

# INVESTMENT REVIEW

1

## Public Pension Oversight Board

March 7th, 2022

# INVESTMENT REVIEW

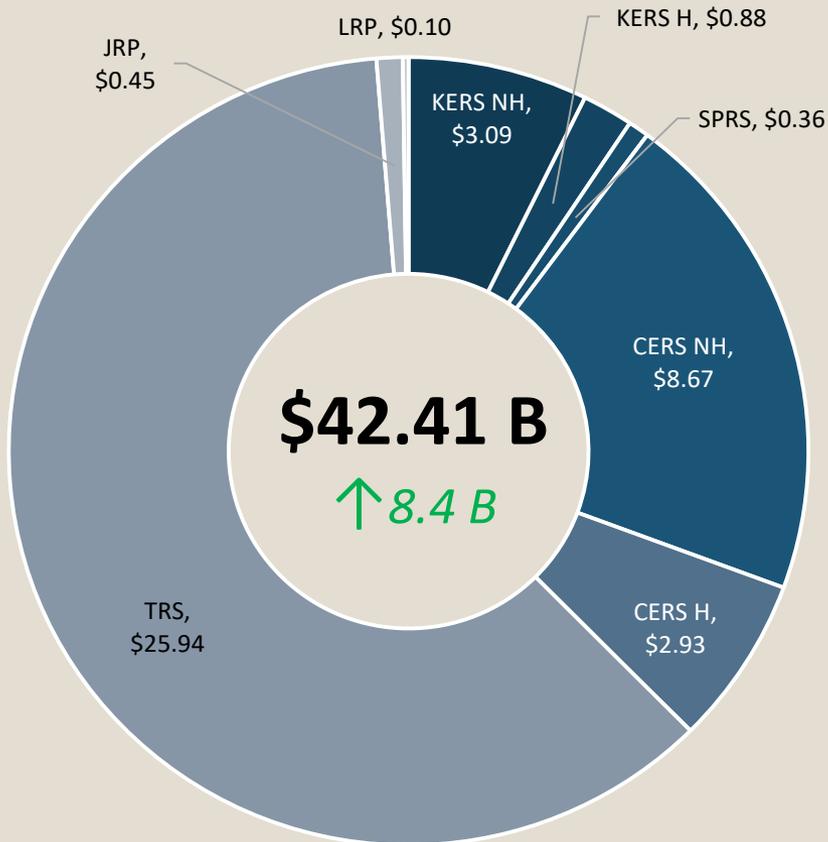
2

- Review of Total Assets
- Performance Review and Peer Comparisons
- Allocation Review and Peer Comparisons
- Investment Fees and Expenses
- Net Cash Flow Update
- Special Topics
- Other Required Review Topics (benchmarks, policies, etc.)

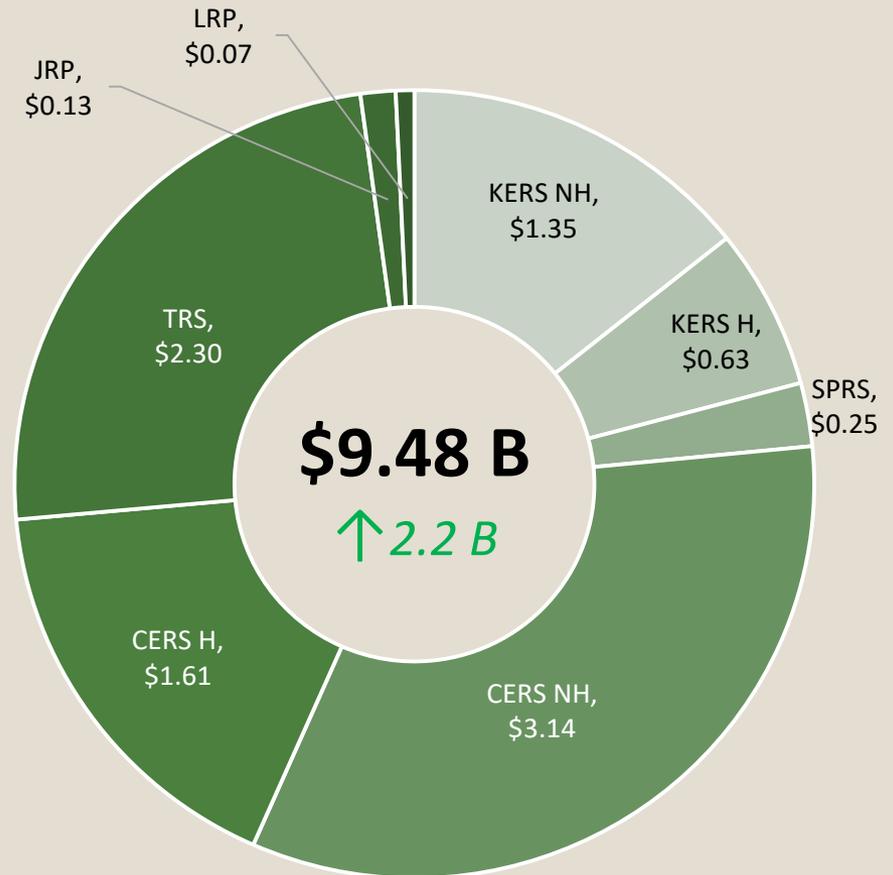
# ASSETS UNDER MANAGEMENT → *FY 21 Ended*

3

Pension Fund Assets By System/Plan  
(6/30/2021)



R. Health Fund Assets By System/Plan  
(6/30/2021)



# PERFORMANCE → *FY 2021 Ended*

4

Fiscal Year 2020 Returns	
10.0%	US Gov/Credit
7.5%	US Large Cap
5.8%	Private Equity
2.2%	Private Real Estate
1.6%	T-Bill
0.9%	Non-US Fixed Income
0.1%	Absolute Return/FOF
-	US High Yield
-3.4%	Emerging Markets
0.0%	Non-US Small Cap
-5.1%	Developed Non-US
-6.6%	US Small Cap
-12.3%	Public Real Estate
-17.4%	Commodities

- Record setting individual year returns in FY 2021.
- \$5 trillion in economic stimulus helped boost markets/returns.
- Average pension fund returns of around 27% for FY 21.
- Nearly all asset classes exceeded AROR.

Fiscal Year 2021 Returns	
62.0%	US Small Cap
45.6%	Commodities
40.9%	Emerging Markets
40.8%	US Large Cap
37.5%	Public Real Estate
37.2%	Non-US Small Cap
32.3%	Developed Non-US
21.6%	Private Equity
18.1%	Absolute Return/FOF
15.4%	US High Yield
8.0%	Private Real Estate
3.1%	Non-US Fixed Income
0.1%	T-Bill
-1.9%	US Gov/Credit

# PERFORMANCE → Pension FY 2021 Ended

5

<i>As of June 30, 2021</i>	<b>1 –Year</b>	<b>3-Year</b>	<b>5-Year</b>	<b>10-Year</b>	<b>20-Year</b>	<b>30-Year</b>	<b>AROR</b>
<b>KERS-Nonhaz Pension (N)</b>	<b>22.6%</b>	<b>9.9%</b>	<b>9.8%</b>	<b>7.6%</b>	<b>6.5%</b>	<b>8.3%</b>	5.25%
Policy Benchmark	21.0%	9.1%	9.4%	7.5%	6.5%	8.2%	
<b>KERS-Haz Pension (N)</b>	<b>25.2%</b>	<b>10.1%</b>	<b>10.5%</b>	<b>7.9%</b>	<b>6.7%</b>	<b>8.4%</b>	6.25%
Policy Benchmark	24.9%	10.0%	10.3%	7.9%	6.7%	8.2%	
<b>SPRS Pension (N)</b>	<b>21.7%</b>	<b>9.6%</b>	<b>9.8%</b>	<b>7.4%</b>	<b>6.5%</b>	<b>8.2%</b>	5.25%
Policy Benchmark	21.0%	9.1%	9.4%	7.5%	6.5%	8.2%	
<b>CERS-Nonhaz Pension (N)</b>	<b>25.7%</b>	<b>10.3%</b>	<b>10.7%</b>	<b>7.9%</b>	<b>6.7%</b>	<b>8.4%</b>	6.25%
Policy Benchmark	24.9%	10.0%	10.4%	7.9%	6.7%	8.3%	
<b>CERS-Haz Pension (N)</b>	<b>25.6%</b>	<b>10.2%</b>	<b>10.6%</b>	<b>8.0%</b>	<b>6.7%</b>	<b>8.4%</b>	6.25%
Policy Benchmark	24.9%	9.9%	10.3%	7.9%	6.7%	8.3%	
<b>TRS Pension (N)<sup>1</sup></b>	<b>29.6%</b>	<b>13.0%</b>	<b>12.9%</b>	<b>10.1%</b>	<b>7.4%</b>	<b>8.6%<sup>1</sup></b>	7.50% <sup>2</sup>
Policy Benchmark <sup>1</sup>	28.7%	12.9%	12.4%	9.9%	See Note	See Note	
<b>LRP Pension (N*)</b>	<b>37.2%</b>	<b>17.8%</b>	<b>15.1%</b>	<b>13.5%</b>	<b>8.4%</b>	<b>See Note</b>	6.50%
Policy Benchmark	27.5%	14.7%	13.2%	11.3%	7.5%	See Note	
<b>JRP Pension (N*)</b>	<b>37.2%</b>	<b>17.9%</b>	<b>15.2%</b>	<b>13.5%</b>	<b>8.5%</b>	<b>See Note</b>	6.50%
Policy Benchmark	27.5%	14.7%	13.2%	11.3%	7.5%	See Note	
<b>Peer Groups Median Returns</b>							
Callan All Public Plans >\$10 B ( <i>Gross of Fee</i> )	26.7%	11.3%	11.1%	9.0%	-		
TUCS Public Fund >\$1 B ( <i>Gross of Fee</i> )	27.0%	11.7%	11.3%	9.1%	-		

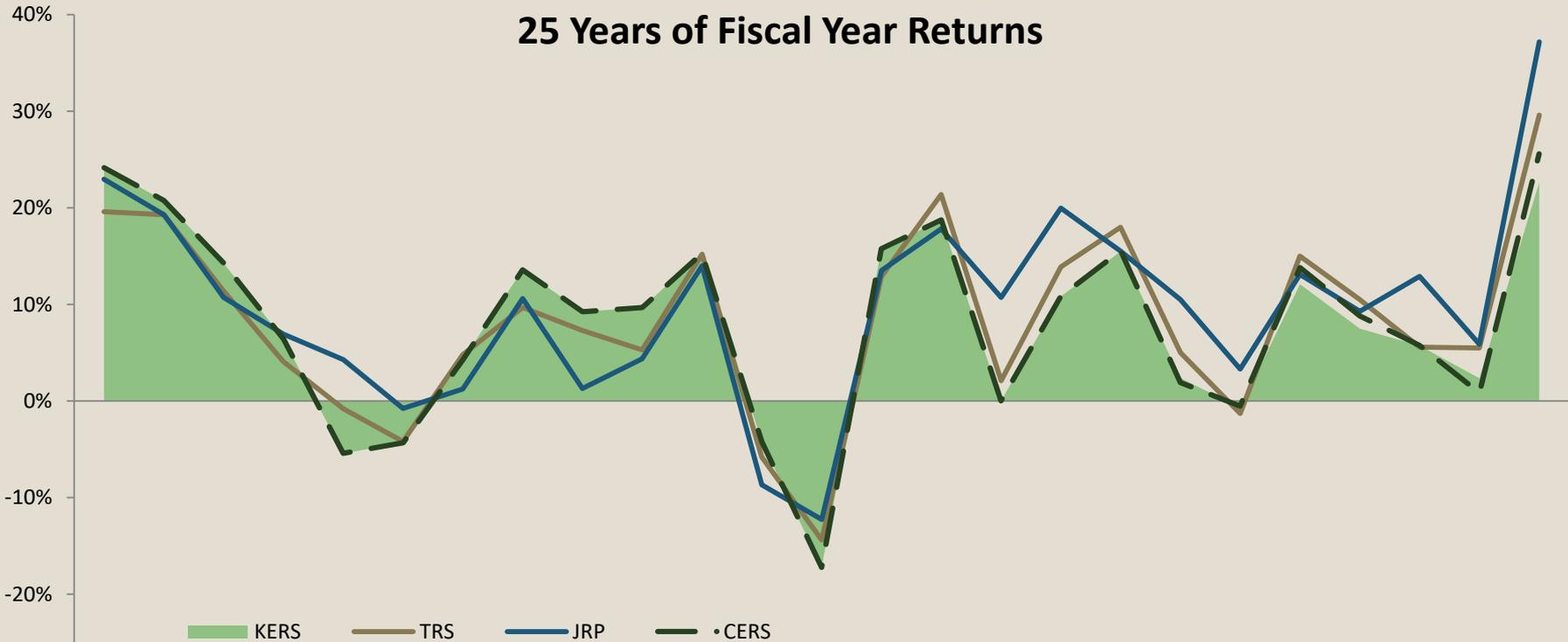
(N) Net of Fee Return \* JFRS 1-, 3-, 5-, and 10- year returns are net of fee, longer term are gross. Excludes Cash Balance Assets.

<sup>1</sup> 30 year returns are gross. TRS did not benchmark overall performance prior to July 1, 2008. <sup>2</sup> TRS Assumption moved to 7.1% effective July 1, 2021

# PERFORMANCE → *FY Returns By System*

6

### 25 Years of Fiscal Year Returns



	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06	FY 07	FY 08	FY 09	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17	FY18	FY19	FY20	FY21
KERS	24.2%	20.8%	14.3%	6.4%	-5.4%	-4.3%	4.3%	13.6%	9.3%	9.7%	15.3%	-4.2%	-17.2%	15.8%	18.8%	0.0%	10.8%	15.5%	2.4%	-0.7%	12.1%	7.5%	5.7%	2.4%	22.6%
TRS	19.6%	19.3%	11.4%	4.1%	-0.8%	-4.2%	4.8%	9.7%	7.3%	5.3%	15.2%	-5.8%	-14.4%	12.9%	21.4%	2.1%	13.9%	18.0%	5.0%	-1.3%	15.0%	10.5%	5.6%	5.5%	29.6%
JRP	23.0%	19.3%	10.7%	6.9%	4.3%	-0.8%	1.2%	10.6%	1.3%	4.4%	14.0%	-8.7%	-12.3%	13.5%	17.8%	10.7%	20.0%	15.5%	10.5%	3.3%	13.1%	9.3%	12.9%	5.9%	37.2%
CERS	24.2%	20.8%	14.3%	6.4%	-5.4%	-4.3%	4.3%	13.6%	9.3%	9.7%	15.3%	-4.2%	-17.2%	15.8%	18.8%	0.0%	10.8%	15.6%	1.9%	-0.5%	13.8%	8.8%	5.8%	0.8%	25.6%

NOTE: Returns beginning in FY2015 are Net of Fee, while returns prior are Gross of Fee.

# ASSET ALLOCATION → *Drives 90% of Returns*

7

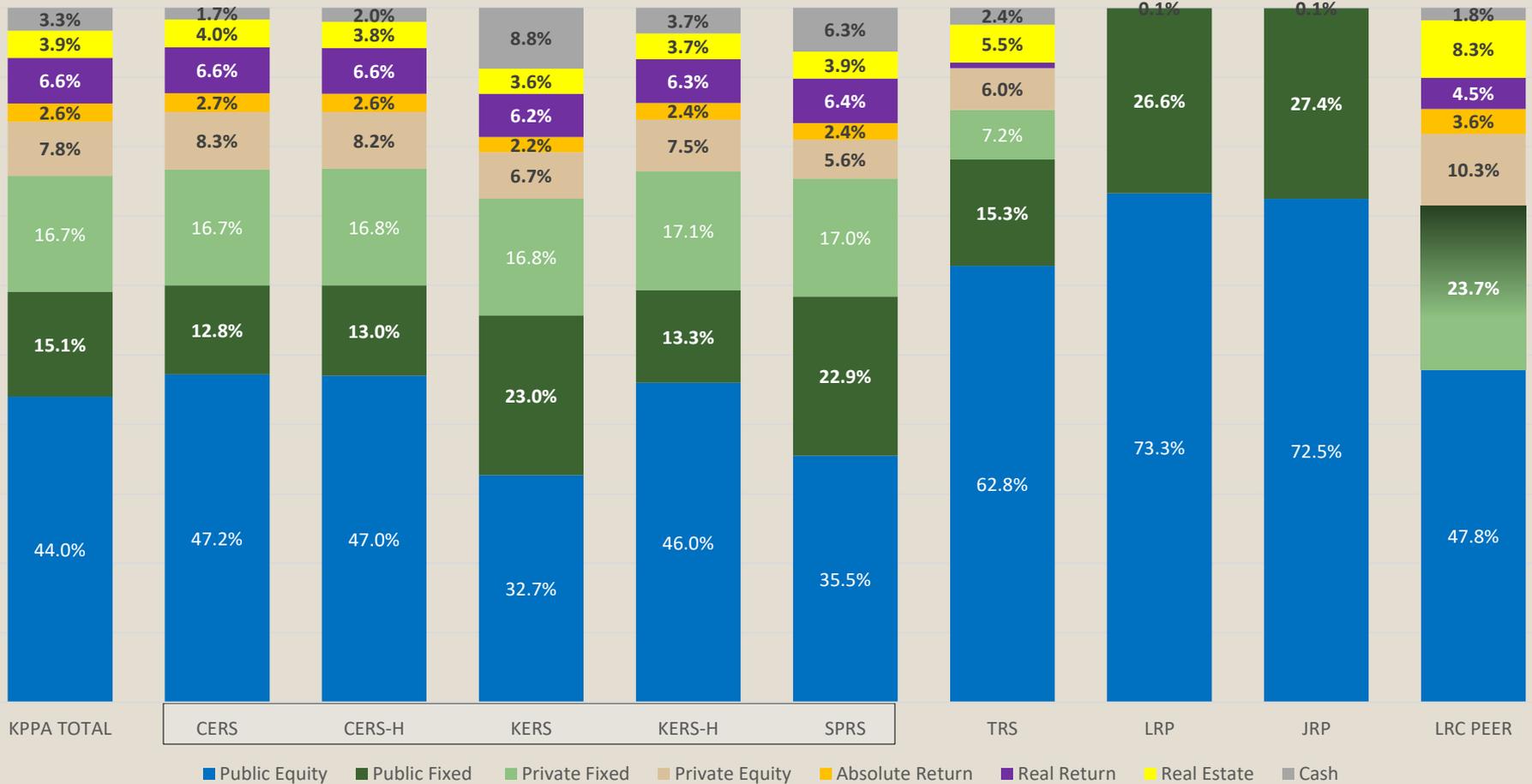
Traditional Assets

Alternative Assets

Asset Class	Description	LRC Peer %
Traditional Assets	<b>Public Equity</b> U.S. Equity: Publicly traded stocks listed on U.S. exchange. Includes Large, Middle, and Small Capitalization companies. Very liquid, but tend to have higher volatility. Non-U.S. Equity: Public stocks listed outside U.S. in local currency. Includes developed and emerging countries. Liquid, have higher return & risk expectation than U.S.	47.8%
	<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.	23.7%
	<b>Cash</b> Cash Investments.	1.8%
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.	26.7%
	<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.	

# ASSET ALLOCATION → *Ky. Systems FY 2021*

As of June 30, 2021

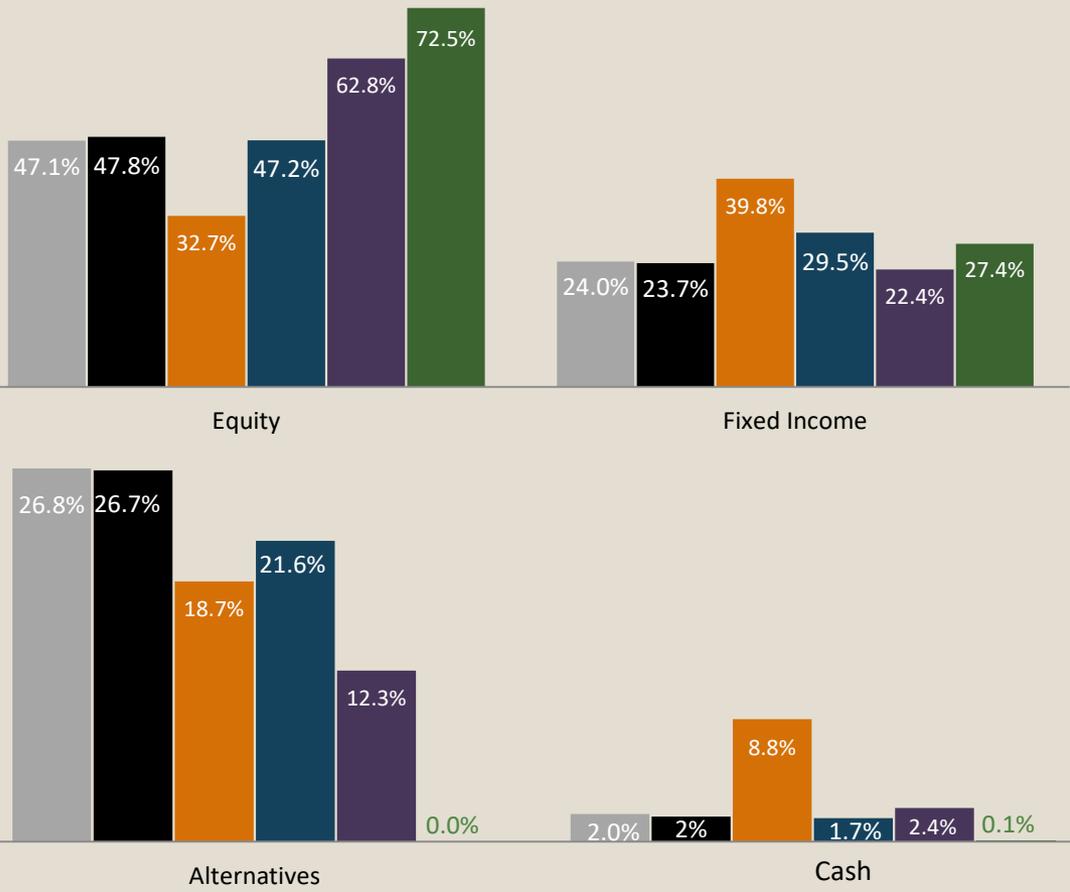


■ Public Equity 
 ■ Public Fixed 
 ■ Private Fixed 
 ■ Private Equity 
 ■ Absolute Return 
 ■ Real Return 
 ■ Real Estate 
 ■ Cash

# ASSET ALLOCATION → Allocation Vs. Peers

## Peer Comparisons

■ NASRA Peer ■ LRC Peer ■ KERS ■ CERS ■ TRS ■ JRP



### KERS NH

- Below avg. allocation to equities and alternatives
- Above avg. allocation to fixed income & cash

### CERS NH

- More closely resembles avg. public pension plan

### TRS

- Above average allocation to equities, below avg. allocation to alternatives

### JRP

- Above avg. allocation to equities, no alternatives.

NOTE: NASRA Peer reported on NASRA website for 2020; LRC Peer from 2020 FY

# FEES → Trend of Kentucky Plans (6/30/21)

10

- **KPPA – Management Fees have continue to decline historically on bps, incentive fees variable**

- Management fees tied to market value, so as fund assets increase = more fee dollars
- Incentive fees tied to return or performance of asset

- **TRS – Management Fees remain low, 2020/2021 financial reports included carried interest Information**

- Management fees tied to market value, so as fund assets increase = more fee dollars
- TRS has started reporting carried interest since last review (2020 and 2021 financial reports).

- **JFRS – Lowest fee structure**

- **Retiree Health Fund Expenses 2021:**

- KPPA: \$71.0 M total fees or 102.3 bps (mgt. fee: \$29.9 M or 43.1 bps, incentive fee: \$41.1 M or 59.2 bps)
- TRS: \$16.8 M total fees or 75.9 bps (mgt. fee: \$6.6 M or 29.9 bps, incentive fee: \$10.2 M or 46.0 bps)
- JFRS: Included in above chart

KPPA - PENSION						
FY	Total Fees		Management Fees		Incentive Fees/CI	
	Dollars	bps <sup>1</sup>	Dollars	bps <sup>1</sup>	Dollars	bps <sup>1</sup>
2019	\$94.4 M	74.1	\$60.3 M	47.3	\$34.1 M	26.8
2020	\$56.5 M	44.4	\$54.1 M	42.5	\$2.4 M	1.9
2021	\$139.5 M	88.4	\$62.1 M	39.3	\$77.5 M	49.1

TRS - PENSION						
FY	Total Fees		Management Fees		Incentive Fees/CI	
	Dollars	bps <sup>1</sup>	Dollars	bps <sup>1</sup>	Dollars	bps <sup>1</sup>
2019	\$61.2 M	30.2	\$61.2 M	30.2	See Note	
2020	\$62.6 M	30.5	\$64.1 M	31.2	-\$1.5 M	-0.7
2021	\$147.0 M	57.1	\$71.3 M	27.7	\$75.7 M	29.4

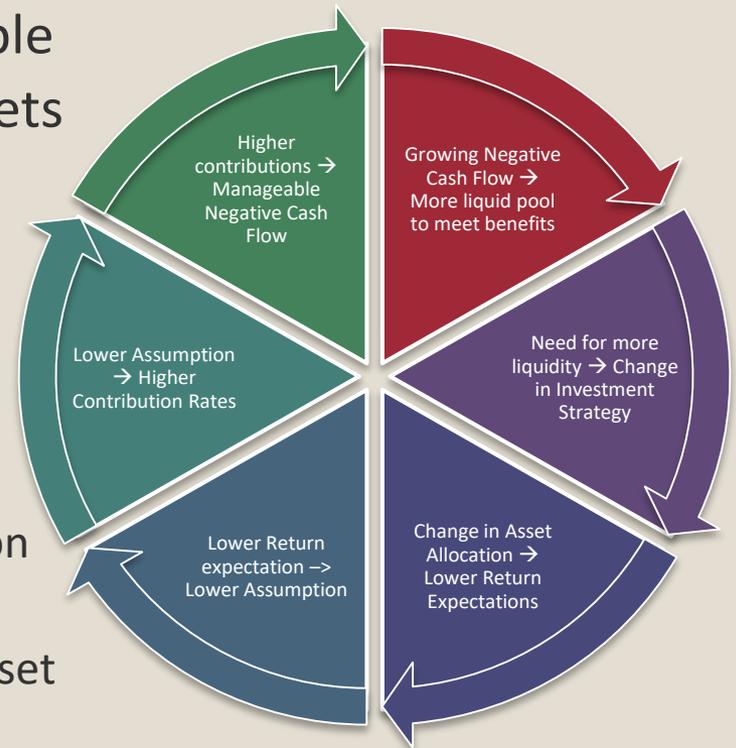
JFRS		
FY	Total Fees	
	Dollars	bps <sup>1</sup>
2019	\$445 K	8.0
2020	\$442 K	8.2
2021	\$658 K	8.8

<sup>1</sup> Calculated using End Year Balance of Fair Market Value of Assets

# CASH FLOW → Summary

11

- Net Cash Flow = **C**ontributions – **B**enefits - **E**xpenses
- More plans having to manage Negative Net Cash Flow
  - Plans are maturing, retirees and benefit amounts increasing
- Negative CF not necessarily implying trouble
- Measuring negative CF as a percent of assets can serve as warning
  - As funding declines, assets decline
  - Negative CF becomes larger %
- At what level is negative CF okay?
  - No specific standard, depends on plan/actuary
  - Research indicates range of 3-5%, but depends on funding plan, health, and market experience
  - Portfolio income should offset majority, allow asset growth/funding to remain stable



# CASH FLOW → *Current by Plan*

12

- Mix of negative/positive cash flow, most similar to prior year
  - KERS – Continued higher contributions have led to positive CF in recent years. Had exceeded 3-5% threshold for several years prior to 2019.
  - CERS – Negative cash flow has fallen within range of negative 3-5% since 2009.
  - TRS – Additional contributions have helped reduce negative cash flow back within range.
  - LRP/JRP: Near or above 5% threshold. However, both LRP/JRP are near or above 100% funded. Employer contribution to LRP has been \$0 since FY 2019 (budget decision).

<i>Funding Level</i>	16.8%	51.8%	30.7%	57.2%	94.7%	108.9%
<i>As of June 30, 2021</i>	<b>KERS</b>	<b>CERS</b>	<b>SPRS</b>	<b>TRS</b>	<b>JRP</b>	<b>LRP</b>
Net Plan Assets BOY (M)	\$2,362.2	\$7,110.9	\$295.0	\$20,717.0	\$341.4	\$76.6
Cash Flow (M)	\$18.7	(\$224.5)	\$0.6	(\$798.4)	(\$16.1)	(\$5.1)
CF as % Assets	0.8%	(3.2%)	0.2%	(3.9%)	(4.7%)	(6.6%)
Investment Income <sup>1</sup> (M)	\$50.63	\$135.71	\$5.89	\$257.59	\$7.68	\$1.53
Yield as % of Assets	2.1%	1.9%	2.0%	1.2%	2.2%	2.0%
2020 Cash Flow	\$21.9	(\$188.8)	\$1.4	(\$748.9)	(\$13.5)	(\$4.8)
CF as % Assets	1.0%	(2.6%)	0.5%	(3.7%)	(4.0%)	(6.2%)

<sup>1</sup> Does not include asset gains or losses

# PENSION PERFORMANCE → 12/31/2021

13

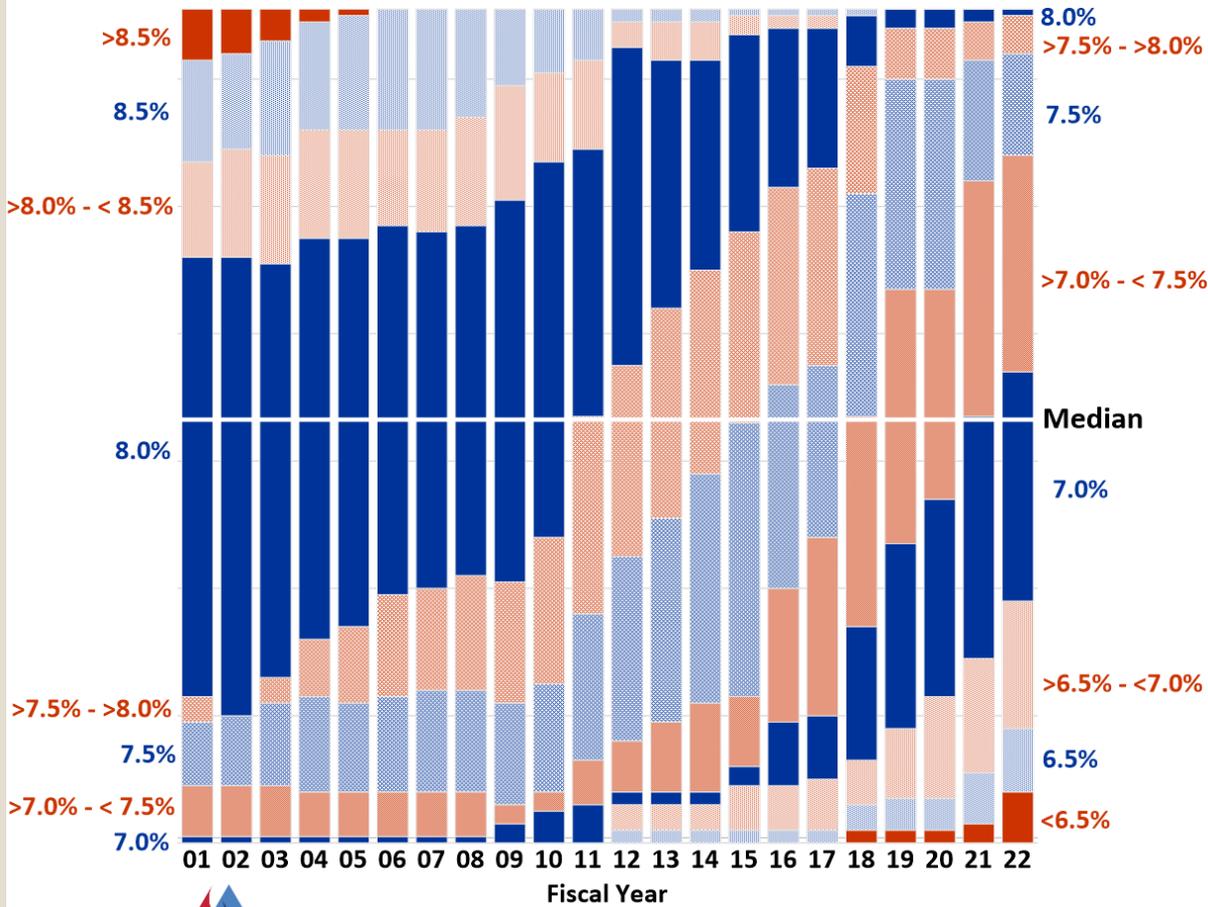
<i>As of 12/31/2021</i>	<b>FYTD</b>	<b>1 –Year</b>	<b>3-Year</b>	<b>5-Year</b>	<b>10-Year</b>	<b>20-Year</b>	<b>AROR</b>
<b>KERS-Nonhaz Pension (N)</b>	<b>3.41%</b>	<b>12.38%</b>	<b>11.84%</b>	<b>9.56%</b>	<b>8.52%</b>	<b>6.77%</b>	5.25%
Policy Benchmark	3.64%	11.38%	11.45%	9.08%	8.54%	6.79%	
<b>KERS-Haz Pension (N)</b>	<b>4.47%</b>	<b>14.39%</b>	<b>12.95%</b>	<b>10.37%</b>	<b>8.96%</b>	<b>6.99%</b>	6.25%
Policy Benchmark	4.35%	13.79%	12.85%	10.17%	9.02%	7.02%	
<b>SPRS Pension (N)</b>	<b>3.65%</b>	<b>12.13%</b>	<b>11.81%</b>	<b>9.51%</b>	<b>8.38%</b>	<b>6.70%</b>	5.25%
Policy Benchmark	3.64%	11.38%	11.45%	9.20%	8.53%	6.78%	
<b>CERS-Nonhaz Pension (N)</b>	<b>4.74%</b>	<b>15.03%</b>	<b>13.23%</b>	<b>10.54%</b>	<b>9.04%</b>	<b>7.03%</b>	6.25%
Policy Benchmark	4.35%	13.79%	12.85%	10.18%	9.02%	7.02%	
<b>CERS-Haz Pension (N)</b>	<b>4.68%</b>	<b>14.85%</b>	<b>13.12%</b>	<b>10.48%</b>	<b>9.02%</b>	<b>7.02%</b>	6.25%
Policy Benchmark	4.35%	13.79%	12.85%	10.17%	9.02%	7.02%	
<b>TRS Pension (N)<sup>1</sup></b>	<b>4.43%</b>	<b>13.84%</b>	<b>17.27%</b>	<b>12.63%</b>	<b>10.98%</b>	<b>7.57%</b>	7.10% <sup>2</sup>
Policy Benchmark <sup>1</sup>	6.05%	16.49%	17.13%	12.53%	10.89%	See Note	
<b>LRP Pension (N*)</b>	<b>9.1%</b>	<b>23.9%</b>	<b>22.2%</b>	<b>15.5%</b>	<b>14.4%</b>	<b>8.8%</b>	6.50%
Policy Benchmark	8.0%	21.1%	20.5%	14.4%	See Note	See Note	
<b>JRP Pension (N*)</b>	<b>9.0%</b>	<b>23.9%</b>	<b>22.2%</b>	<b>15.6%</b>	<b>14.4%</b>	<b>8.8%</b>	6.50%
Policy Benchmark	8.0%	21.1%	20.5%	14.4%	See Note	See Note	

(N) Net of Fee Return \* JFRS 1-, 3-, 5- and 10- year returns are net of fee, longer term are gross. Excludes Cash Balance Assets.

<sup>1</sup> 30 year returns are gross. TRS did not benchmark overall performance prior to July 1, 2008. <sup>2</sup> TRS Assumption moved to 7.1% effective July 1, 2021

# SPECIAL TOPIC → *Assumed Rates of Return*

Distribution of Investment Return Assumptions, FY 01 to present



- The National Association of State Retirement Administrators (NASRA) collects data on public pension plans including the investment return assumption.
- Since 2000, the median assumed rate of return among pension plans has dropped from 8% to 7%.
- Ky. AROR (pension):
  - KERS NH/SPRS: 5.25%
  - CERS: 6.25%
  - TRS: 7.1% (2021 change)
  - JFRS/LRP: 6.5%



# SPECIAL TOPIC → Investment Return Assumption

15

<b>Ky. KERS/SPRS</b>	<b>5.25</b>	Connecticut SERS/Teachers	6.90	Orange County ERS	7.00	Missouri PEERS/Teachers	7.30
NY State & Local/P&F	5.90	Ohio PERS	6.90	Pennsylvania School Employees/State ERS	7.00	New Jersey PERS <sup>10,7</sup>	7.30
Indiana PERF/Teachers	6.25	Oregon PERS	6.90	Phoenix ERS	7.00	New Jersey Teachers/Police & Fire <sup>10</sup>	7.30
<b>Kentucky CERS</b>	<b>6.25</b>	Missouri State Employees	6.95	Rhode Island ERS/Municipal	7.00	Nebraska Schools	7.31
Idaho PERS	6.30	New York State Teachers	6.95	Richmond Retirement System	7.00	Michigan Municipal	7.35
Louisiana Parochial Employees	6.40	Utah Noncontributory	6.95	San Diego County	7.00	Alaska PERS/Teachers	7.38
DC Police & Fire/Teachers	6.50	Arizona SRS	7.00	South Carolina Police/RS	7.00	San Francisco City & County	7.40
Illinois Universities	6.50	California Teachers	7.00	Texas ERS/LECOS	7.00	Washington LEOFF Plan 2	7.40
Maine Local/State & Teacher	6.50	City of Austin ERS	7.00	Vermont State Employees/Teachers	7.00	Louisiana Teachers <sup>5</sup>	7.45
North Carolina Local Govt./State & Teacher	6.50	Colorado Affiliated Local/Fire & Police	7.00	Wyoming Retirement System	7.00	Arkansas State Highway ERS	7.50
Oklahoma PERS	6.50	Contra Costa County	7.00	<b>Kentucky TRS</b>	<b>7.10</b>	Minnesota State Employees/Teachers/PERF	7.50
San Diego City	6.50	Delaware State Employees	7.00	Arkansas PERS	7.15	Montana Teachers	7.50
South Dakota RS	6.50	Hawaii ERS	7.00	Georgia ERS <sup>2</sup>	7.20	Nevada P&F/Regular Employees	7.50
Michigan SERS <sup>7</sup>	6.70	Houston Firefighters	7.00	Arkansas Teachers	7.25	St. Louis School Employees	7.50
Chicago Teachers	6.75	Illinois Teachers	7.00	Colorado Municipal/School/State	7.25	St. Paul Teachers	7.50
Illinois SERS	6.75	Iowa PERS	7.00	Denver Employees/Public Schools	7.25	Texas County & District	7.50
New Hampshire Retirement System	6.75	LA County ERA	7.00	Fairfax County Schools	7.25	Washington LEOFF/Schol/PERS/Teachers	7.50
Texas Municipal	6.75	Massachusetts SERS/Teachers	7.00	Georgia Teachers	7.25	Louisiana SERS <sup>4</sup>	7.55
University of California	6.75	Missouri DOT and Highway Patrol	7.00	Illinois Municipal	7.25	Mississippi PERS <sup>8</sup>	7.55
Virginia Retirement System	6.75	Missouri Local	7.00	New Mexico PERA	7.25	Montana PERS	7.65
California PERF <sup>1</sup>	6.80	New Mexico Teachers	7.00	North Dakota Teachers	7.25	Alabama ERS & Teachers	7.70
Florida RS	6.80	New York City ERS/Teachers	7.00	Texas Teachers	7.25	Kansas PERS	7.75
Maryland PERS/Teachers	6.80	North Dakota PERS	7.00	TN Political Subdivisions/State & Teachers	7.25	Ohio Police & Fire	8.00
Michigan Public Schools <sup>6,7</sup>	6.80	Ohio School Employees/Teachers	7.00	West Virginia PERS/Teachers	7.25		
Wisconsin Retirement System	6.80	Oklahoma Teachers	7.00	Arizona Public Safety Personnel	7.30		

Source: National Association of State Retirement Administrators (NASRA), January 2022 Update

# STATUTORY REVIEW → *Other Topics*

16

- To meet statutory requirements, staff has reviewed the following:
  - Total Fund Objectives
    - ✦ Desire to meet Actuarial Return target of 5.25% (KERS-NH and SPRS), 6.25% (CERS, KERS-H), 6.5% (LRP/JRP), or 7.5% (TRS) which is moving to 7.1% this year
    - ✦ Desire to exceed Policy Benchmarks over market cycle (5 and 10 year periods)
  - Policies and Oversight
    - ✦ KRS: Policies available online
    - ✦ CERS: Policies available online
    - ✦ TRS – Investment Policy recorded as Administrative Regulation (102 KAR 1:175).  
Board Governance manual, which includes several policies, available online
    - ✦ LRP/JRP - Policy available online
  - Securities Litigation and Annual Recoveries (6/30/21)
    - ✦ KPPA – Filed 43 claims. \$286,720 proceeds received
    - ✦ TRS – Filed 14 claims. \$593,939 proceeds received
    - ✦ LRP/JRP – No claims filed. \$1,874 proceeds received

# INVESTMENT REVIEW → *Benchmarks*

17

- **Asset Class and Total Fund Benchmarks (6/30/21)**

- All plans using recognized and industry known indices
- Alternative indices limited, most plans using a public index + model

KPPA Asset Class	KERS BM%	CERS BM%	Benchmark
US Equity	16.25%	21.75%	Russell 3000
Non US Equity	16.25%	21.75%	MSCI ACWI Ex US IMI
Private Equity	7.00%	10.00%	Actual Performance (< 5Yrs) Russell 3000 + 300 bps^ (> 5Yrs)
High Yield/ Specialty Credit	15.00%	15.00%	50% S&P Leverage Loan +50% Barclays Corp US High Yield
Core Fixed	20.50%	10.00%	Bloomberg Barclays US Aggregate
Cash	5.00%	1.50%	Citigroup 3-Mo Treasury Bill
Real Estate	10.00%	10.00%	NCREIF ODCE^
Opportunistic/HF	0.00%	0.00%	Highest Assumed Rate of Participating Plans
Real Return	10.0%	10.0%	US CPI + 3%

^1 Quarter in Arrears Index

TRS Asset Class	BM%	Benchmark
US Equity	40.0%	S&P 1500
Non US Equity	22.0%	MSCI ACWI Ex US
Fixed Income	15.0%	Barclays Government/Credit
Real Estate	7.0%	Inhouse: CPI + 2% Core: NCREIF ODCE Noncore: NCREIF
Timberland	1.0%	NCREIF Timberland
Private Equity	6.0%	Actual Perf (< 5Yrs) S&P500 + 3% (>5+ Yrs)
Additional Categories	7.0%	Merrill Lynch US High Yield II
Cash	2.0%	90 Day T-Bill

JFRS Asset Class	BM%	Benchmark
US Equity	70%	S&P 500
Fixed Income	30%	Barclays US Gov't/ Credit Intern.

# REVIEW → Allocation & Targets (6/30/21)

18

- Current Asset Allocation, Targets, and allowable ranges (6/30/21)
  - TRS: No change to targets/ranges from prior year, within ranges
  - KERS/CERS has made adjustments targets/ranges, out of range in liquidity/diversifying assets, KERS NH cash allocation growing
  - JFRS: No Change to targets/ranges, within ranges

**KPPA Nonhazardous Plans (6/30/21)**

	KERS NH			CERS NH		
	Actual	Target	Range	Actual	Target	Range
<b>GROWTH</b>	<b>56.17%</b>	<b>54.5%</b>	<b>46.33-62.68%</b>	<b>72.12%</b>	<b>68.5%</b>	<b>58.23-78.78%</b>
US Equity	16.65%	16.25%	10-25%	23.91%	21.75%	15.23-28.28%
Non US Equity	16.07%	16.25%	10-25%	23.29%	21.75%	15.23-28.28%
Private Equity	6.65%	7.0%	5-15%	8.25%	10.0%	7-13%
H. Yield/Spec. Credit	16.80%	15.0%	10-25%	16.67%	15.0%	10.5-19.5%
<b>LIQUIDITY</b>	<b>31.75%</b>	<b>25.5%</b>	<b>20.4%-30.6%</b>	<b>14.53%</b>	<b>11.5%</b>	<b>9.2-13.8%</b>
Core Fixed	22.95%	20.5%	16.4-24.6%	12.84%	10.0%	8-12%
Cash	8.8%	5.0%	0-10%	1.69%	1.5%	0-3%
<b>DIVERSIFYING</b>	<b>9.86%</b>	<b>20.0%</b>	<b>17-23%</b>	<b>13.35%</b>	<b>20.0%</b>	<b>17-23%</b>
Real Estate	3.59%	10.0%	7-13%	4.01%	10.0%	7-13%
Real Return	6.27%	10.0%	7-13%	6.66%	10.0%	7-13%
<b>OPPORTUNISTIC/HF</b>	<b>2.22%</b>	<b>0.0%</b>	<b>0-5%</b>	<b>2.68%</b>	<b>0.0%</b>	<b>0-5%</b>

**TRS (6/30/21)**

	Actual	Target	Range
US Equity	41.7%	40.0%	34-48%
Non US Equity	21.1%	22.0%	18-25%
Fixed Income	15.3%	15.0%	8-22%
Real Estate	5.5%	7.0%	4-10%
Alternative Investments	6.8%	7.0%	4-10%
Additional Categories	7.2%	7.0%	4-15%
Cash	2.4%	2.0%	1-5%

<sup>1</sup> Includes PE, Venture Capital, Timber, and Infrastructure Investment

**JFRS Plans (6/30/21)**

	JRP		LRP		Range
	Actual	Target	Actual	Target	
<b>US Equity</b>	73.3%	70.0%	72.5%	70.0%	60%-80%
<b>Fixed Income</b>	26.6%	30.0%	27.4%	30.0%	20%-40%
<b>Cash</b>	0.0%	0.0%	0.1%	0.0%	

# INVESTMENT REVIEW

19

Questions?

# APPENDIX A

20

## Historical Asset Allocation by Plan

# ASSET ALLOCATION TREND → *KERS*

21

- **More Recent Changes**

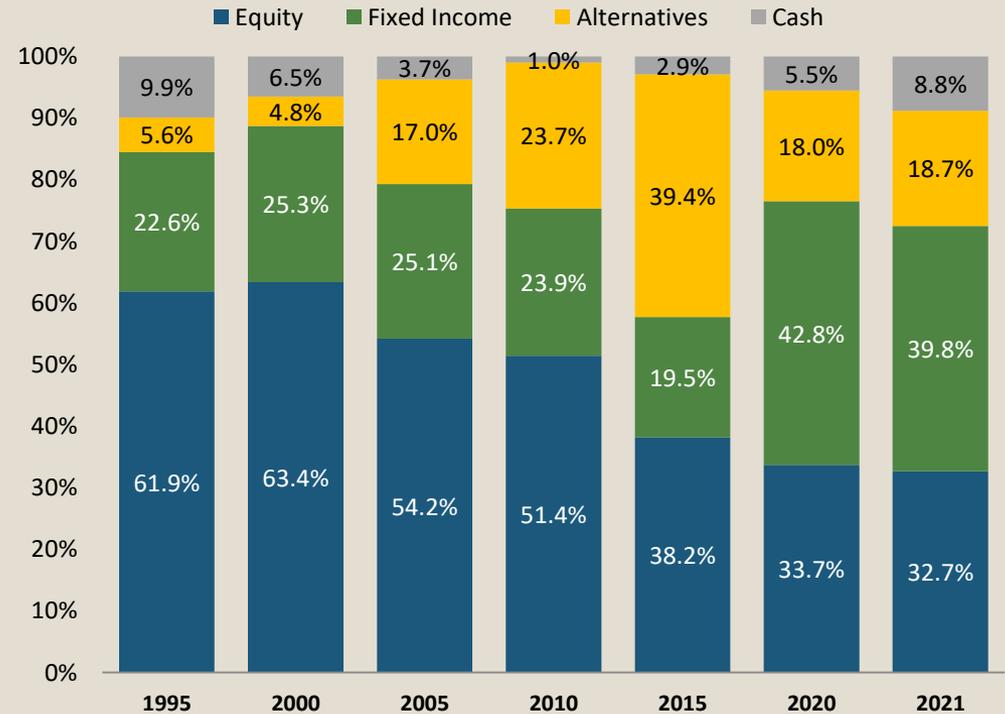
- Allocation to Fixed Income, Cash increased

- **2021 Alternative Allocation includes**

- 2.2% Abs. Return/H. Funds
- 6.7% Private Equity
- 3.6% Real Estate
- 6.2% Real Return

## Kentucky Employees Retirement Systems

*Historic Asset Allocation*



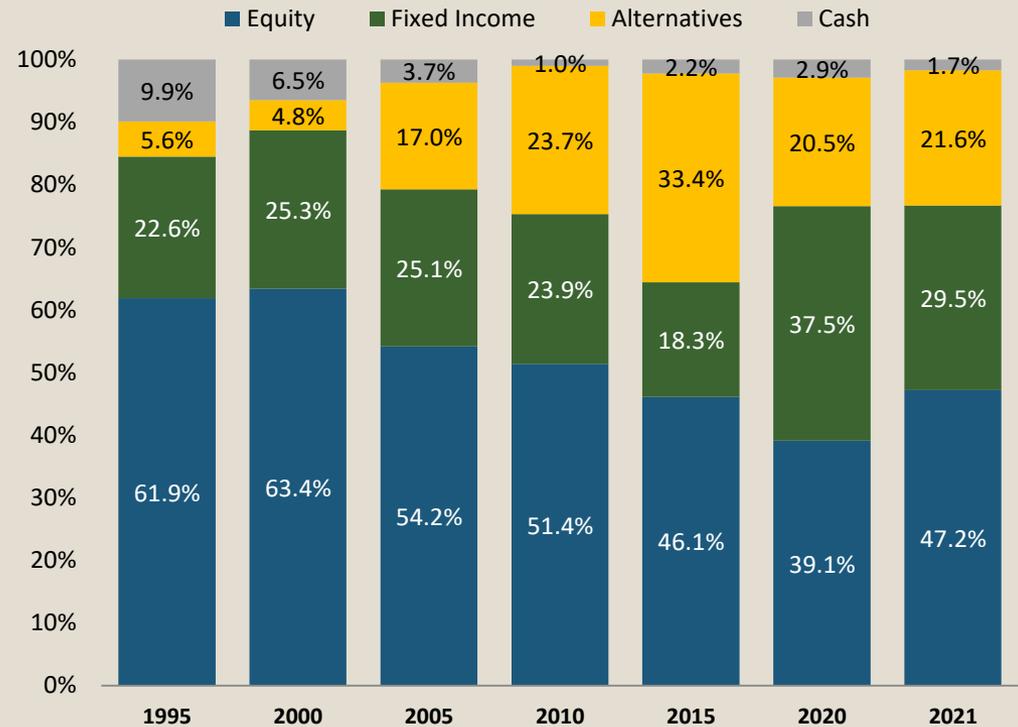
# ASSET ALLOCATION TREND → CERS

22

- CERS more like Peer Group
- 2021 Alternative Allocation includes
  - 2.7% Abs. Return/H. Funds
  - 8.3% Private Equity
  - 4.0% Real Estate
  - 6.6% Real Return

## County Employees Retirement System

*Historic Asset Allocation*



# ASSET ALLOCATION TREND → TRS

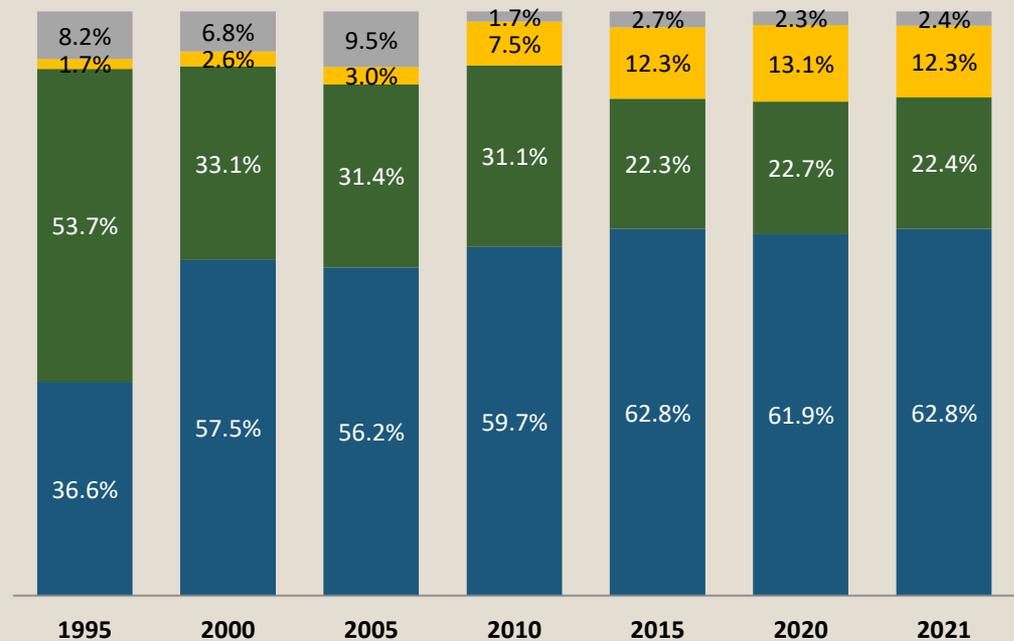
23

- Largely unchanged from prior 2 years
- 2021 Alternative Allocation includes
  - 6.0% Private Equity/Credit
  - 5.5% Real Estate
  - 0.8% Real Return
  - No Abs.Return/Hedge Funds

## Teachers' Retirement System

Historic Asset Allocation

■ US Equity ■ Fixed Income ■ Alternatives ■ Cash



# ASSET ALLOCATION TREND → *JFRS*

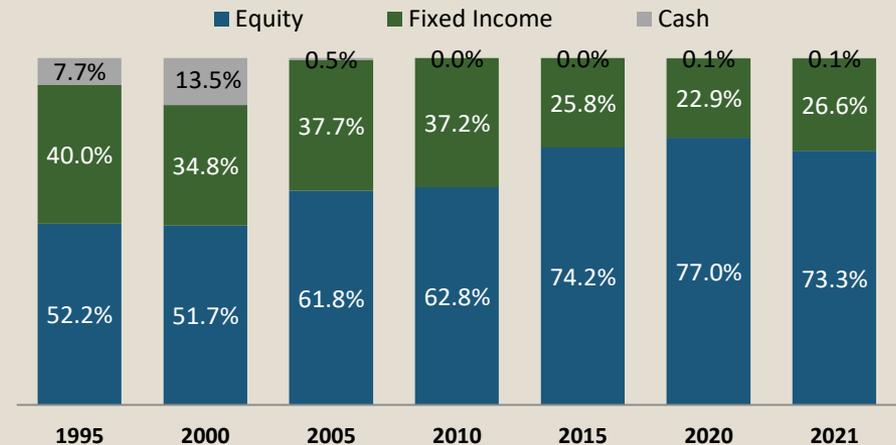
24

- **Plans allocated in traditional assets**

- Only U.S. Equity, primarily Large Cap
- Shorter term bonds, investment grade
- 75/25 Target Allocation

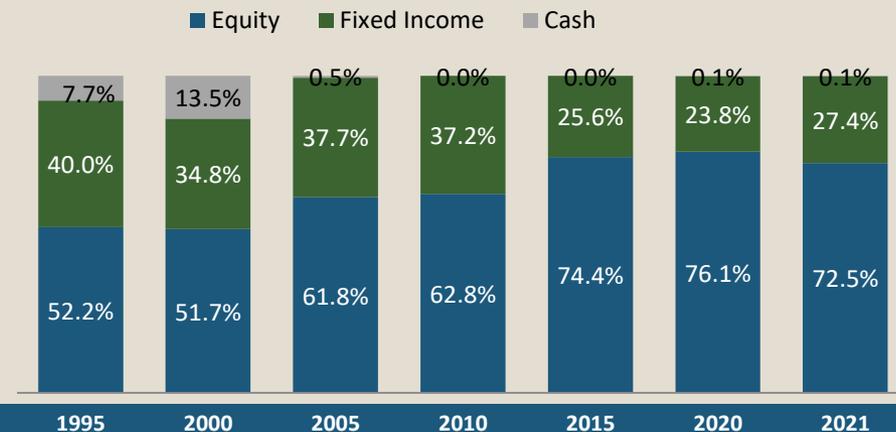
## Legislators' Retirement Plan

Historic Asset Allocation



## Judicial Retirement Plan

Historic Asset Allocation



# APPENDIX B

25

## Retiree Fund Portfolio Performance

# RETIREE HEALTH PERFORMANCE → 6/30/21

26

<i>As of June 30, 2021</i>	<b>1 –Year</b>	<b>3-Year</b>	<b>5-Year</b>	<b>10-Year</b>	<b>AROR</b>
<b>KERS -Nonhaz</b>	<b>25.16%</b>	<b>9.87%</b>	<b>10.26%</b>	<b>7.35%</b>	6.25%
Policy Benchmark	23.90%	9.57%	10.19%	7.83%	
<b>KERS – Haz</b>	<b>24.97%</b>	<b>9.76%</b>	<b>10.37%</b>	<b>7.55%</b>	6.25%
Policy Benchmark	23.90%	9.57%	10.20%	7.86%	
<b>CERS - Nonhaz</b>	<b>24.78%</b>	<b>9.81%</b>	<b>10.45%</b>	<b>7.61%</b>	6.25%
Policy Benchmark	23.90%	9.57%	10.17%	7.88%	
<b>CERS – Haz</b>	<b>24.98%</b>	<b>9.86%</b>	<b>10.50%</b>	<b>7.65%</b>	6.25%
Policy Benchmark	23.90%	9.57%	10.17%	7.88%	
<b>SPRS</b>	<b>25.34%</b>	<b>10.08%</b>	<b>10.65%</b>	<b>7.71%</b>	6.25%
Policy Benchmark	23.90%	9.57%	10.17%	7.88%	
<b>TRS Insurance</b>	<b>31.13%</b>	<b>12.52%</b>	<b>12.07%</b>	<b>8.47%</b>	8.0% <sup>1</sup>
Policy Benchmark <sup>1</sup>	29.96%	12.29%	12.1%	See Note	

# RETIREE HEALTH PERFORMANCE → 12/31/21

27

<i>As of June 30, 2021</i>	<b>FYTD</b>	<b>1 –Year</b>	<b>3-Year</b>	<b>5-Year</b>	<b>10-Year</b>	<b>AROR</b>
<b>KERS -Nonhaz</b>	<b>4.08%</b>	<b>13.54%</b>	<b>12.90%</b>	<b>9.95%</b>	<b>8.50%</b>	6.25%
Policy Benchmark	4.72%	13.46%	12.61%	10.06%	8.95%	
<b>KERS – Haz</b>	<b>4.99%</b>	<b>14.94%</b>	<b>12.80%</b>	<b>10.30%</b>	<b>8.79%</b>	6.25%
Policy Benchmark	4.72%	13.46%	12.61%	10.10%	8.99%	
<b>CERS - Nonhaz</b>	<b>4.84%</b>	<b>14.58%</b>	<b>12.73%</b>	<b>10.37%</b>	<b>8.84%</b>	6.25%
Policy Benchmark	4.72%	13.46%	12.61%	10.09%	9.00%	
<b>CERS – Haz</b>	<b>5.09%</b>	<b>15.02%</b>	<b>12.85%</b>	<b>10.48%</b>	<b>8.90%</b>	6.25%
Policy Benchmark	4.72%	13.46%	12.61%	10.09%	9.00%	
<b>SPRS</b>	<b>5.12%</b>	<b>15.17%</b>	<b>13.10%</b>	<b>10.62%</b>	<b>8.97%</b>	6.25%
Policy Benchmark	4.72%	13.46%	12.61%	10.09%	9.00%	
<b>TRS Insurance</b>	<b>4.92%</b>	<b>15.58%</b>	<b>16.06%</b>	<b>11.82%</b>	<b>9.23%</b>	7.1% <sup>1</sup>
Policy Benchmark <sup>1</sup>	5.61%	16.58%	16.43%	12.02%	See Note	