

INVESTMENT REVIEW

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Public Pension Oversight Board

October 24th, 2023

INVESTMENT REVIEW

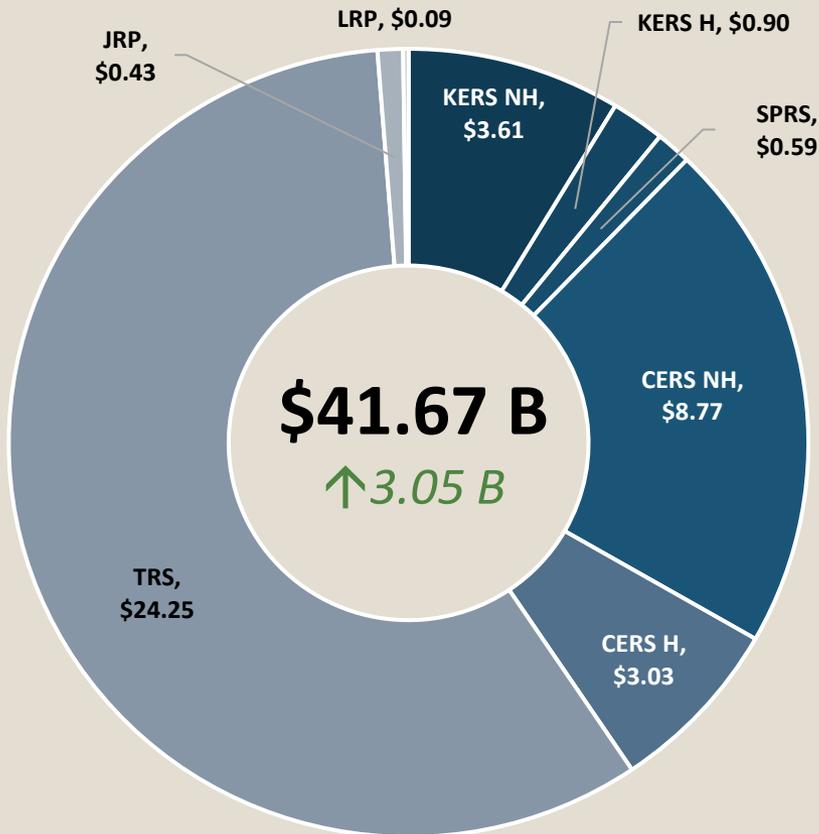
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- Review of Total Assets
- Performance Review and Peer Comparisons
- Allocation Review and Peer Comparisons
- Investment Fees and Expenses
- Net Cash Flow Update
- Special Topics
- Other Required Review Topics (benchmarks, policies, etc.)

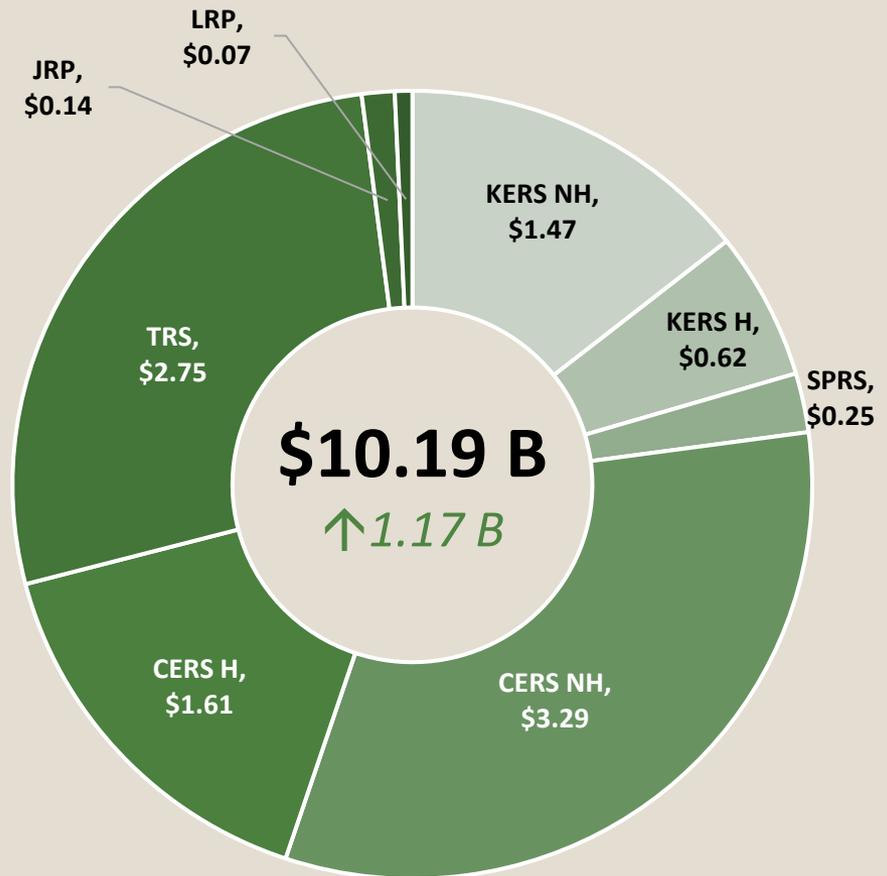
NET PLAN ASSETS → FY 23 Ended

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Pension Fund Assets By System/Plan
(6/30/2023)



R. Health Fund Assets By System/Plan
(6/30/2023)



Notes: Lump-sum payments were made in FY 22 to the SPRS and TRS pension funds totaling \$215 M and \$479.2 M respectively. A lump sum payment was made in FY 23 to the KERS NH pension fund totaling \$240 M (a 2nd pmt. of \$240 M is going into KERS NH pension fund in FY 24).

PERFORMANCE → FY 23 Ended

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Asset Class Performance FY 23

Commentary

Fiscal Year 2023 Returns		
Return	Class	Type
19.60%	US Large Cap	Equity
18.80%	Non-US Developed	Equity
12.30%	US Small Cap	Equity
10.20%	Non-US Small Cap	Equity
9.10%	US High Yield	Fixed Income
3.70%	Cash: T-Bill	Cash
3.70%	Hedge Funds	Alternative
1.80%	Non-US Emerging Market	Equity
-1.30%	Non-US Fixed Income	Fixed Income
-2.60%	US Gov/Credit	Fixed Income
-4.40%	Public Real Estate	Alternative
-5.60%	Private Equity*	Alternative
-6.60%	Private Real Estate	Alternative
-9.60%	Commodities	Alternative

- General
 - After rough FY 22, returns rebounded
 - Inflation rates have been cooling down but still a concern/high
- Avg. FY 23 return of 7.6%
 - FY 22 avg. return of -5.2%
- Returns driven by equities
 - S&P 500 (large cap) up 19.6%
- Alternatives Assets down
 - Process of writing down private asset values likely to carry into FY 24

*KPPA benchmark for private equity (PE).

PERFORMANCE → Pension FY 23 Ended

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<i>As of June 30, 2023</i>	1 –Year	3-Year	5-Year	10-Year	20-Year	30-Year	AROR
KERS-Nonhaz Pension (N)	7.0%	7.5%	6.1%	6.7%	6.7%	7.5%	5.25%
Policy Benchmark	7.0%	7.1%	5.7%	6.4%	6.6%	7.5%	
KERS-Haz Pension (N)	9.5%	8.8%	6.6%	7.1%	6.9%	7.7%	6.25%
Policy Benchmark	8.7%	9.0%	6.7%	7.0%	6.9%	7.7%	
SPRS Pension (N)	7.6%	7.7%	6.2%	6.6%	6.6%	7.5%	5.25%
Policy Benchmark	7.0%	7.1%	5.7%	6.4%	6.6%	7.5%	
CERS-Nonhaz Pension (N)	10.2%	9.3%	6.8%	7.3%	6.9%	7.7%	6.25%**
Policy Benchmark	9.5%	8.8%	6.6%	6.9%	6.9%	7.7%	
CERS-Haz Pension (N)	10.3%	9.2%	6.8%	7.2%	6.9%	7.7%	6.25%**
Policy Benchmark	9.5%	8.8%	6.6%	6.9%	6.9%	7.7%	
TRS Pension (N)¹	10.3%	8.4%	7.2%	8.2%	7.3%	7.7%	7.10%
Policy Benchmark ¹	11.8%	9.3%	7.9%	8.4%	See Note	See Note	
LRP Pension (N*)	15.5%	12.6%	11.2%	10.8%	8.6%	8.8%	6.50%
Policy Benchmark	13.7%	9.5%	9.2%	9.6%	8.0%	8.5%	
JRP Pension (N*)	15.1%	12.4%	11.2%	10.7%	8.6%	8.8%	6.50%
Policy Benchmark	13.7%	9.5%	9.2%	9.6%	8.0%	8.5%	
Peer Groups Median Returns							
Pensions & Investments > \$1 B	7.6%				-	-	
Northern Trust Public Funds Universe	6.6%	8.1%	6.1%				
Trust Universe Public Funds > \$1 B	7.6%	8.3%	6.2%	6.9%	7.0%	7.4%	

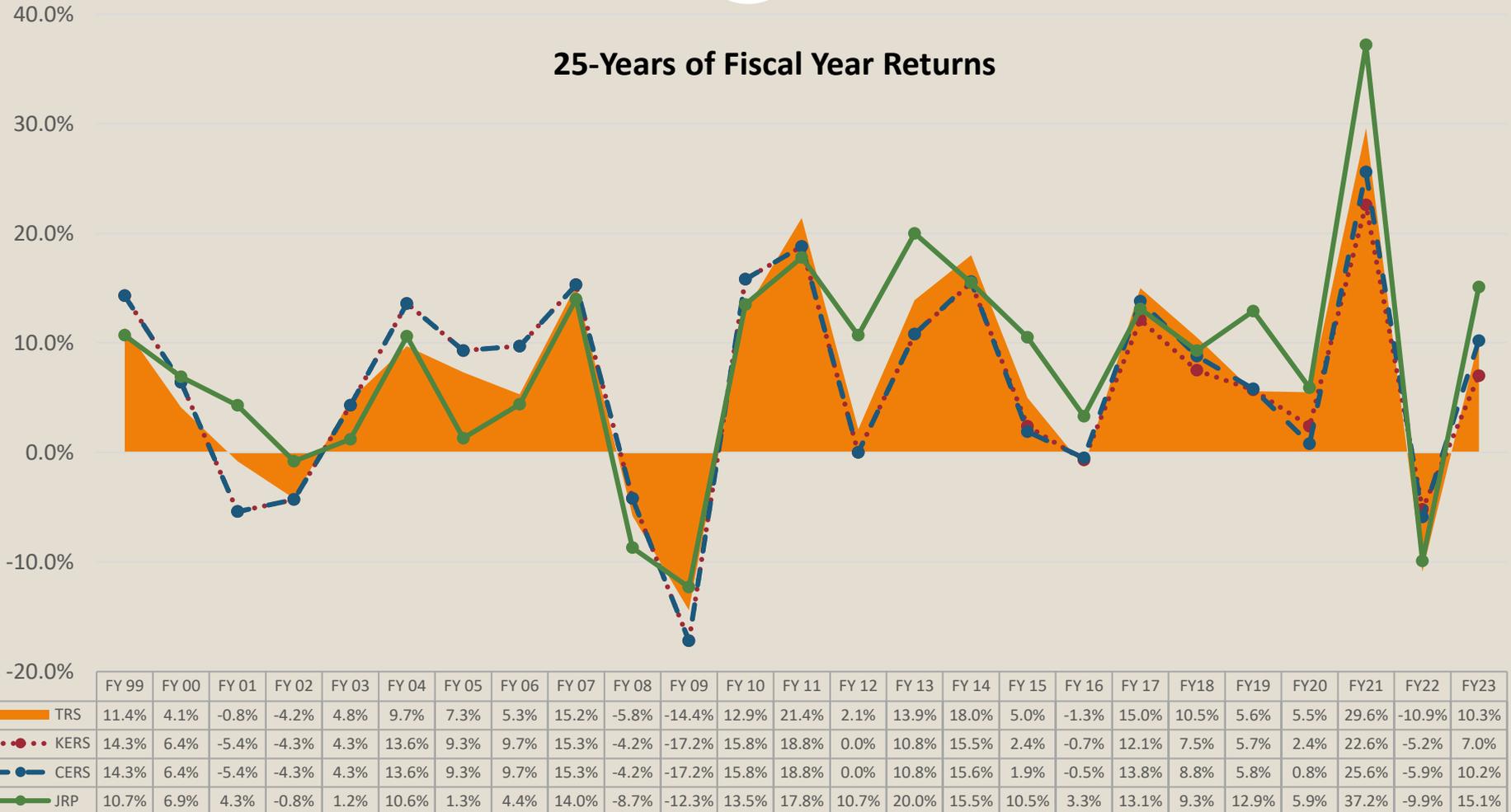
(N) Net of Fee Return * JFRS 1-, 3-, 5-, and 10- year returns are net of fee, longer term are gross ** Moving to 6.5% in 2023 valuation

¹ 30 year returns are gross. TRS did not benchmark overall performance prior to July 1, 2008.

PERFORMANCE → *FY 23 Returns By System*

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25-Years of Fiscal Year Returns



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

ASSET ALLOCATION → *Drives 90% of Returns*

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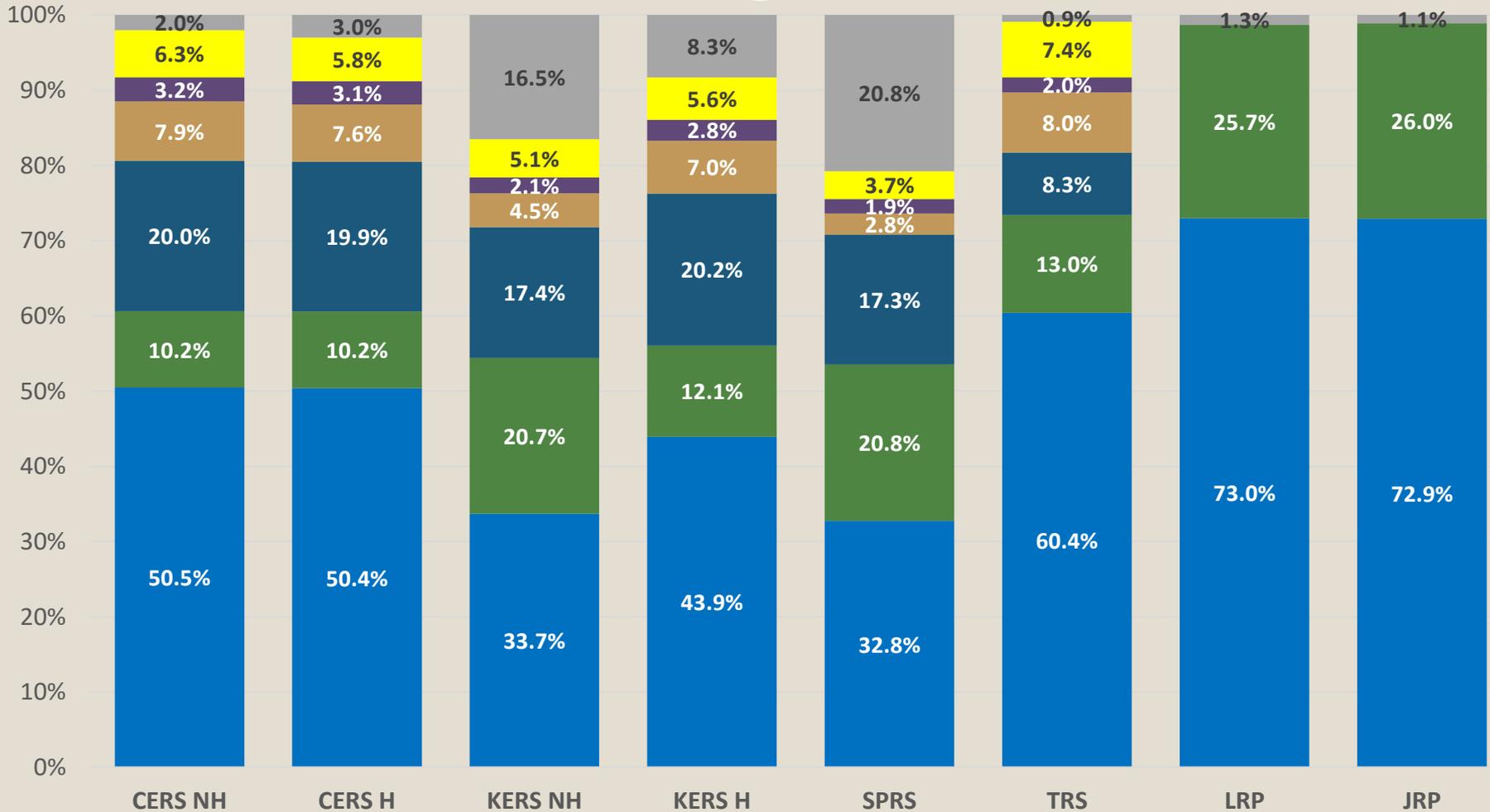
Traditional Assets

Alternative Assets

Asset Class	Description	NASRA Peer
Traditional Assets	Public Equity 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.	47.1%
	Fixed Income 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.	21.2%
	Cash Cash Investments.	2.5%
Alternative Assets	Real Estate 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.	29.4%
	Private Equity/Credit 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.	
	Real Return 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.	
	Absolute Return 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 → *FY 23 By Asset Class*

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

ASSET ALLOCATION → Allocation Vs. Peers

KERS NH

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

CERS NH

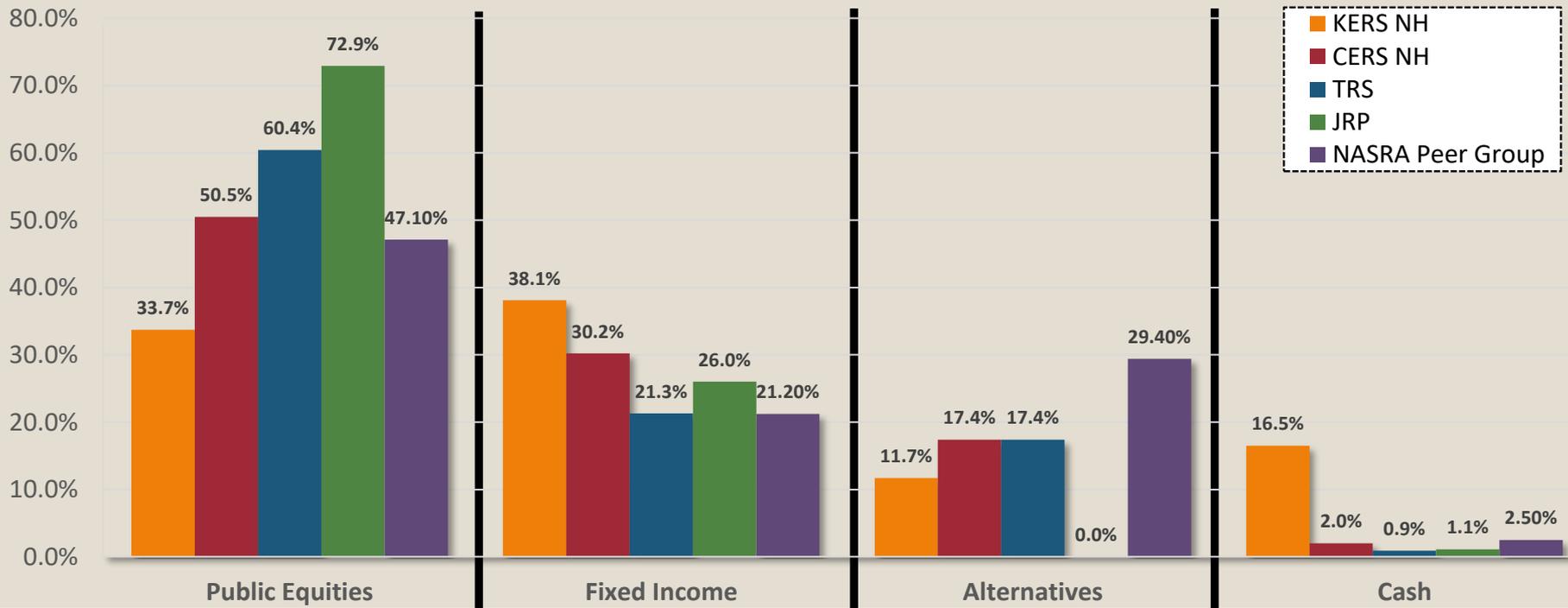
- Above avg. allocation to fixed income
- Below avg. allocation to alternatives

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 2022

FEES → Trend of Kentucky Plans (FY 23 Ended)

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- KPPA – Management Fees have declined in recent years, 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 private assets dropped significantly
- TRS – Management Fees remain low**
 - Management fees tied to market value, so as fund assets increase = more fee dollars
 - TRS had a “clawback” on incentive fees/CI to private assets
- JFRS – Lowest fee structure**
- Retiree Health Fund Expenses 2023:**
 - KPPA: \$34.2 M total fees or bps (mgt. fee: \$24.9 M or 35 bps, incentive fee: \$9.3 M or 13 bps)
 - TRS: \$6.5 M total fees or 27 bps (mgt. fee: \$8.4 M or 35 bps, incentive fee: -\$1.9 M or -8 bps)
 - JFRS: Included in above chart

KPPA - PENSION						
FY	Total Fees		Management Fees		Incentive Fees/CI	
	Dollars	bps ¹	Dollars	bps ¹	Dollars	bps ¹
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
2022	\$149.7 M	94.8	\$50.5 M	32.0	\$99.2 M	62.8
2023	\$70.0 M	41.9	\$53.1 M	31.8	\$16.9 M	10.0

TRS - PENSION						
FY	Total Fees		Management Fees		Incentive Fees/CI	
	Dollars	bps ¹	Dollars	bps ¹	Dollars	bps ¹
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
2022	\$149.2 M	66.5	\$64.0 M	28.5	\$85.2 M	38.0
2023	\$64.3 M	26.9	\$78.9 M	33.0	-\$14.6 M	-6.1

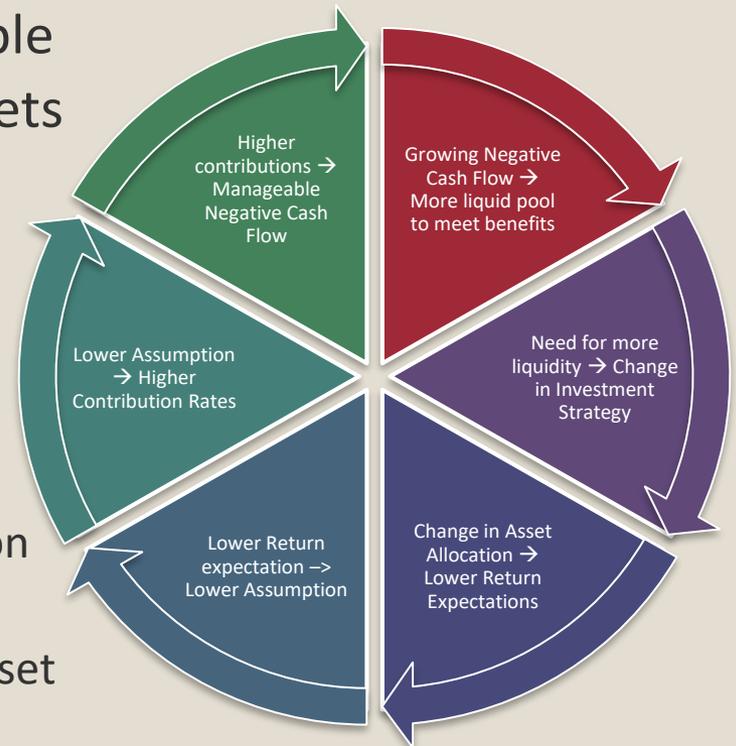
JFRS		
FY	Total Fees	
	Dollars	bps ¹
2020	\$442 K	8.2
2021	\$658 K	8.8
2022	\$618 K	9.7
2023	\$536 K	7.4

¹ Calculated using End Year Balance of Fair Market Value of Assets

CASH FLOW → Summary

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- 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*

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• Mix of positive & negative cash flow

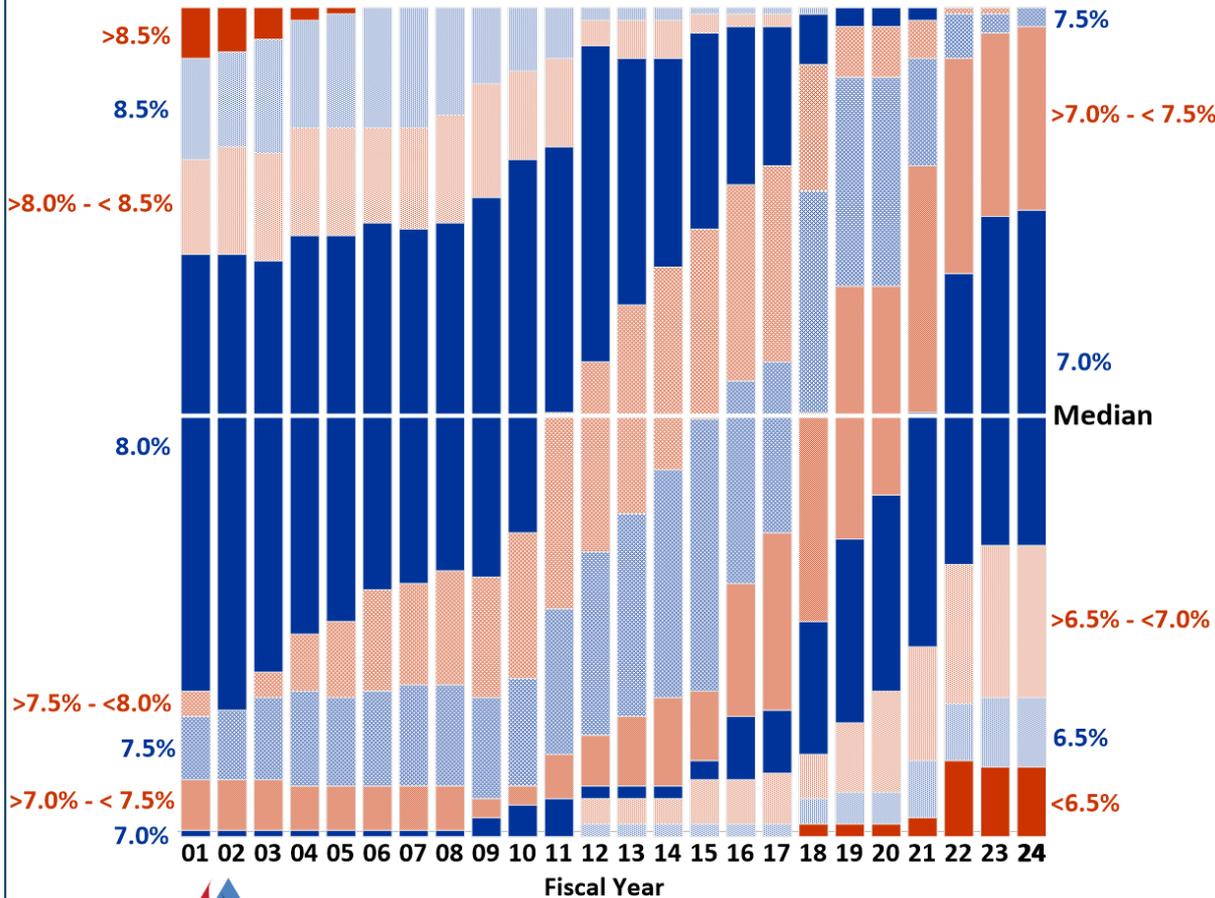
- KERS NH– Continued higher contributions/extra approp. have led to positive CF in recent years and improved in 2023. HB 8 funding creates improved CF stability. Had exceeded 3-5% threshold for many years prior to 2019. Positive CF as a % of assets above 10% due in part to \$240 M additional appropriations. W/O appropriations value is 2.28%.
- CERS NH – Negative cash flow has fallen since 2009 and is continuing to improve.
- SPRS –Slight negative cash flow. Down from last year where fund received added appropriation of \$215 M.
- TRS – Below 5% threshold but above 4%. Additional contributions since 2009 have helped reduce negative cash flow back within range. Contribution requirements are projected to increase over short to mid-term. Down from last year where fund received added appropriation of \$479.2 M to pay off “Green box” dollars.
- LRP/JRP: Below 5% threshold but above 4%. 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 2022 Valuation</i>	18.5%	52.0%	52.5%	58.8%	94.7%	108.9%
<i>As of June 30, 2023</i>	KERS NH	CERS NH	SPRS	TRS	JRP	LRP
Net Plan Assets BOY (M)	\$3,076.70	\$8,062.30	\$552.90	\$22,900.00	\$510.26	\$147.89
Cash Flow (M)	\$310.10	(\$109.60)	(\$1.00)	(\$918.40)	(\$22.18)	(\$6.41)
CF as % Assets	10.08%	-1.36%	-0.18%	-4.01%	-4.35%	-4.34%
Investment Income ¹ (M)	\$85.50	\$178.00	\$15.40	\$383.40	\$13.84	\$2.83
Yield as % of Assets	2.78%	2.21%	2.79%	1.67%	2.71%	1.91%
2022 Cash Flow	\$94.4	(\$152.60)	\$217.40	(\$303.30)	(\$17.54)	(\$6.10)
CF as % Assets	3.06%	-1.76%	60.78%	-1.17%	-3.01%	-3.61%

¹ Does not include asset gains or losses

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 now 7%.
- Ky. AROR (pension):
 - KERS NH/SPRS: 5.25%
 - CERS: 6.25% moving to 6.5%
 - TRS: 7.1%
 - JFRS/LRP: 6.5%

STATUTORY REVIEW → *Other Topics*

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- To meet statutory requirements of review:
 - Total Fund Objectives
 - ✦ Desire to meet Actuarial Return target of 5.25% (KERS-NH and SPRS), 6.5% (CERS, KERS-H), 6.5% (LRP/JRP), or 7.1% (TRS)
 - ✦ 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 Annual Recoveries (6/30/23)
 - ✦ KPPA – \$259,261 proceeds received
 - ✦ TRS – \$294,867 proceeds received
 - ✦ LRP/JRP – \$0 proceeds received

INVESTMENT REVIEW → *Benchmarks*

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- Asset Class and Total Fund Benchmarks (6/30/23)
 - All plans using recognized and industry known indices
 - Alternative indices limited, most plans using a public index + model

KPPA Asset Class	Benchmark
Public Equity	MSCI ACWI
Private Equity	Russell 3000 + 300 bps (lagged)
High Yield/ Specialty Credit	50% S&P Leverage Loan +50% Barclays Corp US High Yield
Core Fixed	Bloomberg Barclays US Aggregate
Cash	Citigroup 3-Mo Treasury Bill
Real Estate	NCREIF ODCE
Real Return	US CPI + 3%

JFRS Asset Class	Benchmark
US Equity	S&P 500
Fixed Income	Barclays US Gov't/ Credit Interm.

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

REVIEW → Allocation & Targets (FY 23 Ended)

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- Current Asset Allocation, Targets, and Allowable Ranges (6/30/23)
 - TRS: Slight changes to targets/ranges from prior year, within ranges w/slight underweight to cash allowable range
 - KERS: No changes to targets/ranges from prior year, underweight private equity, real estate and real return, overweight to cash
 - CERS: No changes to targets/ranges from prior year, overweight to specialty credit and under weight to real estate and real return

KPPA Nonhazardous Plans (6/30/23)

	KERS NH			CERS NH		
	Actual	Target	Range	Actual	Target	Range
EQUITY						
Public Equity	33.7%	32.5%	24-42%	50.5%	50%	35-65%
Private Equity	4.5%	7%	5%-9%	7.9%	10%	7-13%
FIXED INCOME						
Specialty Credit	17.4%	15%	10.5-19.5%	20.0%	10%	7-13%
Core Fixed	20.7%	20.5%	16.5-24.5%	10.2%	10%	8-12%
Cash	16.5%	5%	0-10%	2.0%	0%	0-3%
INFLATION PROTECTED						
Real Estate	5.1%	10%	7-13%	6.3%	7%	5-9%
Real Return	2.1%	10%	7-13%	3.2%	13%	9-17%

TRS (6/30/23)

	Actual	Target	Range
US Equity	39%	40%	32-48%
Non US Equity	21.4%	22%	16-27%
Fixed Income	13%	15%	8-22%
Real Estate	7.4%	7%	4-10%
Alternative Investments	8%	7%	4-10%
Additional Categories	10.3%	7%	4-15%
Cash	0.9%	2%	1-5%

JFRS Plans (6/30/23)

	JRP		LRP		Range
	Actual	Target	Actual	Target	
US Equity	72.9%	70.0%	73.0%	70.0%	60%-80%
Fixed Income	26.0%	30.0%	25.7%	30.0%	20%-40%
Cash	1.1%	0.0%	1.3%	0.0%	

INVESTMENT REVIEW

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Questions?

APPENDIX A

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Retiree Fund Portfolio Performance

RETIREE HEALTH PERFORMANCE → FY 23

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<i>As of June 30, 2023</i>	1 –Year	3-Year	5-Year	10-Year	AROR
KERS -Nonhaz	9.9%	8.9%	6.5%	6.9%	6.25%
Policy Benchmark	8.7%	8.8%	6.5%	7.0%	
KERS – Haz	9.3%	9.3%	6.7%	7.2%	6.25%
Policy Benchmark	8.7%	8.9%	6.4%	7.0%	
SPRS	9.5%	9.4%	6.9%	7.4%	6.25%
Policy Benchmark	8.7%	8.7%	6.4%	7.0%	
CERS - Nonhaz	10.3%	9.2%	6.7%	7.2%	6.25%
Policy Benchmark	9.5%	8.6%	6.3%	6.9%	
CERS – Haz	10.1%	9.4%	6.8%	7.3%	6.25%
Policy Benchmark	9.5%	8.6%	6.3%	6.9%	
TRS Insurance	11.6%	9.7%	7.5%	7.4%	7.1%
Policy Benchmark ¹	11.5%	9.2%	7.3%	See Note	