Retirement System of Georgia													
Teachers Retirement System of Illinois	-1.3%	6.7%	5.7%	8.6%	51.2	23.5	0.0	14.7	14.7	10.6	0.0	0.0	
<b>Kentucky Teachers Retirement System</b>	<b>5.1%</b>	<b>6.4%</b>	<b>5.4%</b>	<b>9.2%</b>	<b>60.1</b>	<b>23.2</b>	<b>6.6</b>	<b>1.0</b>	<b>7.6</b>	<b>0.0</b>	<b>7.7</b>	<b>1.4</b>	
Teacher's Retirement of Louisiana	-1.4%	8.7%	6.5%	9.4%	44.8	17.9	10.0	0.0	10.0	0.0	26.5	0.8	
Public School Retirement System of Missouri	-1.0%	7.1%	8.4%	9.0%	42.8	18.3	8.0	3.3	11.3	12.2	12.2	3.2	
Montana Teacher's Retirement System	-2.6%	6.2%	5.7%	8.4%									
School Retirement System for Nebraska	-4.2%	6.6%	5.6%	9.3%	56.3	31.0	7.0	0.0	7.0	0.0	5.6	0.1	
New Mexico Educational Retirement Board	0.6%	7.5%	63.0%	9.6%	30.2	26.9	6.4	13.1	19.5	0.0	21.9	1.5	
New York State Teacher's Retirement System													
North Dakota Teacher's Fund for Retirement													
State Teachers Retirement System of Ohio													
Oklahoma Teacher's Retirement System													
Public School Employees' Retirement System of Pennsylvania	0.7%	7.8%	6.0%	8.0%									
Teacher Retirement System of Texas													
Vermont State Teachers' Retirement System	-4.2%	6.0%	4.0%	8.0%	48.7	31.9	7.3	0.0	7.3	7.4	4.6	0.1	
West Virginia Teachers Retirement System	-2.7%	7.7%	6.1%	9.9%	23.1	28.7	14.0	11.6	25.6	11.6	10.8	0.2	

LRC Peer Group Summary													
Count	42	42	42	42	27	27	27	27	27	27	27	27	27
Average	-2.1%	6.8%	6.9%	8.7%	45.0	23.7	7.9	6.7	14.6	3.6	11.4	1.8	
Median	-2.6%	6.7%	5.7%	8.7%	45.6	22.5	7.3	6.7	14.1	0.2	10.8	1.3	

Additional Peer Group Review				
TUCS Public Fund > \$1 Billion	-2.7%	6.7%	5.5%	8.9%
BNY Mellon Total Public Funds Universe	-3.4%	5.1%		8.8%