

INVESTMENT REVIEW

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Public Pension Oversight Board

May 23, 2016

PERFORMANCE → Asset Class Results

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- **Tough Year for Investors**

- Real Estate best performing
- Equity Markets underwhelming
 - ✦ Narrow results – FANG stocks
 - ✦ Limited winners – Non-US Small Caps
 - ✦ Emerging Markets fell dramatically – China, Oil
- Bond Markets provided little relief
 - ✦ Broad investment grade market barely positive
 - ✦ Higher Yield assets one of lower returning assets
- Alternatives struggled as well
 - ✦ Low inflation, U.S. dollar appreciation served as headwind for real return
 - ✦ Commodities – Worse performing assets for period
 - ✦ Absolute Return, Fund of Funds, fell slightly

2015 Calendar Year Returns	
15.01	Private Real Estate
9.59	Non-US Small Cap
4.23	Public Real Estate
1.38	US Large Cap
0.55	US Core Fixed Income
0.05	Cash
(0.81)	Developed Non-US
(1.24)	Absolute Return FOF
(1.44)	TIPS
(3.30)	US Gov/Credit Fixed
(4.41)	US Small Cap
(4.47)	US High Yield Bonds
(14.92)	Emerging Market Equity
(24.66)	Commodities

INVESTMENT PERFORMANCE

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Period Ending December 31, 2015

	MV	1 –Year	3-Year	5-Year	10-Year	20-Year
KRS Pension (N)	\$10.83 B	0.0%	5.8%	5.8%	5.2%	
Policy Benchmark		0.6%	6.5%	6.3%	5.5%	
KTRS Pension (G)	\$16.95 B	0.5%	9.1%	8.3%	6.3%	
Policy Benchmark ¹		(0.3%)	8.0%	7.7%	-	
LRP (G)	\$97.3 M	3.8%	14.0%	12.5%	8.0%	
Policy Benchmark		1.5%	10.9%	9.6%	6.6%	
JRP (G)	\$332.0 M	3.5%	13.8%	12.4%	7.9%	
Policy Benchmark		1.5%	10.9%	9.6%	6.6%	

Peer Groups Median Returns

LRC Calculated <i>38 plans</i>	0.4%	7.5%	7.4%	5.8%	-
BNY Mellon (G) <i>117 plans</i>	0.2%	-	7.0%	5.9%	-
Wilshire TUCS (G)	0.4%	7.8%	7.4%	6.0%	

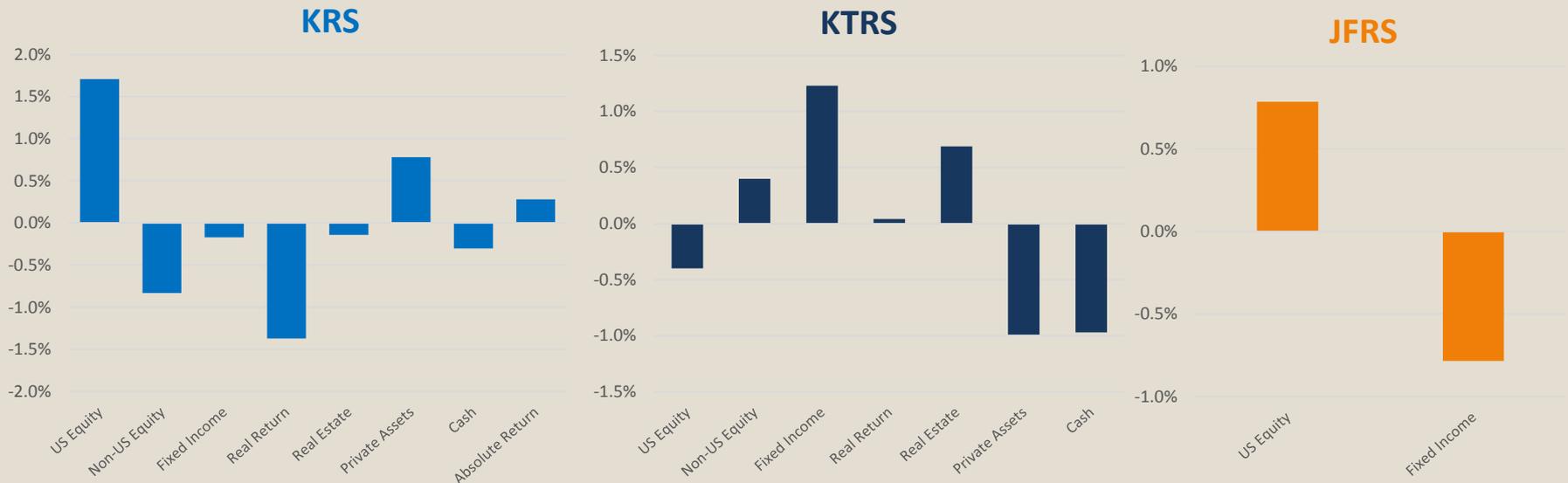
(G) Gross of fee return, (N) Net of Fee Return

¹ KTRS did not benchmark overall performance prior to July 1, 2008

ASSET ALLOCATION → *Recent Change*

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% Change in Asset Allocation
Since June 30, 2015



- Rebalancing to New Targets
 - Reduction in Real Asset
 - Increase in U.S. Equity

- Market Movements
- Cash Flow

- Market Movements

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KRS Plan Investment Performance

INVESTMENT PERFORMANCE

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Period Ending December 31, 2015

	MV	1 –Year	3-Year	5-Year	10-Year
KERS Pension	\$2.1B	0.2%	5.7%	5.8%	5.1%
Policy Benchmark		1.3%	6.6%	6.3%	5.5%
KERS-H Pension	\$525.7M	-0.2%	5.6%	5.7%	5.1%
Policy Benchmark		0.3%	6.3%	6.2%	5.5%
SPRS Pension	\$227.1M	-0.2%	5.7%	5.8%	5.1%
Policy Benchmark		0.1%	6.3%	6.1%	5.4%
CERS Pension	\$6.1B	-0.5%	5.6%	5.7%	5.1%
Policy Benchmark		0.2%	6.3%	6.1%	5.4%
CERS-H Pension	\$2.0B	-0.5%	5.4%	5.6%	5.1%
Policy Benchmark		0.1%	6.3%	6.1%	5.4%

All returns are gross of fees

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Asset Class Performance

Annual Asset Class Performance

As of December 31, 2015

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Best	12.35	25.91	61.34	33.16	34.00	35.97	39.38	8.44	78.51	28.60	22.49	20.00	38.82	31.78	15.01
	8.44	16.56	55.81	31.45	26.19	32.18	16.23	5.24	58.21	26.86	15.99	18.23	32.39	19.31	9.59
	7.89	14.81	47.25	25.55	21.39	26.34	15.97	2.06	46.78	22.04	13.56	17.59	29.30	13.69	4.23
	7.28	10.25	38.59	20.25	21.36	19.31	11.63	-2.35	31.78	18.88	9.24	17.32	22.78	12.50	1.38
	6.61	5.54	36.18	18.33	13.82	18.37	11.17	-10.01	28.60	16.83	7.84	16.34	13.94	5.97	0.55
	5.64	3.58	28.97	13.06	13.54	16.32	9.91	-20.47	27.18	16.36	4.98	16.00	9.10	4.89	0.05
	5.28	3.12	28.68	11.13	6.75	15.79	6.97	-26.16	26.46	15.12	2.11	15.81	7.44	3.64	-0.81
	4.42	1.78	23.93	10.88	5.33	11.85	6.60	-33.79	18.91	15.06	0.10	10.94	1.86	3.03	-1.24
	2.49	-1.41	11.93	9.15	4.91	9.85	5.49	-35.65	11.41	10.16	-4.18	8.82	0.07	2.45	-1.44
	-2.62	-6.17	9.28	8.56	4.55	4.85	5.00	-37.00	9.72	7.75	-5.55	6.98	-2.02	0.04	-3.30
	-11.89	-7.83	8.39	8.46	3.07	4.33	1.87	-39.20	5.93	6.54	-12.14	4.80	-2.60	-2.19	-4.41
	-12.53	-15.94	5.87	6.79	2.84	2.71	1.45	-43.38	1.92	6.31	-13.32	4.21	-8.61	-4.90	-4.47
	-19.51	-20.48	4.10	4.34	2.74	2.07	-1.57	-47.01	0.21	4.77	-15.94	0.11	-8.83	-4.95	-14.92
Worst	-21.44	-22.10	1.15	1.33	2.43	0.41	-17.55	-53.33	-29.76	0.13	-18.42	-1.06	-9.52	-17.01	-24.66
	S&P 500 - US Large Cap	R 2000 - US Small Cap	MSCI EAFE (Net) - Int'l Dev.	MSCI EAFE SC (Net) - Int'l SC	MSCI EM (Net) - Int'l Emg Mkts	Barclays US Agg Bond - FI	Barclays US Corp: Hi Yield - FI	Barclays US Trsy: US TIPS - FI	Barclays US Gov/Credit: Lng - FI	NCREIF ODCE (Gross) - Real Estate	Wilshire US REIT - REITs	HFN FOF Multi-Strat (Net) - ARS	Bloomberg Cmdty (TR) - Commod.	BofA ML 3 Mo T-Bill - Cash Equiv	

NCREIF ODCE (Gross) performance is reported quarterly; performance is shown N/A in interim-quarter months.



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LRC Staff Calculated Peer Group Data

LRC Staff Peer Group

December 31, 2015

State	System	Return Data			
		1 Year	3 Year	5 year	10 Year
Alabama	Retirement Systems of Alabama				
Alaska	Alaska Public Employee Retirement System	0.40%	8.19%	7.37%	
Arizona	Arizona State Retirement System	1.30%	8.30%	7.80%	6.10%
Arkansas	Arkansas Public Retirement System				
California	California Public Employees Retirement System (N)	-3.00%	7.30%	7.20%	5.10%
Colorado	Colorado Public Employees Retirement Association				
Connecticut	Connecticut State Employees Retirement System (N)	0.95%	6.56%	6.26%	5.19%
Delaware	Delaware Public Employees Retirement System (G)				
Florida	Florida Retirement System (N)	1.48%	8.01%	7.43%	6.04%
Georgia	Georgia Employees Retirement System				
Hawaii	Hawaii Employees Retirement System	0.45%	7.83%	7.12%	
Idaho	Public Employees Retirement System of Idaho (U)	0.30%	6.70%	6.50%	
Illinois	Illinois State Employees Retirement System (G)	1.90%	8.90%	8.10%	5.60%
Indiana	Indiana Public Employment Retirement Fund	-2.15%	2.98%	4.04%	3.63%
Iowa	Iowa Public Employees Retirement System (N)	1.30%	7.37%	7.61%	6.35%
Kansas	Kansas Public Employees Retirement System (G)	0.50%	8.10%	7.80%	6.30%
Kentucky	Kentucky Retirement Systems (N)	0.10%	5.69%	5.77%	5.13%
Louisiana	Louisiana State Employees' Retirement System (G)	-2.30%	6.10%	6.50%	6.20%
Maine	Maine Public Employees Retirement System (N)	0.10%	6.60%	6.50%	5.10%
Maryland	Maryland State Retirement and Pension System (N)	0.09%	5.79%	5.97%	4.85%
Massachusetts	Massachusetts State Employees Retirement System (G)	1.10%	8.00%	7.50%	5.90%
Michigan	Michigan State Employees Retirement System (U)	2.80%	10.00%	9.10%	6.50%
Minnesota	Minnesota State Retirement System (N)	0.00%	9.30%	8.50%	6.70%
Mississippi	Public Employees' Retirement System of Mississippi (U)	0.51%	8.18%	7.69%	6.02%
Missouri	Missouri State Employees Retirement System (N)	-7.90%	2.70%	4.70%	5.20%
Montana	Montana Public Employees Retirement (N)	1.86%	8.92%	8.36%	5.94%
Nebraska	Nebraska Public Employees Retirement System (U)	1.20%	8.50%	7.70%	6.10%
Nevada	Nevada Public Employees Retirement System (N)	1.60%	9.00%	8.20%	6.20%
New Hampshire	New Hampshire Retirement System (N)	0.00%	8.00%	7.60%	5.90%
New Jersey	New Jersey Public Employees Retirement System (U)	0.63%	7.35%	7.35%	6.08%
New Mexico	New Mexico Public Employees Retirement Assoc (N)	-1.08%	6.78%	6.44%	4.69%
New York	New York State Common Retirement Fund (U)				
North Carolina	North Carolina Retirement Systems (U)	0.30%	6.10%	6.40%	5.40%
North Dakota	North Dakota Public Employees Retirement System				
Ohio	Ohio Public Employees Retirement System				
Oklahoma	Oklahoma Public Employees Retirement System (G)				
Oregon	Oregon Public Employees Retirement System (N)	-1.75%	8.74%	6.75%	5.02%
Pennsylvania	Pennsylvania State Employees Retirement System (N)	0.40%			
Rhode Island	Employees' Retirement System of Rhode Island (N)	-0.30%	5.90%	6.30%	5.00%
South Carolina	South Carolina Retirement System (N)	-0.56%	5.27%	5.68%	4.35%
South Dakota	South Dakota Retirement System				
Tennessee	Tennessee Consolidated Retirement System (U)	-0.07%	7.05%	7.74%	5.85%
Texas	Employee Retirement System of Texas (N)	1.60%	7.00%	6.70%	5.80%

LRC Staff Peer Group

December 31, 2015

State	System	Return Data			
		1 Year	3 Year	5 year	10 Year
Utah	Utah Retirement System (G)				
Vermont	Vermont State Employees Retirement System (G)	-2.10%	3.60%	5.20%	4.95%
Virginia	Virginia Retirement System (N)	1.10%	10.30%	7.90%	5.60%
Washington	Washington Public Employees Pension System (N)	2.60%	8.48%	8.23%	6.53%
West Virginia	West Viginia Public Employees Retirement System (N)	1.10%	7.70%	7.50%	6.20%
Wisconsin	Wisconsin Retirement System (U)	-0.40%		6.70%	5.80%
Wyoming	Wyoming Retirement System (N)				

LRC Peer Group Summary

	Count	38	36	37	34
Average		0.1%	7.3%	7.0%	5.6%
Median		0.4%	7.5%	7.4%	5.8%

Additional Peer Group Review

Wilshire TUCS Public Fund > 1 Billion Median	0.4%	7.8%	7.4%	6.0%
BNY Mellon Total Public Funds Universe (G)	0.2%		7.0%	5.9%
State Street Public Fund > 1 billion Universe	0.3%	7.8%	7.4%	5.8%
Kentucky Teachers' Retirement System (G)	0.5%	9.1%	8.3%	6.3%
Legislative Retirement Plan (G)	3.8%	14.0%	12.5%	8.0%
Judicial Retirement Plan (G)	3.5%	13.8%	12.4%	7.9%

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