July 2024

BUILDING THE TRUST

Investment Management

TEACHER RETIREMENT SYSTEM OF TEXAS

Teacher Retirement System of Texas
1000 Red River Street
Austin, Texas
78701-2698

TEACHER RETIREMENT SYSTEM OF TEXAS MEETING
BOARD OF TRUSTEES
AND
INVESTMENT MANAGEMENT COMMITTEE

All or part of the July 18, 2024, meeting of the TRS Investment Management Committee and Board of Trustees may be held by telephone or video conference call as authorized under Sections 551.130 and 551.127 of the Texas Government Code. The Board intends to have a quorum and the presiding officer of the meeting physically present at the following location, which will be open to the public during the open portions of the meeting: ***1000 Red River, Austin, Texas 78701 in the TRS East Building, 5th Floor, Boardroom.***

The open portions of the July 18, 2024, meeting are being broadcast over the Internet. Access to the Internet broadcast and agenda materials of the meeting is provided at www.trs.texas.gov. A recording of the meeting will be available at www.trs.texas.gov.

AGENDA
July 18, 2024 – 9:30 a.m.

1. Call roll of Committee members.

2. Consider the approval of the proposed minutes of the May 2024 committee meeting – Committee Chair.

3. CIO Update including Fleet Strategy; Talent Management; Accomplishments; Notices; Key Dates and Upcoming Events – Jase Auby.

4. Discuss the First Quarter 2024 Performance Review – Mike McCormick, Aon.

5. Annual Review of External Private Markets – Eric Lang, Grant Walker, Carolyn Hansard and Neil Randall.

6. Consider recommending to the Board adoption of the Strategic Asset Allocation proposal – James Nield and Mike Simmons; Mike McCormick, Aon.

7. Review of proposed modifications to Investment Policy Statement – Katy Hoffman.

NOTE: The Board of Trustees (Board) of the Teacher Retirement System of Texas will not consider or act upon any item before the Investment Management Committee (Committee) at this meeting of the Committee. This meeting is not a regular meeting of the Board. However, because the full Committee constitutes a quorum of the Board, the meeting of the Committee is also being posted as a meeting of the Board out of an abundance of caution.

Minutes of the Investment Management Committee
May 2, 2024

The Investment Management Committee of the Board of Trustees of the Teacher Retirement System of Texas met on May 2, 2024, in the boardroom located on the Fifth Floor in the East Building of TRS' offices located at 1000 Red River Street, Austin, Texas, 78701.

Committee members present:
Mr. David Corpus, Chair
Mr. Jarvis V. Hollingsworth
Ms. Nanette Sissney
Mr. Robert H. Walls, Jr.

Other TRS Board Members present:
Ms. Brittny Allred
Mr. Mike Ball
Mr. James D. Nance
Mr. Elvis Williams

Others present:
Brian Guthrie, TRS
Andrew Roth, TRS
Don Green, TRS
Amanda Jenami, TRS
Heather Traeger, TRS
Jase Auby, TRS
Katy Hoffman, TRS
James Nield, TRS
Stephen Kim, TRS
Dale West, TRS
Brad Gilbert, TRS
Mohan Balachandran, TRS
Kyle Schmidt, TRS
Ashley Baum, TRS
Mike Simmons, TRS
Katherine Farrell, TRS
Suzanne Dugan, Cohen Milstein
Dr. Keith Brown, Board Advisor
Mike McCormick, Aon

Investment Management Committee's Chair, Mr. David Corpus, called the meeting to order at 11:19 a.m.

1. Call roll of Committee members.

Ms. Farrell called the roll. A quorum was present, Mr. Elliott was absent.

2. Consider the approval of the proposed minutes of the December 2023 Committee meeting – Chair David Corpus.

On a motion by Mr. Hollingsworth, seconded by Mr. Walls, the committee voted to approve the proposed minutes for the December 2023 Investment Management Committee meeting as presented.

Mr. Corpus, without objection, announced taking up agenda items 3 and 4 together.

3. Receive an overview of the Investment Management Committee's Calendar Year 2024 Work Plan – Jase Auby.

4. CIO Update including Talent Management; Accomplishments; Notices and Key Dates and Upcoming Events – Jase Auby.

Mr. Jase Auby reported calendar year 2023 ended with an absolute performance of 9.7 percent. He reviewed IMD staff recognition and awards. He announced the recently revised IMD culture statement. He said it is the first revision in 16 years. He said the culture statement changes were the result of an eight member workgroup who was tasked with simplifying and shorten. He pointed out two of the key changes, first was the elevation of accountability and transparency to the first principle and the other being the addition of continuous improvement.

5. Discuss the Fourth Quarter 2023 Performance Review –Mike McCormick, Aon.

Mr. Mike McCormick provided an overview of the Trust's performance. He stated for the one year period for global equities up about 15.7 percent, stable value up almost 4 percent, real return assets down 7.5 and risk parity up 7.8 percent. He said this was a result of an inverse of 2022 where expectations of inflation falling faster than people thought they might and the U.S. economy continuing to grow fairly strong, other parts of the portfolio rebound, the benefits of diversification across major components of the portfolio. He reported in the fourth quarter rates fell and long Treasuries were up 12.7 percent for the quarter.

Mr. McCormick reported a 9.7 percent rate of return, versus 7.6 for the benchmark, about 210 basis points over the benchmark. He said an important takeaway was real estate has added a lot of value. He noted the long Treasury exposure of the fund created a headwind relative to some peer performance. In response to Mr. Hollingworth's inquiry, Mr. McCormick stated other factors for the peer difference would be the structure of the equity portfolio, there is more non-U.S. equities relative to some peers and long Treasuries, the long interest rate exposure within the risk parity. He noted the portfolio is not built to beat peers but is used as a sanity check, the goal as stated in the IPS is to beat the benchmark, achieve actuarial assumed rate of return. He said the changes being considered in the SAA would also address these issues, going more global in equity exposure, and shortening the duration of the bonds.

6. Annual Review of Public Markets – Dale West, Brad Gilbert, Mohan Balachandran, Kyle Schmidt and Ashley Baum.

Mr. Dale West provided an overview, reporting that Public Markets manages about 45 of the Trust across several asset classes. He said the message is a good one, 2023 was a recovery in markets from the drawdowns in 2022, both stocks and absolute return assets had returns in double digits and in excess of the actuarial rate.

Mr. Brad Gilbert stated he would focus on the global equity portion of the asset allocation. He said it represents $69.5 billion that is primarily managed by three teams. He reviewed the public equity portfolio stating 2023 was a strong year with equities as a whole up almost 21 percent.

Mr. Mohan Balachandran provided background on the multi-asset strategies group he runs. He said they run $17 billion in these quant strategies. He said they trade across all countries in the world benchmark so it is a global portfolio. He said the big takeaway here is that in every time frame the alpha has been positive since inception. He noted the one year was especially strong with 536 basis points. He said there are two portfolios in the U.S., a large and a small cap portfolio. He said they too had positive alpha throughout although experiencing a dip in performance during the COVID period but roared back.

Mr. Kyle Schmidt provided an overview of how the quantitative portfolios are constructed. He said they calculated about 9,000 predictions on a daily basis. He said the portfolios are extremely diversified with over 5,000 positions currently. Mr. Gilbert reviewed the strategic partnership group with it being the 16th year of the program. He said it was awarded the Partnership of the Year by Institutional Investor. He then reviewed the stable value hedge funds that have a five percent target and represent about $10 billion. Mr. West concluded by highlighting focus areas for 2024.

Ms. Ashley Baum provided the annual review of the absolute return line item. She noted the absolute return is a unique asset class in the Trust because it is a nonpermanent allocation that sits inside the stable value portfolio. She said the absolute return as of December 31 was at 3.4 percent of the Trust. She said 70 percent of the portfolio is sitting in illiquid credit investments. She reported the one-year return was 15.6 percent. Further discussion was had on Dr. Brown's question of the zero allocation towards this program due it historically been above zero percent target. Mr. West provided an analogy for the program to zero-based budgeting for organizations which creates a need to evaluate the spending versus not spending at all times. Ms. Baum concluded by sharing where the team is focusing in on, what is of interest to the opportunistic team.

7. Semi-Annual Risk Report and Review of Key SAA Risk Metrics – James Nield and Stephen Kim.

Mr. James Nield stated all eight key metrics were all in compliance with TRS policies and guidelines. He stated given it was strategic asset allocation (SAA) season they would focus on two of the eight metrics – drawdown risk and liquidity. He said there were four categories of risk taken into consideration with the SAA: return distribution, stability of returns, absolute risk and implementation. Within those four categories of risk, Mr. Stephen Kim highlighted four key risk metrics: expected return, volatility, drawdown and liquidity. He discussed the bell curve that estimates the range and probabilities of risk and return outcomes of any portfolio noting the strategic asset allocation should target an outcome centered to the right of the 7 percentTrust discount rate. He then provided further discussion on drawdown risk with the primary means of estimating this being the metric value at risk, or VaR. He said for the Trust, the VaR number was -6.4 percent.

Mr. Nield reviewed the second key risk metric which is liquidity. He said they look at liquidity through the lens of three different time frames. He said it is viewed on a short-term basis, which is meeting the day-to-day cash needs of the Trust. He said the second lens was a monthly stress time frame, a stress test which is one and half times worse the actual stress that the Trust has experienced in history. The third time frame, he said, was looking at liquidity over a longer time frame that pays attention to unexpected capital calls, the need to redeploy into opportunistic capital and most importantly benefit payments. He said stressed uses of liquidity may be as much as $6.5 billion. He reported that based upon sources of liquidity divided by uses, the Trust has six times the amount of liquidity it needs at 6.1 times.

8. Strategic Asset Allocation (SAA) Update and Review of Benchmark Best Practices – James Nield and Mike Simmons; and Mike McCormick, Aon.

Mr. Mike Simmons reviewed the timeline they had been working through and stated the presentation today was focused on alternative allocations. He said previously in February Mr. Auby had laid out the four key considerations: public equity, private equity, Government Bonds and total risk. He said these four key considerations provide the basis for the alternative allocations. He reported the alternative SAA recommendation for public equity is an addition of a global equity allocation which combines USA, non-U.S. Developed and Emerging Markets into one line item called All Country. He noted this looks like USA is going to zero percent, but the USA makes up over 60 percent of the All Country world index. He said the recommendation is to reduce private equity by 2 percent in favor of a 3 percent increase to the All Country line item. The third consideration he said is Government Bonds shifting a portion of the allocation from nominal to inflation linked bonds by 6 percent. He said the fourth consideration, total risk, shifts 3 percent from risk parity to that All Country line, better matching the long term investment horizon of the Trust.

Mr. Simmons said the proposed public equity allocation would reduce the regional tilt and move the Trust closer to market cap weights. He said the TRS' Emerging Market benchmark currently has a 50 percent weight to EM ex China and he said the proposal is to remove China from the benchmark completely. He said removing China from the benchmark makes a negligible one basis point difference to expected returns, but it removes a considerable amount of tail risk from the portfolio. He said the expected return for the current SAA is 7.8 percent and the expected risk is 11.7 percent. He said for the alternative, the numbers are 7.7 and 12.0 percent. He said the Government Bonds and total risk considerations both serve to reduce Trust duration (\sensitivity to interest rates) and also to better capture the upside from economic growth. Mr. Simmons concluded by stating the current SAA is a good portfolio and a viable option. He said the alternative allocations could improve the Trust resiliency to certain scenarios with a limited impact to forward-looking returns or risk.

Mr. McCormick reviewed benchmarks, what makes a good benchmark, how TRS benchmarks equates to those factors and future benchmark considerations that are coming up. He said the benchmarks are Board approved and documented in the IPS. He reviewed what the CFA institute has determined what reflects high quality benchmarks. He said Aon has adopted the CFA guidelines but also add using as broad a benchmark as possible. He then reviewed recent trends in benchmarking. The first he said was a transition to broader investment mandates and the use of peer benchmarks for private equity and third for real estate benchmarks to use NCREIF ODCE. He noted benchmarking alternative asset classes is more problematic than public asset classes; however, there is some consensus in the industry of what the right answer looks like. He stated TRS in general is in that area noting there are difficulties in benchmarking private assets. He concluded with highlighting potential benchmark changes. He said further discussion was needed and need for some benchmark changes and specifically listed the All Country equity asset class, stable value hedge funds, and private equity portfolio. In response to Dr. Brown's inquiry, further discussion was how difficult it was to benchmark private equity. Mr. McCormick referenced the deep dive into private equity benchmark done a couple of years ago and how it continues on an ongoing basis.

There being no more business before the Investment Management Committee, the committee adjourned at 2:40 p.m.

Approved by the Investment Management Committee of the Board of Trustees of the Teacher Retirement System of Texas on July ____, 2024.

________________________________ ___________________

Katherine H. Farrell Date

CIO Update

Jase Auby, Chief Investment Officer

July 2024

CIO Update

IMD at a Glance

Priorities

- **Performance.** The Trust ended the first quarter of 2024 with a 1-year return of 9.4% and +298 bp of excess return. The 3-year return is 5.5% with +179 bp of excess return
- **SPN Summit.** Hosted the 48th Strategic Partnership Network (SPN) Public Summit. Received good feedback on the new breakout sessions
- **Hedge Funds.** TRS is leading an industry push for improved alignment in hedge fund fees by advocating for the use of cash hurdles
- **Work From Home.** Beginning September 3, 2024, the required onsite workdays for IMD will be Tuesday, Wednesday, and Thursday
- **Fireside Chats.** Continued to hold team level CIO Fireside Chats sessions to answer questions from employees and inform of key Trust priorities
- **Portfolio Reviews.** Held portfolio level reviews across all Private Markets teams and approved updated premier lists

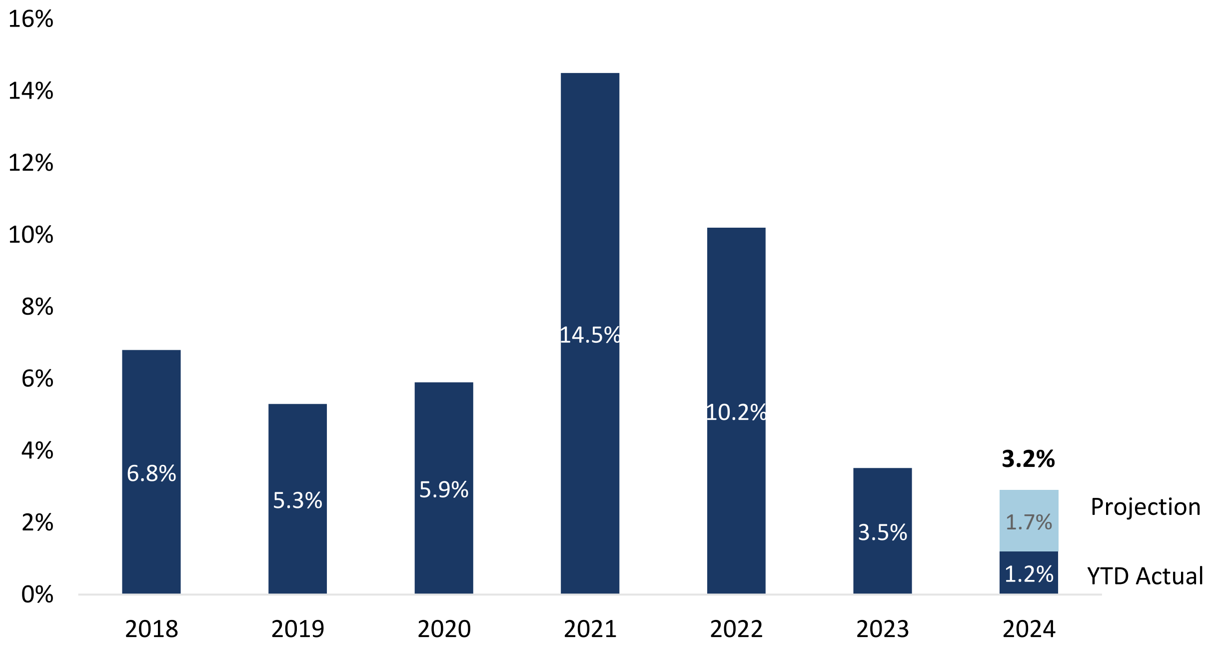
Key Dates and Upcoming Events

Event	Location	Dates
Council of Institutional Investors	Brooklyn, NY	September 9-11, 2024
Strategic Partnership Network Summit	New York, NY	October 17, 2024

Our People

Snapshot as of May 2024	
IMD FTEs	246
Contractors	8

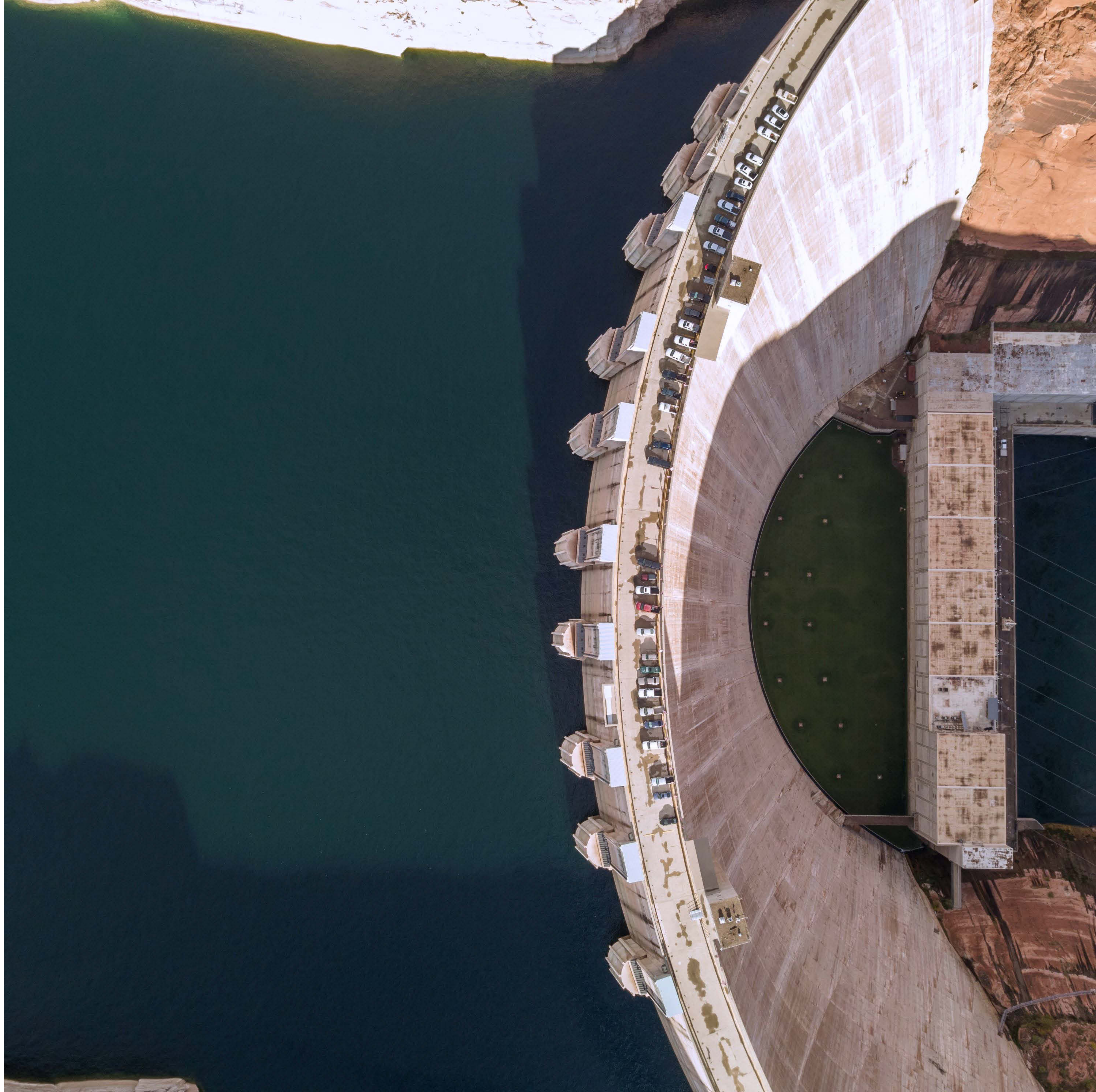
Attrition Trend 2018 – 2024 (As of May 2024)



Teacher Retirement System of Texas

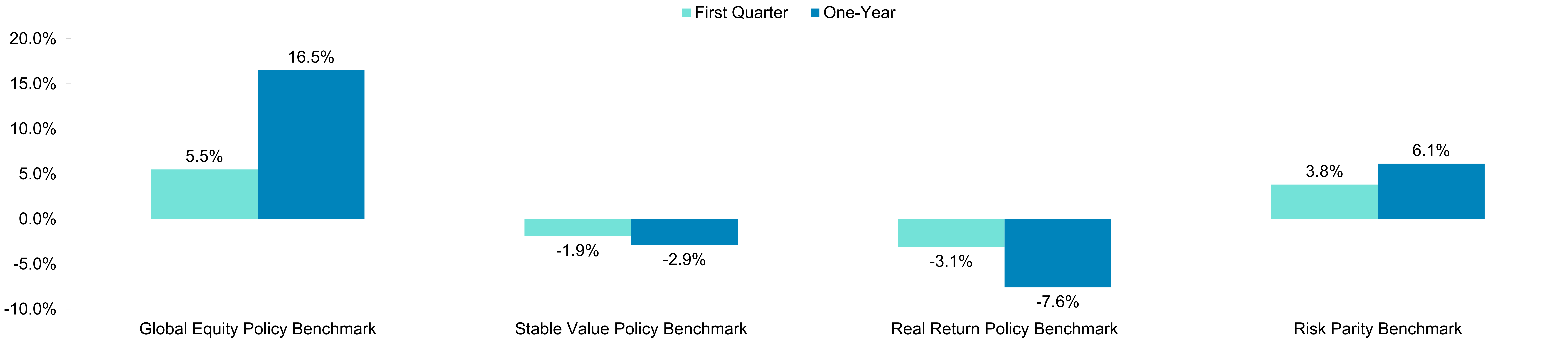
Performance Review:

First Quarter 2024



Investment advice and consulting services provided by Aon Investments USA, Inc.

Summary



In Q1 2024, global equity markets appreciated significantly. The S&P 500 Index surpassed the 5000 level for the first time, driven by a positive earnings season expectations, easing inflation data, signs of economic resilience, and rallies from the tech giants

Global equities rose 5.5% for the quarter, and they returned 16.5% over a trailing 1-year period

The U.S. Federal Reserve (Fed) kept its interest rate unchanged at 5.25%-5.5%. The Federal Open Market Committee (FOMC) does not expect it will be appropriate to reduce the target range until it has gained greater confidence that inflation is moving sustainably towards 2%. According to the latest Fed "dot plot", the FOMC members see three, quarter-point cuts this year.

TRS returned 3.5% for the quarter which was 1.4 percentage points above its benchmark

- Outperformance at the asset class level for Global Equity, Stable Value and Real Return were the primary drivers for relative results.

For the trailing twelve months, TRS returned 9.4% versus the benchmark return of 6.5%

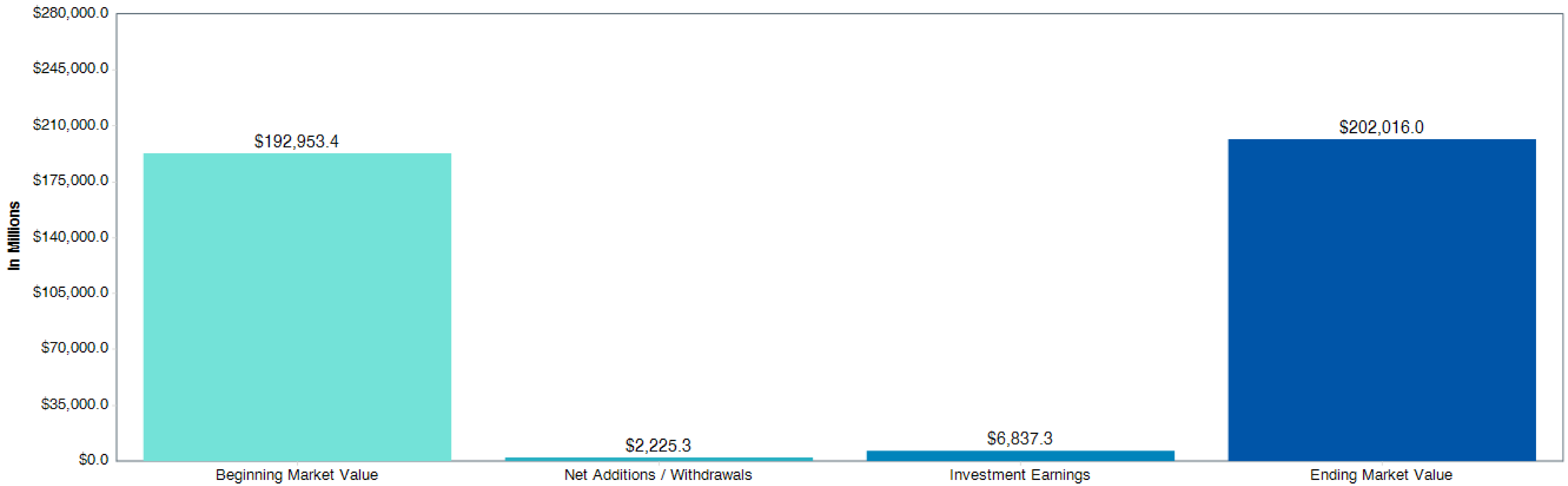
- Outperformance from the Global Equity, Stable Value, Real Return and Risk Parity asset classes were the primary drivers of relative performance

1. Market Summary – First Quarter 2024

	First Quarter	One Year	Three Years	Five Years	Ten Years
Global Equity:					
TF USA Benchmark	10.0%	29.3%	10.0%	14.5%	12.5%
TRS Non-US Developed Benchmark	5.7	15.3	4.9	7.5	4.8
TRS Emerging Markets Benchmark	3.2	14.2	-4.3	2.7	3.2
HFRI Fund of Funds Composite Index	4.2	9.7	2.9	5.0	3.6
State Street Private Equity Index (quarter lagged)	2.9	7.0	11.5	14.6	12.4
Global Equity Policy Benchmark	5.5	16.5	7.2	11.1	9.0
Stable Value:					
Bloomberg Barclays Long Treasury Index	-3.3%	-6.1%	-8.0%	-2.8%	1.2%
HFRI Fund of Funds Conservative Index	2.5	7.1	4.0	5.0	3.5
Absolute Return Benchmark	2.4	9.8	6.6	5.2	4.2
90 Day U.S. Treasury Bill	1.4	5.5	2.7	2.1	1.4
Stable Value Policy Benchmark	-1.9	-2.9	-5.1	-0.8	1.9
Real Return:					
Bloomberg Barclays U.S. TIPS Index	-0.1%	0.5%	-0.5%	2.5%	2.2%
NCREIF ODCE (quarter lagged)	-5.0	-12.7	4.0	3.3	6.3
Energy, Natural Resources & Infrastructure Benchmark	1.1	5.4	12.5	7.7	--
Goldman Sachs Commodities Index	10.4	11.1	18.1	7.8	-2.9
Real Return Policy Benchmark	-3.1	-7.6	6.5	4.7	5.7
Risk Parity:					
Risk Parity Benchmark	3.8%	6.1%	-1.7%	2.7%	3.5%
TRS Policy Benchmark	2.1%	6.5%	3.8%	6.9%	6.7%

2. Market Value Change

From January 1, 2024 to March 31, 2024



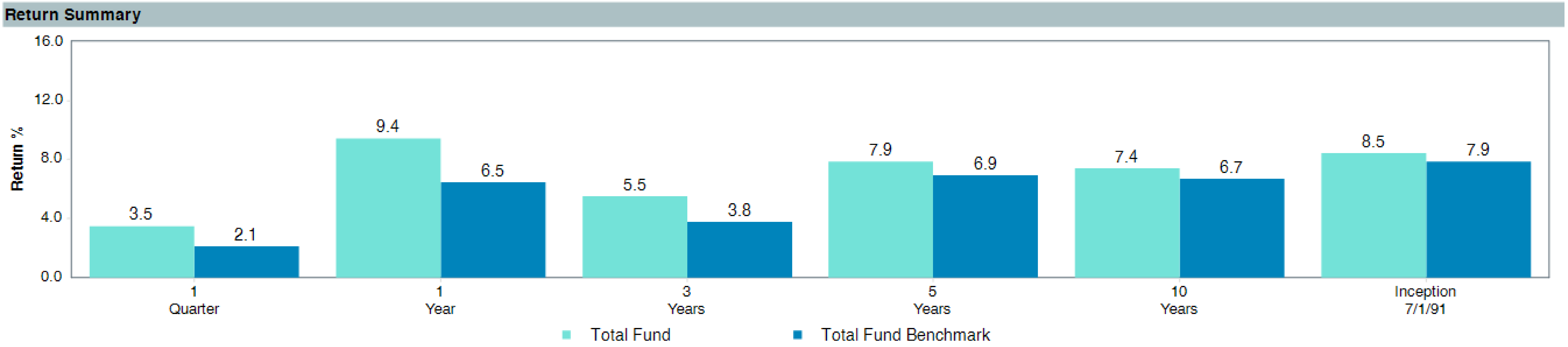
Summary of Cash Flows	1 Quarter	1 Year	3 Years	5 Years
Total Fund				
Beginning Market Value	192,953,353,892	185,431,716,576	180,522,561,320	152,525,158,691
+ Additions / Withdrawals	2,225,309,781	-745,849,565	-9,281,869,196	-17,276,869,361
+ Investment Earnings	6,837,317,846	17,330,114,510	30,775,289,395	66,767,692,190
= Ending Market Value	**202,015,981,520**	**202,015,981,520**	**202,015,981,520**	**202,015,981,520**

3. Asset Allocation Detail

	Market Value $ in millions) as of 3/31/2024		Interim Policy Target	Relative to Interim Policy Target	Long Term Policy Target	Long Term Policy Ranges
	($)	(%)				
Investment Exposure	**--**	**105.2%**	**104.0%**	**+1.2%**	**104.0%**	**93-115%**
Total U.S.A.	$32,891	16.3%	16.9%	-0.6%	18.0	13-23%
Non-U.S. Developed	$25,178	12.5%	12.2%	+0.3%	13.0	8-18%
Emerging Markets	$17,366	8.6%	8.4%	+0.2%	9.0	4-14%
Private Equity	$33,733	16.7%	16.9%	-0.2%	14.0	9-19%
Global Equity	**$109,168**	**54.0%**	**54.4%**	**-0.4%**	**54.0**	**47-61%**
Government Bonds	$27,903	13.8%	15.0%	-1.2%	16.0	0-21%
Stable Value Hedge Funds	$10,192	5.0%	4.7%	+0.3%	5.0	0-10%
Absolute Return	$6,905	3.4%	0.0%	+3.4%	0.0	0-20%
Stable Value	**$45,000**	**22.3%**	**19.7%**	**+2.6%**	**21.0**	**14-28%**
Real Estate	$29,659	14.7%	15.4%	-0.7%	15.0	10-20%
Energy, Natural Resource and Inf.	$13,786	6.8%	7.0%	-0.2%	6.0	1-11%
Commodities	$179	0.1%	0.0%	+0.1%	0.0	0-5%
Real Return	**$43,624**	**21.6%**	**22.4%**	**-0.8%**	**21.0**	**14-28%**
Risk Parity	$14,656	7.3%	7.5%	-0.2%	8.0	0-13%
Risk Parity	**$14,656**	**7.3%**	**7.5%**	**-0.2%**	**8.0**	**0-13%**
Cash	$4,779	2.4%	2.0%	+0.4%	2.0	0-7%
Asset Allocation Leverage	-$15,210	-7.5%	-6.0%	-1.5%	-6.0	--
Net Asset Allocation	**-$10,432**	**-5.2%**	**-4.0%**	**-1.2%**	**-4.0**	**--**
Total Fund	**$202,016**	**100.0%**		**---**	**100.0%**	**--**

Note: Asset allocation information shown above is based upon MOPAR reporting. The excess returns shown above may not be a perfect difference between the actual and benchmark returns due entirely to rounding.

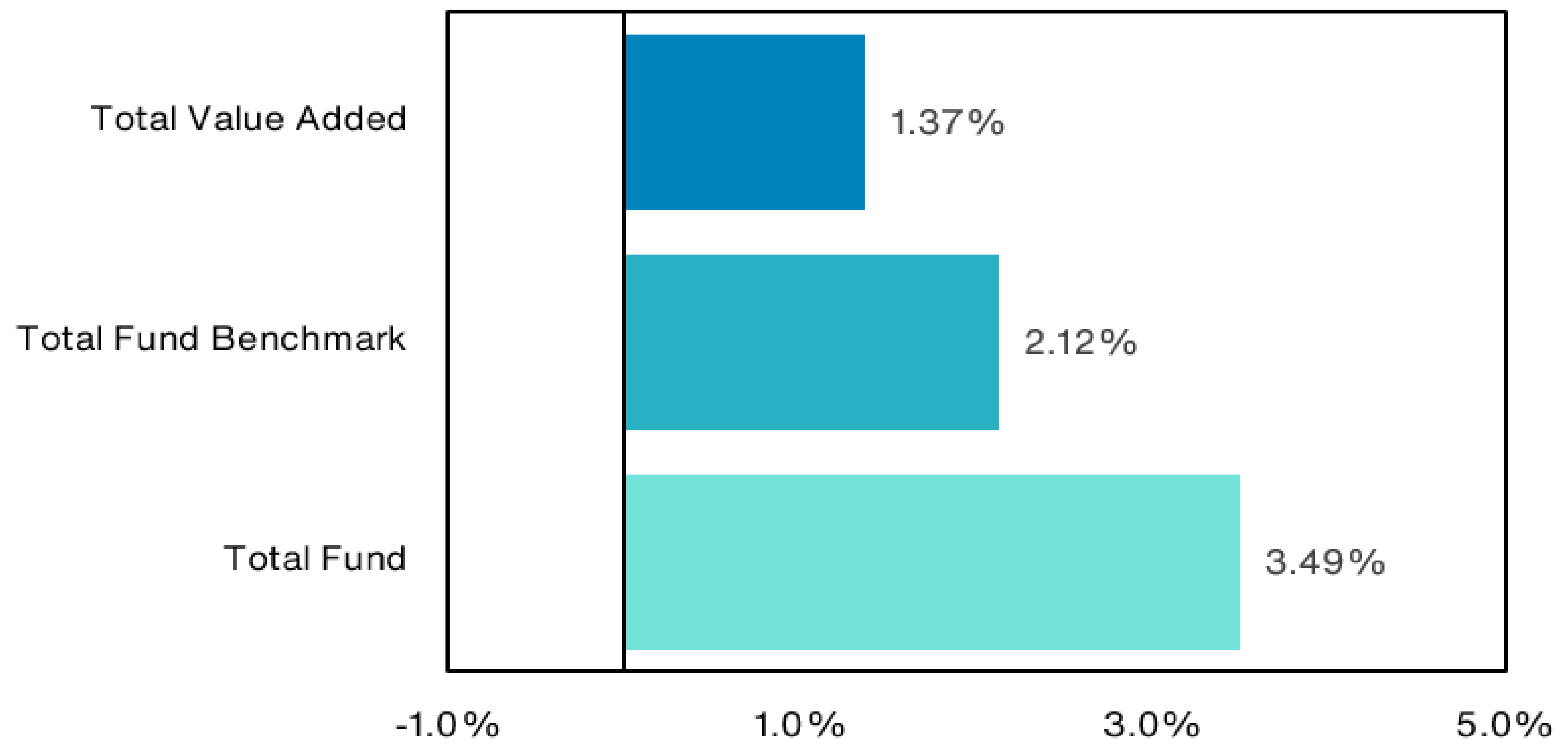
4. Total TRS Performance Ending 3/31/2024



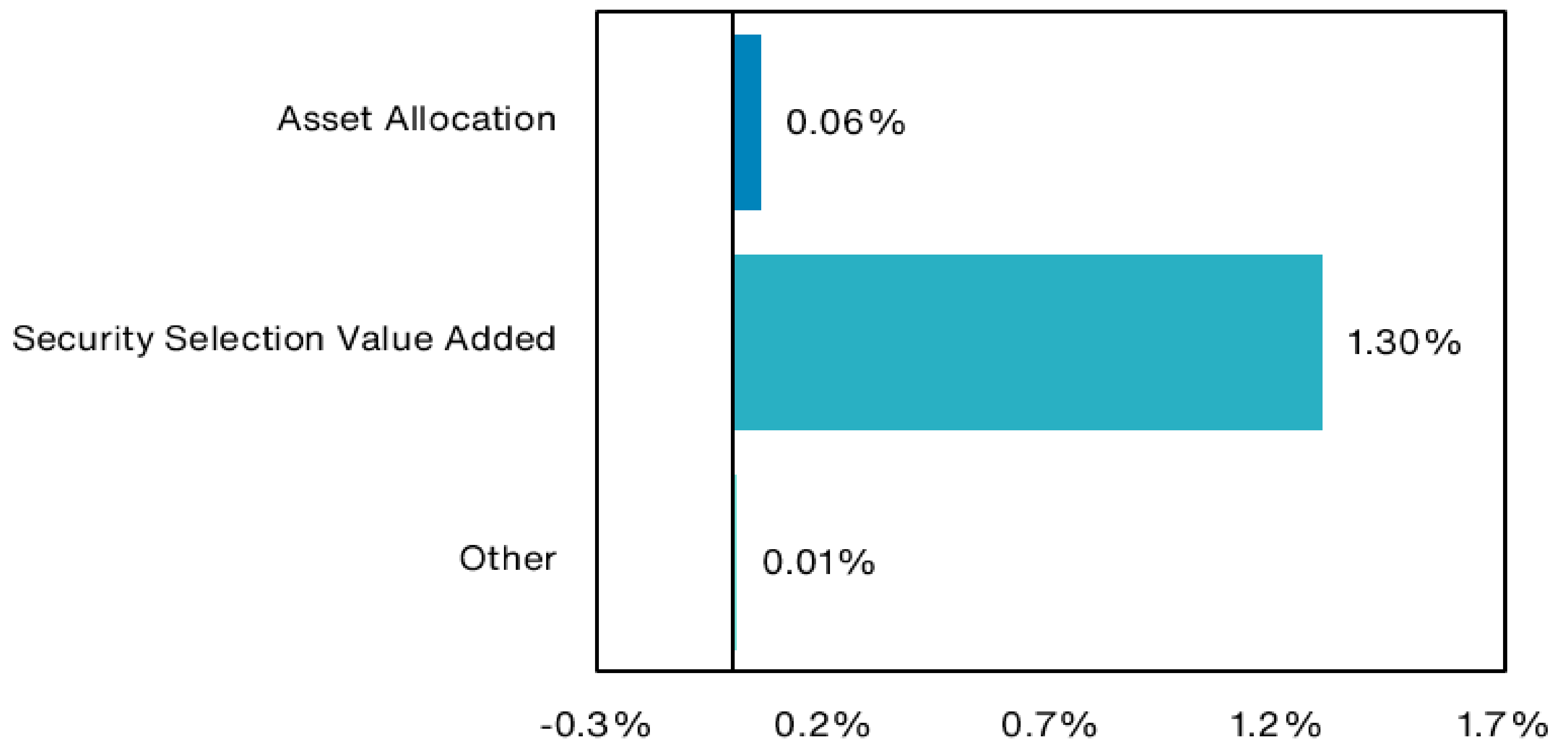
5. Total Fund Attribution – One Quarter Ending 3/31/2024

Total Fund vs. Total Fund Benchmark

Total Fund Performance

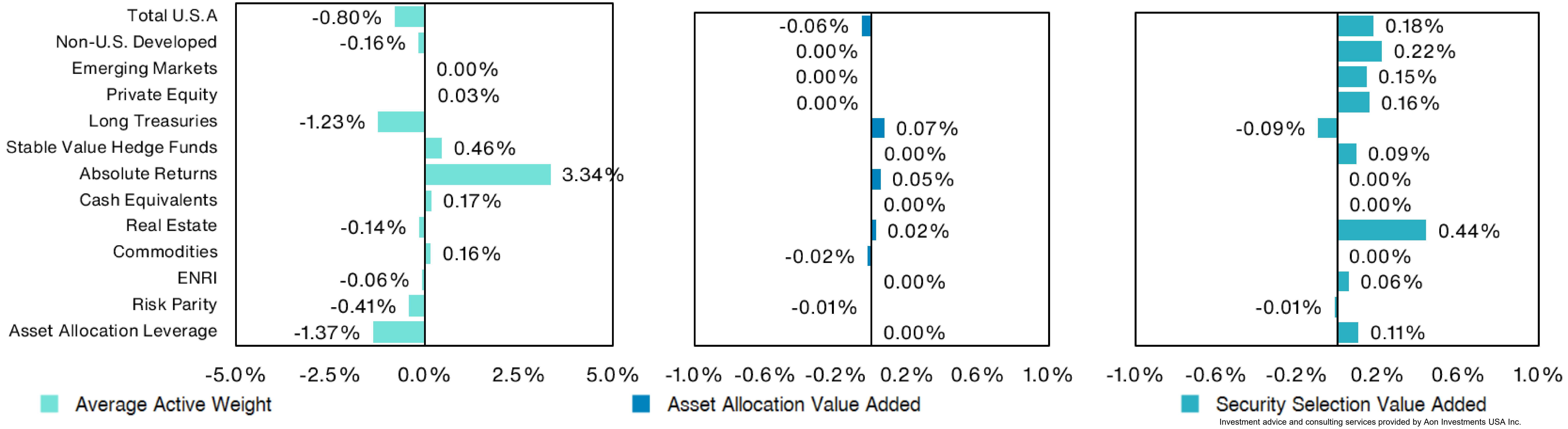


Total Value Added: 1.37%



Total Asset Allocation: 0.06%

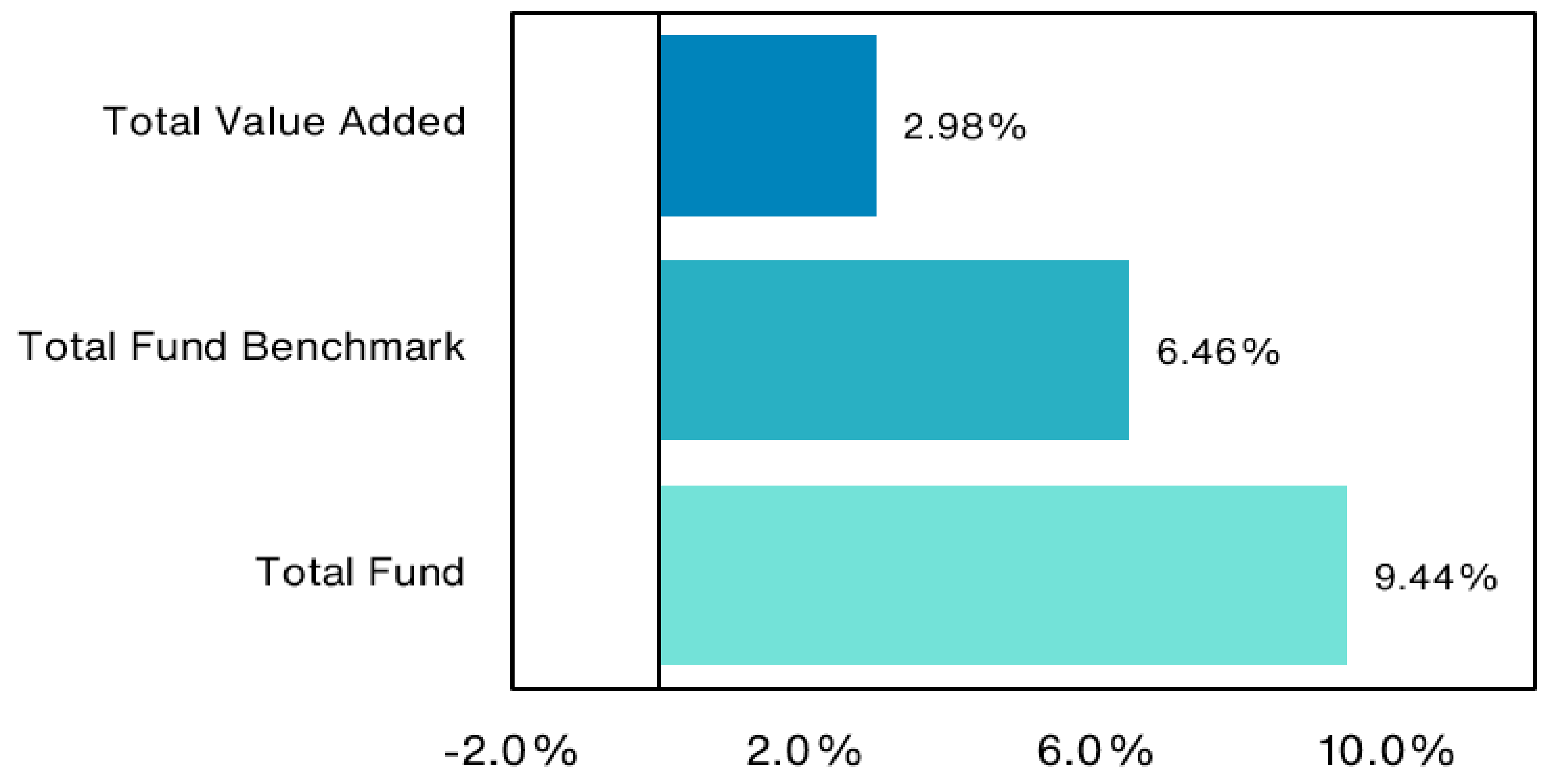
Total Security Selection Value Added: 1.30%



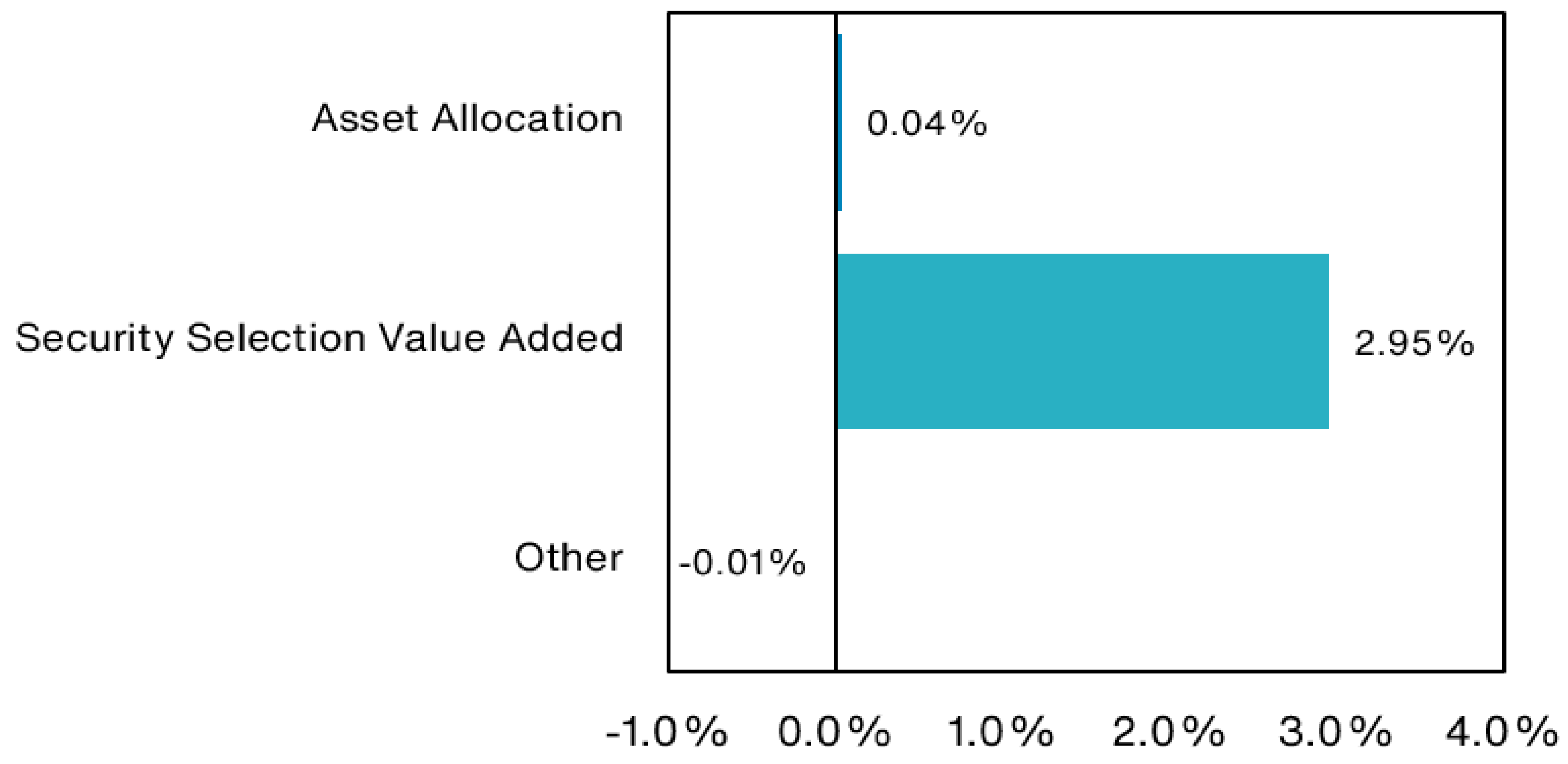
5. Total Fund Attribution – One Year Ending 3/31/2024

Total Fund vs. Total Fund Benchmark

Total Fund Performance

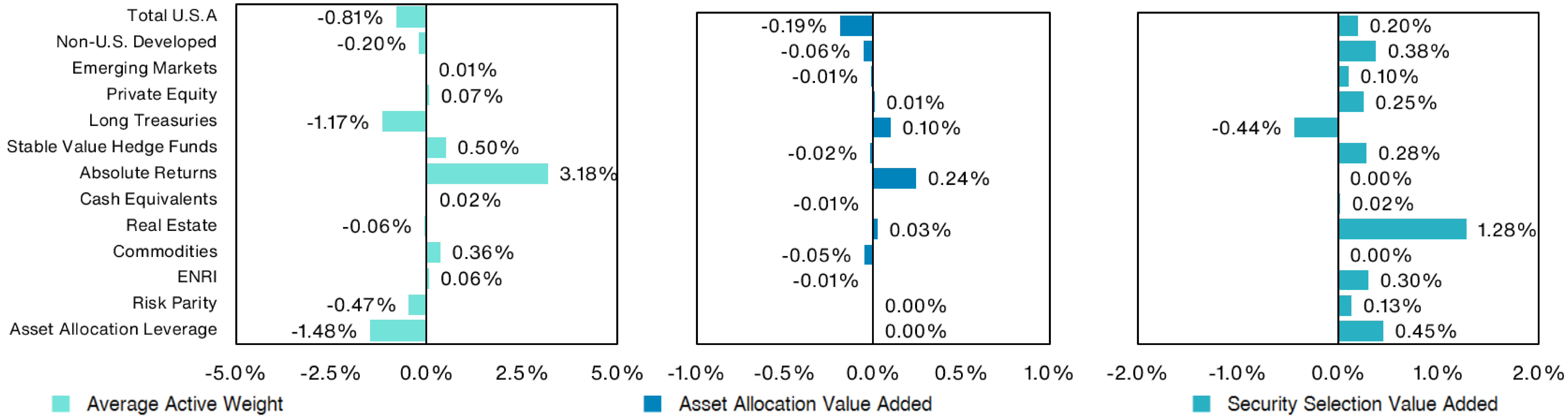


Total Value Added: 2.98%



Total Asset Allocation: 0.04%

Total Security Selection Value Added: 2.95%



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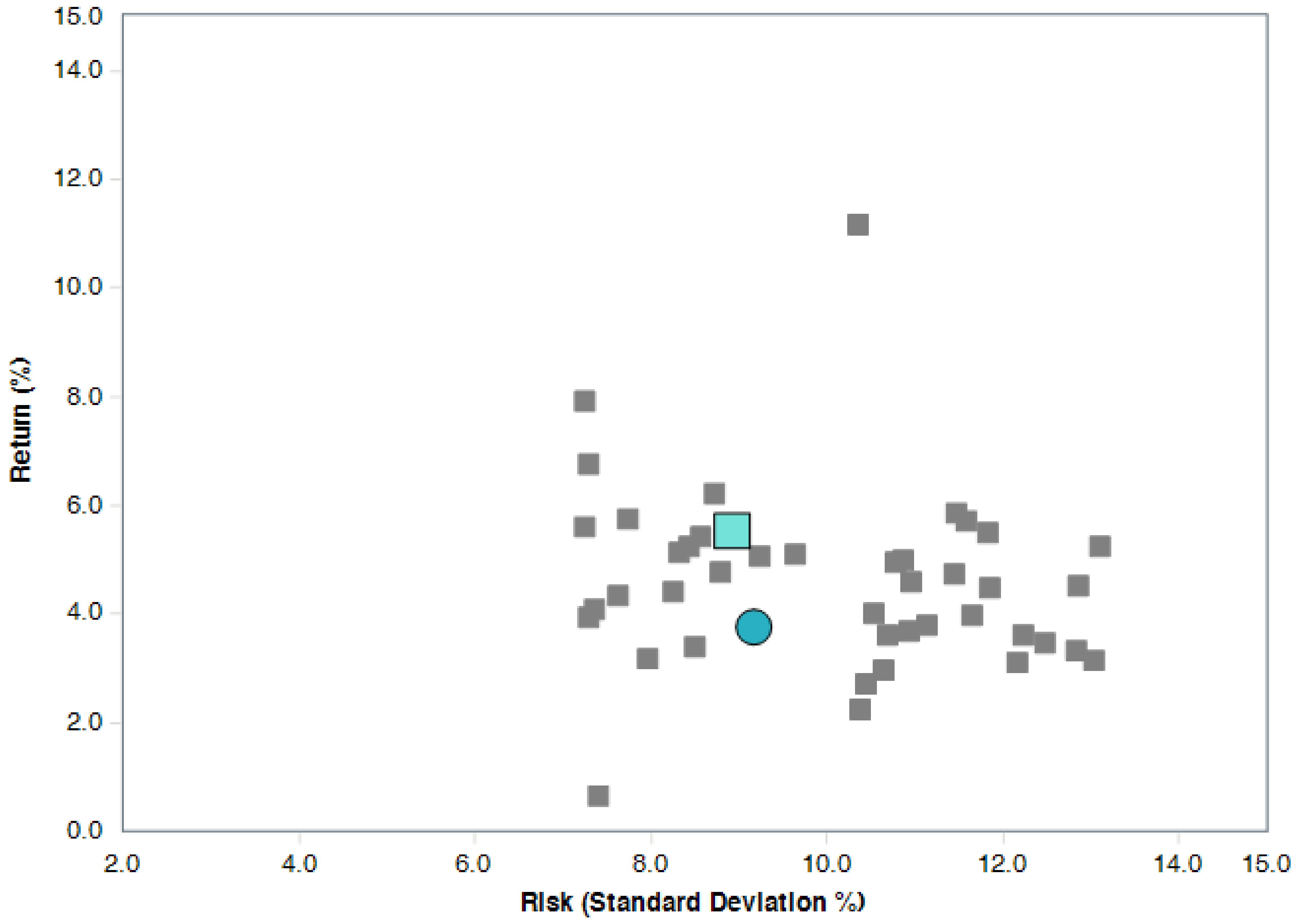
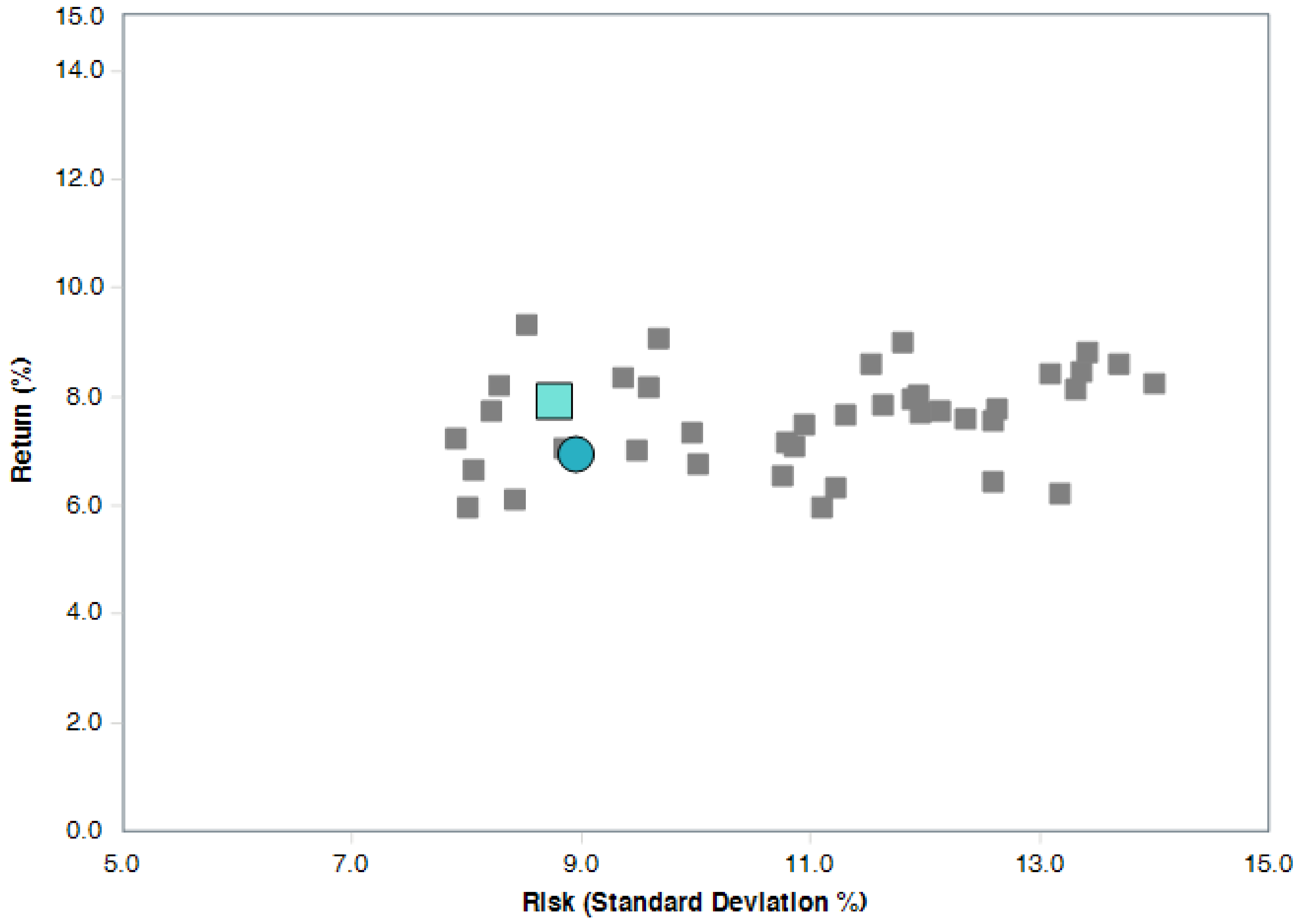
6. Risk Profile: Total Fund Risk-Return vs. Peers

Annualized Return vs. Annualized Standard Deviation 3 Years Ending March 31, 2024



	Return	Standard Deviation
Total Fund	5.5	8.9
Total Fund Benchmark	3.8	9.2
— Median	4.5	10.5

Annualized Return vs. Annualized Standard Deviation 5 Years Ending March 31, 2024



	Return	Standard Deviation
Total Fund	7.9	8.8
Total Fund Benchmark	6.9	9.0
— Median	7.7	11.3

Note: Public Plan peer group composed of 42 and 40 public funds, for 3- and 5-year periods, with total assets in excess of $1B as of 3/31/2024. An exhibit outlining the asset allocation of the peer portfolios is provided in the appendix of this report.

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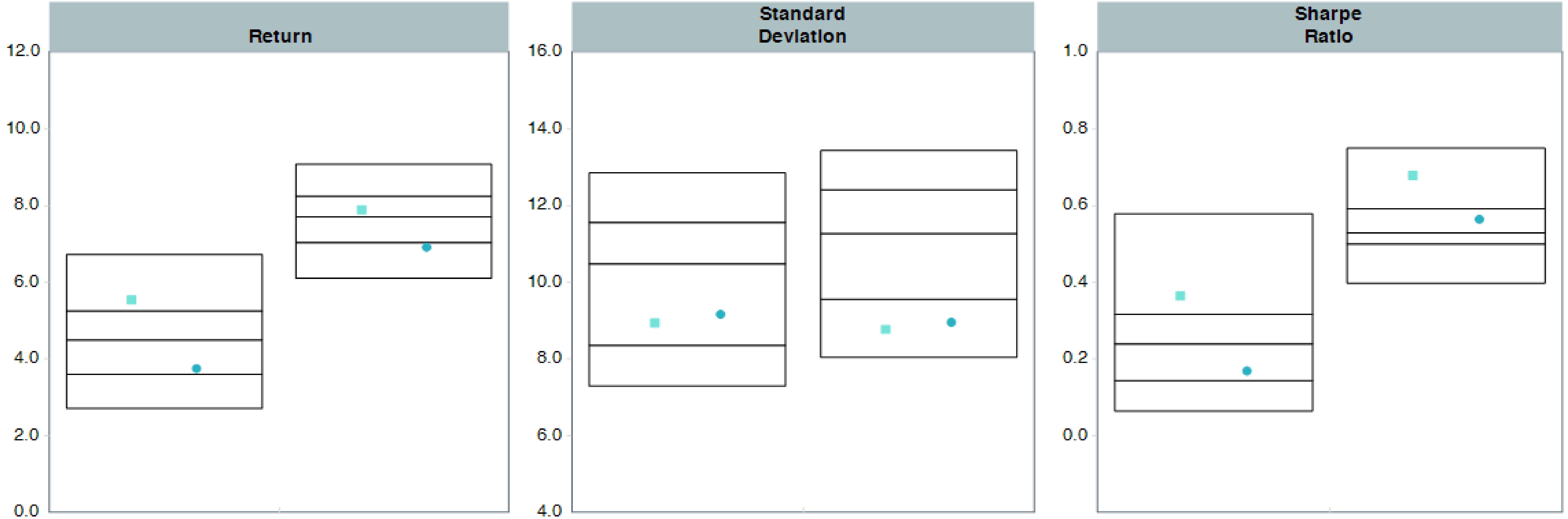
6. Risk Profile: Trailing 3-Year and 5-Year Risk Metrics Peer Comparison

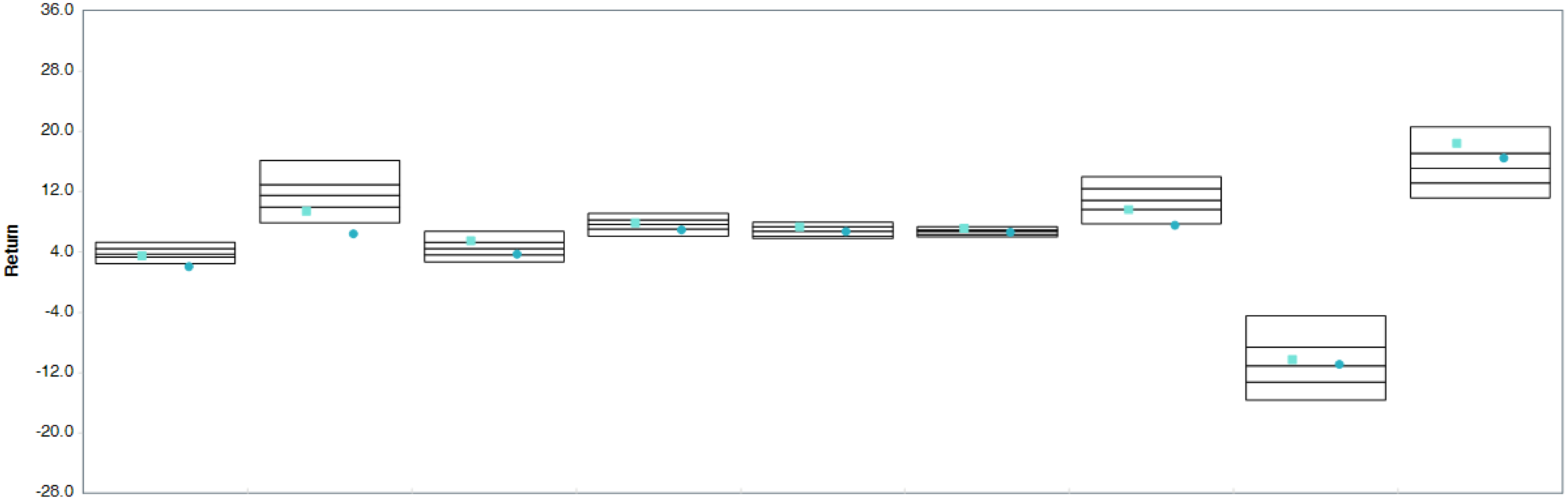
Total Fund vs. All Public Plans > $1B



	Return 3 Years	Return 5 Years	Standard Deviation 3 Years	Standard Deviation 5 Years	Sharpe Ratio 3 Years	Sharpe Ratio 5 Years
Total Fund	**5.5 (19)**	**7.9 (40)**	**8.9 (63)**	**8.8 (83)**	**0.4 (15)**	**0.7 (14)**
Total Fund Benchmark	3.8 (70)	6.9 (78)	9.2 (62)	9.0 (82)	0.2 (67)	0.6 (30)
5th Percentile	6.7	9.1	12.8	13.4	0.6	0.7
1st Quartile	5.2	8.3	11.6	12.4	0.3	0.6
Median	4.5	7.7	10.5	11.3	0.2	0.5
3rd Quartile	3.6	7.0	8.4	9.6	0.1	0.5
95th Percentile	2.7	6.1	7.3	8.0	0.1	0.4
Population	42	40	42	40	42	40

Parentheses contain percentile rankings.

6. TRS Performance vs. Peers (>$1 Billion) as of 3/31/2024



	1 Quarter	1 Year	3 Years	5 Years	10 Years	20 Years	2023	2022	2021
Total Fund	**3.5 (70)**	**9.4 (82)**	**5.5 (19)**	**7.9 (40)**	**7.4 (22)**	**7.1 (11)**	**9.7 (76)**	**-10.3 (42)**	**18.5 (12)**
Total Fund Benchmark	2.1 (99)	6.5 (99)	3.8 (70)	6.9 (78)	6.7 (51)	6.7 (52)	7.6 (97)	-10.9 (50)	16.5 (36)
5th Percentile	5.3	16.2	6.7	9.1	8.0	7.4	14.0	-4.5	20.6
1st Quartile	4.5	13.0	5.2	8.3	7.3	7.0	12.5	-8.6	17.1
Median	3.7	11.5	4.5	7.7	6.7	6.7	10.9	-11.0	15.2
3rd Quartile	3.3	10.0	3.6	7.0	6.1	6.3	9.7	-13.3	13.2
95th Percentile	2.5	7.9	2.7	6.1	5.8	6.0	7.8	-15.7	11.2
Population	91	48	42	40	35	25	76	75	109

Parentheses contain percentile rankings.

7. IPS Stated Trust Return Objectives ending 3/31/2024

	Five Year	Seven Year	Ten Year	Twenty Year
Total Fund	**7.9**	**7.9**	**7.4**	**7.1**
Total Fund Benchmark	6.9	7.1	6.7	6.7
Difference	*+1.0*	*+0.8*	*+0.7*	*+0.4*
Total Fund	**7.9**	**7.9**	**7.4**	**7.1**
Assumed Rate of Return	7.2	7.3	7.5	7.8
Difference	*+0.7*	*+0.6*	*-0.1*	*-0.7*
Total Fund	**7.9**	**7.9**	**7.4**	**7.1**
CPI + 5%	9.4	8.8	8.0	7.7
Difference	*-1.5*	*-0.9*	*-0.6*	*-0.6*

Note: The excess returns shown in this presentation may differ from State Street statements due entirely to rounding. These differences are generally within a few basis points and are not material.

8. Global Equity: Performance Summary Ending 3/31/2024

	First Quarter	One Year	Three Year	Five Year	Ten Year
Total Global Equity	**6.8**	**18.0**	**7.6**	**10.9**	**8.8**
Total Global Equity Benchmark	5.5	16.5	7.2	11.1	9.0
Difference	*+1.3*	*+1.5*	*+0.4*	*-0.2*	*-0.2*
Total U.S. Equity	**11.2**	**30.8**	**11.3**	**14.0**	**11.3**
Total U.S. Equity Benchmark	10.0	29.3	10.0	14.5	12.5
Difference	*+1.2*	*+1.5*	*+1.3*	*-0.5*	*-1.2*
Non-U.S. Equity	**6.5**	**17.4**	**2.2**	**6.5**	**5.0**
Non-U.S. Equity Benchmark	4.7	14.9	1.2	5.7	4.3
Difference	*+1.8*	*+2.5*	*+1.0*	*+0.8*	*+0.7*
Non-U.S. Developed	**7.6**	**18.7**	**5.5**	**7.9**	**5.4**
TRS Non-U.S. Developed Benchmark	5.7	15.3	4.9	7.5	4.8
Difference	*+1.9*	*+3.4*	*+0.6*	*+0.4*	*+0.6*
Emerging Markets	**5.0**	**15.6**	**-2.7**	**4.3**	**4.3**
TRS Emerging Market Benchmark	3.2	14.2	-4.3	2.7	3.2
Difference	*+1.8*	*+1.4*	*+1.6*	*+1.6*	*+1.1*

Note: The excess returns shown in this presentation may differ from State Street statements due entirely to rounding. These differences are generally within a few basis points and are not material.

8. Global Equity: Performance Summary Ending 3/31/2024 (cont'd)

	First Quarter	One Year	Three Year	Five Year	Ten Year
Total Public Equity	**8.5**	**23.1**	**6.2**	**9.8**	**7.6**
Public Equity Benchmark	7.1	21.2	5.2	9.6	7.8
Difference	*+1.4*	*+1.9*	*+1.0*	*+0.2*	*-0.2*
Total Private Equity	**3.0**	**8.1**	**11.2**	**13.9**	**12.8**
Private Equity Benchmark	2.0	6.6	11.7	14.7	12.5
Difference	*+1.0*	*+1.5*	*-0.5*	*-0.8*	*+0.3*

Note: The excess returns shown in this presentation may differ from State Street statements due entirely to rounding. These differences are generally within a few basis points and are not material.

9. Stable Value: Performance Summary Ending 3/31/2024

	First Quarter	One Year	Three Year	Five Year	Ten Year
Total Stable Value	**-0.9**	**-1.1**	**-3.0**	**0.8**	**3.4**
Total Stable Value Benchmark	-1.9	-2.9	-5.1	-0.8	1.9
Difference	*+1.0*	*+1.8*	*+2.1*	*+1.6*	*+1.5*
Total Government Bonds	**-3.9**	**-8.9**	**-9.5**	**-3.6**	**1.1**
Treasury Benchmark	-3.3	-6.1	-8.0	-2.8	1.2
Difference	*-0.6*	*-2.8*	*-1.5*	*-0.8*	*-0.1*
Stable Value Hedge Funds	**4.4**	**12.7**	**8.9**	**8.1**	**6.4**
Hedge Funds Benchmark	2.5	7.1	4.0	5.0	3.5
Difference	*+1.9*	*+5.6*	*+4.9*	*+3.1*	*+2.9*
Absolute Return	**3.6**	**14.9**	**8.1**	**8.8**	**8.4**
Absolute Return Benchmark	2.4	9.8	6.6	5.2	4.2
Difference	*+1.2*	*+5.1*	*+1.5*	*+3.6*	*+4.2*

Note: The excess returns shown in this presentation may differ from State Street statements due entirely to rounding. These differences are generally within a few basis points and are not material.

10. Real Return: Performance Summary Ending 3/31/2024

	First Quarter	One Year	Three Year	Five Year	Ten Year
Total Real Return	**-0.9**	**-1.3**	**10.4**	**7.8**	**8.2**
Real Return Benchmark	-3.1	-7.6	6.5	4.7	5.7
Difference	*+2.2*	*+6.3*	*+3.9*	*+3.1*	*+2.5*
Real Estate	**-2.0**	**-5.5**	**8.8**	**7.7**	**9.7**
Real Estate Benchmark	-5.0	-12.7	4.0	3.3	6.3
Difference	*+3.0*	*+7.2*	*+4.8*	*+4.4*	*+3.4*
Energy, Natural Resources, and Infrastructure	**1.9**	**9.7**	**14.6**	**8.2**	**--**
Energy and Natural Res. Benchmark	1.1	5.4	12.5	7.7	--
Difference	*+0.8*	*+4.3*	*+2.1*	*+0.5*	
Commodities	**-1.6**	**-1.5**	**4.8**	**4.3**	**-3.1**
Commodities Benchmark	10.4	11.1	18.1	7.8	-2.9
Difference	*-12.0*	*-12.6*	*-13.3*	*-3.5*	*-0.2*

Note: The excess returns shown in this presentation may differ from State Street statements due entirely to rounding. These differences are generally within a few basis points and are not material.

11. Risk Parity: Performance Summary Ending 3/31/2024

	First Quarter	One Year	Three Year	Five Year	Ten Year
Total Risk Parity	**3.6**	**8.1**	**0.5**	**2.8**	**4.1**
Risk Parity Benchmark	3.8	6.1	-1.7	2.7	3.5
Difference	*-0.2*	*+2.0*	*+2.2*	*+0.1*	*+0.6*

Note: The excess returns shown in this presentation may differ from State Street statements due entirely to rounding. These differences are generally within a few basis points and are not material.

12. Cash Equivalents: Performance Summary Ending 3/31/2024

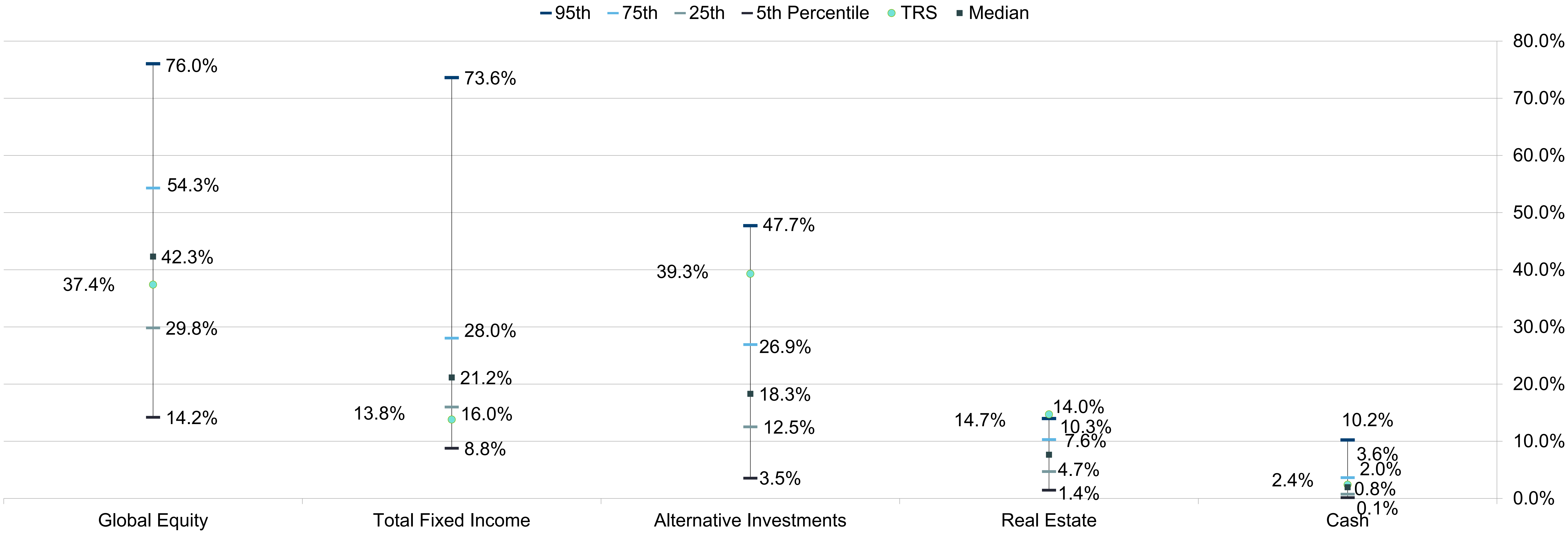
	First Quarter	One Year	Three Year	Five Year	Ten Year
Cash Equivalents	**1.5**	**6.5**	**3.4**	**2.6**	**2.7**
Cash Benchmark	1.4	5.5	2.7	2.1	1.4
Difference	*+0.1*	*+1.0*	*+0.7*	*+0.5*	*+1.3*

Note: The excess returns shown in this presentation may differ from State Street statements due entirely to rounding. These differences are generally within a few basis points and are not material.

Appendix – Supplemental Reporting

TRS Commitment Levels vs. Peers (>$1 Billion) as of 3/31/2024

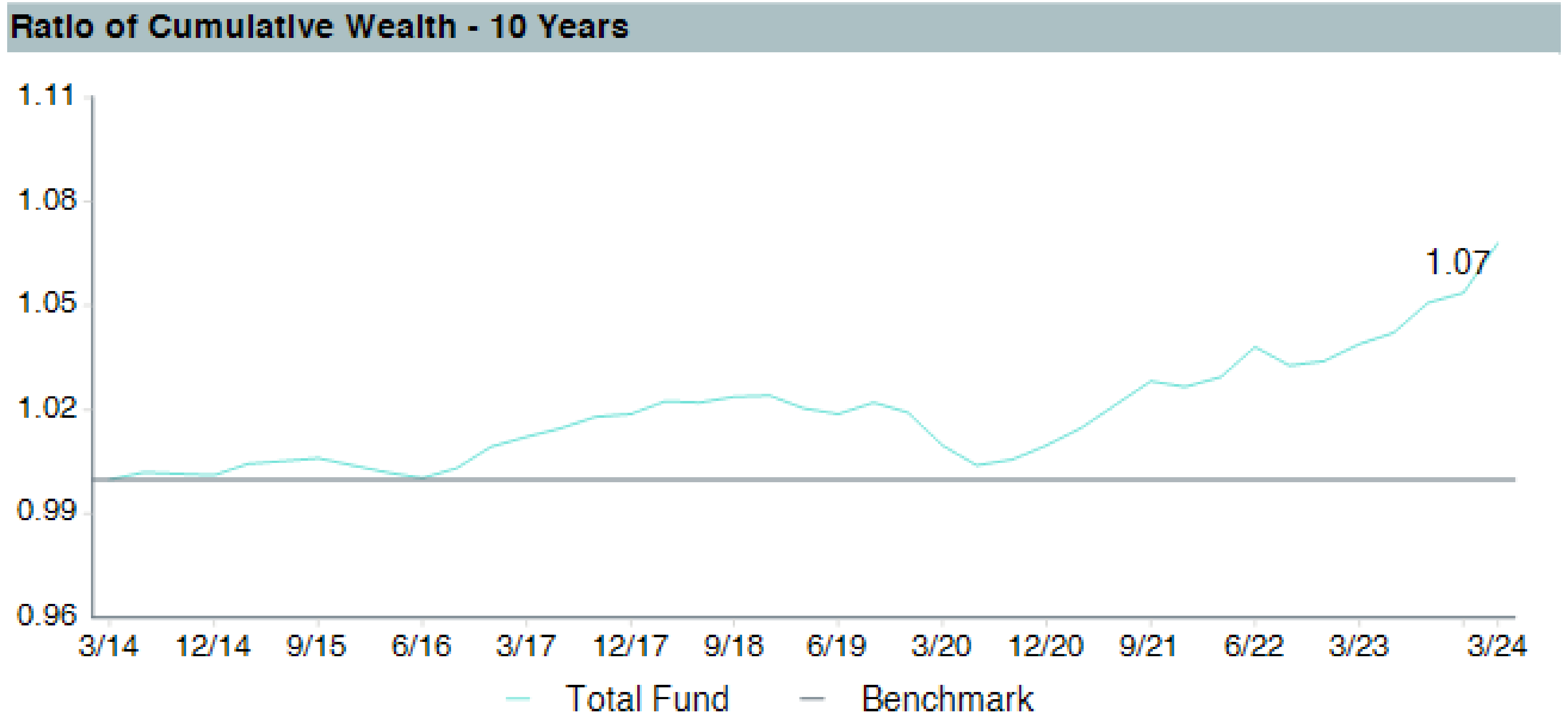
- The chart below depicts the asset allocation of peer public funds with assets greater than $1 billion.
  - The ends of each line represent the 95th and 5th percentile of exposures, the middle light blue and grey lines represent the 25th and 75th percentile of exposures, the purple square represents the median, and the green dot represents TRS exposure.

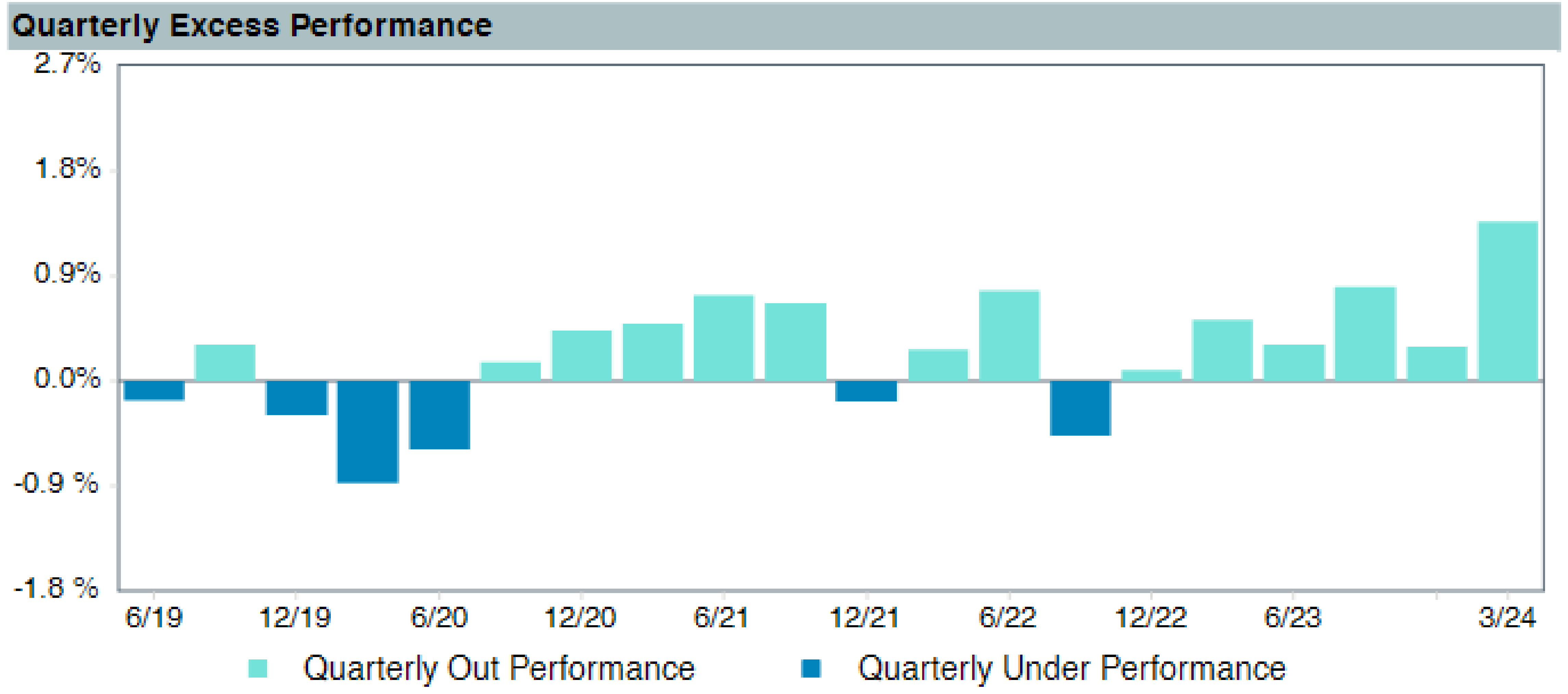


AON

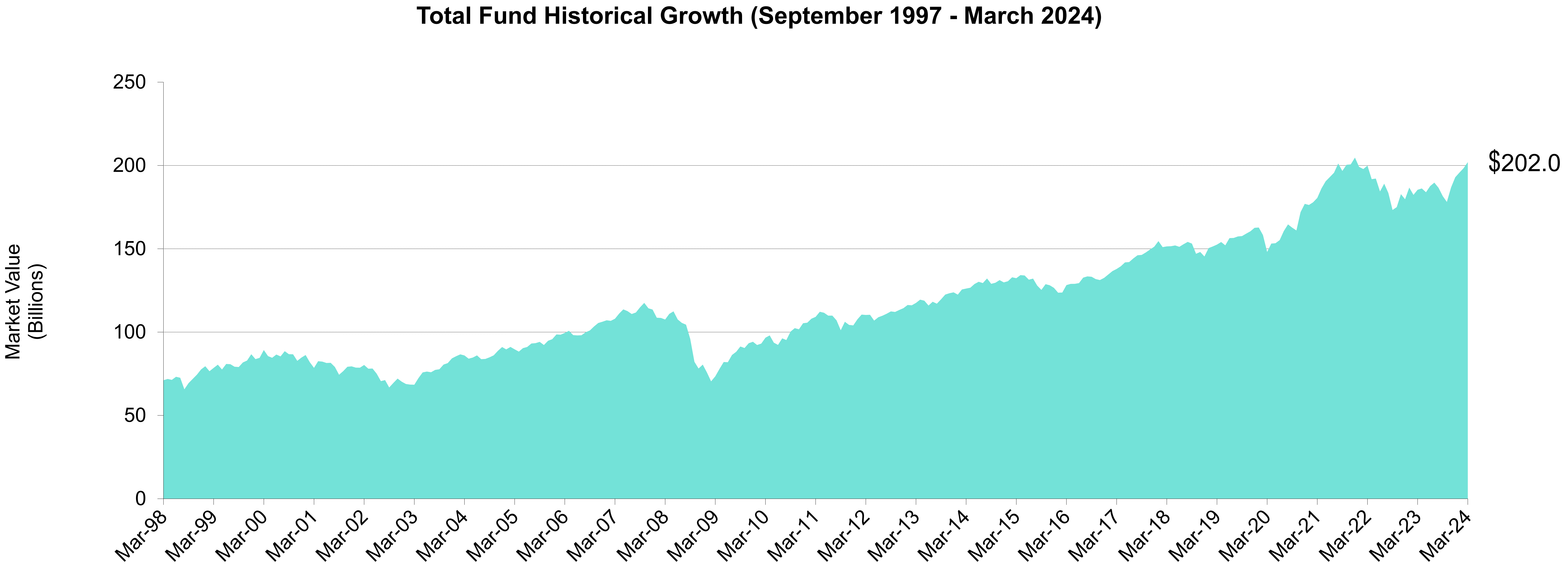
Historical Excess Performance Ending 3/31/2024

Total Fund vs. Total Fund Benchmark





TRS Asset Growth



External Manager Program: Public Equity Performance as of 3/31/2024

	Allocation ($ in billions)	First Quarter	One Year	Three Year	Five Year
EP Total Global Equity	**$34.1**	**9.0**	**24.2**	**7.1**	**11.5**
EP Global Equity Benchmark	--	7.3	21.9	5.3	10.0
Difference	--	*+1.7*	*+2.3*	*+1.8*	*+1.5*
EP U.S.A.	**$12.5**	**10.0**	**29.3**	**10.8**	**14.6**
EP U.S.A. Benchmark	--	10.0	29.3	10.0	14.5
Difference	--	*0.0*	*0.0*	*+0.8*	*+0.1*
EP Non-U.S. Developed	**$7.7**	**7.7**	**18.9**	**5.0**	**9.9**
MSCI EAFE + Canada Policy Index	--	5.7	15.3	4.9	7.5
Difference	--	*+2.0*	*+3.6*	*+0.1*	*+2.4*
EP Emerging Markets	**$6.7**	**5.2**	**14.8**	**-2.0**	**5.8**
MSCI Emerging Markets Policy Index	--	3.2	14.2	-4.3	2.7
Difference	--	*+2.0*	*+0.6*	*+2.3*	*+3.1*
EP World Equity	**$7.3**	**12.1**	**30.7**	**12.3**	**14.5**
EP World Equity Benchmark	--	8.1	23.8	6.9	11.3
Difference	--	*+4.0*	*+6.9*	*+5.4*	*+3.2*

Note: The excess returns shown in this presentation may differ from State Street statements due entirely to rounding. These differences are generally within a few basis points and are not material.

External Manager Program: Stable Value/Total Program Performance as of 3/31/2024

	Allocation ($ in billions)	First Quarter	One Year	Three Year
EP Total Stable Value	**$10.2**	**4.4**	**12.7**	**8.9**
EP Stable Value Benchmark	**--**	2.5	7.1	4.0
Difference	--	*+1.9*	*+5.6*	*+4.9*
Total External Public Program	**$52.3**	**7.3**	**20.0**	**6.6**
EP External Public Benchmark	--	5.8	17.4	4.6
Difference	--	*+1.5*	*+2.6*	*+2.0*

Note: The excess returns shown in this presentation may differ from State Street statements due entirely to rounding. These differences are generally within a few basis points and are not material.

Public Strategic Partnership Program (SPN): Performance as of 3/31/2024

	Allocation ($ in billions)	First Quarter	One Year	Three Year
Public Strategic Partnership	**$8.0**	**4.0**	**12.5**	**1.4**
Public SPN Benchmark	**--**	4.0	12.6	1.4
Difference	--	*0.0*	*-0.1*	*0.0*
BlackRock	**$2.8**	**5.0**	**13.9**	**2.9**
JP Morgan	**$2.8**	**4.5**	**12.6**	**1.2**
Morgan Stanley	**$2.4**	**2.4**	**11.0**	**-0.1**

Note: The excess returns shown in this presentation may differ from State Street statements due entirely to rounding. These differences are generally within a few basis points and are not material.

Benchmarks

Total Fund Performance Benchmark – 16.9% MSCI U.S.A. IMI, 12.2% MSCI EAFE plus Canada Index, 8.4% MSCI Emerging Markets Index, 16.9% State Street Private Equity Index (1 quarter lagged), 15.0% Blmb. Barc. Long Term Treasury Index, 4.7% HFRI FoF Conservative Index, 2.0% Citigroup 3 Mo. T-Bill Index, 15.4% NCREIF ODCE Index (1 quarter lagged), 7.0% Energy and Natural Resources Benchmark, 7.5% Risk Parity Benchmark, and -6.0% Asset Allocation Leverage Benchmark.

Global Equity Benchmark – 31.1% MSCI U.S.A. IMI, 22.4% MSCI EAFE plus Canada Index, 15.4% MSCI Emerging Markets Index, and 31.1% State Street Private Equity Index (1 quarter lagged)

- TF U.S. Equity Benchmark - MSCI U.S.A. Investable Markets Index (IMI)
- Emerging Markets Equity Benchmark – MSCI Emerging Markets Index
- Non-US Developed Equity Benchmark– MSCI EAFE + Canada Index
- Private Equity Benchmark - State Street Private Equity Index (1 quarter lagged)

Benchmarks (cont'd)

Stable Value Benchmark – 76.1% Blmb. Barc. Long Term Treasury Index and 23.9% HFRI FoF Conservative Index

- US Treasuries Benchmark – Bloomberg Barclays Long Term Treasury Index
- Stable Value Hedge Funds – HFRI Fund of Funds (FoF) Conservative Index
- Absolute Return Benchmark - SOFR + 4%

Real Return Benchmark – 68.8% NCREIF ODCE Index and 31.3% Energy & Natural Resources Benchmark

- Real Estate Benchmark – NCREIF ODCE Index (1 quarter lagged)
- Energy and Natural Resources Benchmark – 75% Cambridge Associates Natural Resources Index (reweighted) and 25% quarterly Seasonally-Adjusted Consumer Price Index (1 quarter lagged)
- Commodities Benchmark – Goldman Sachs Commodity Index

- Risk Parity Benchmark – 100% HFR Risk Parity Vol 12 Institutional Index

Description of Performance Attribution

- A measure of the source of the deviation of a fund's performance from that of its policy benchmark. Each bar on the attribution graph represents the contribution made by the asset class to the total difference in performance. A positive value for a component indicates a positive contribution to the aggregate relative performance. A negative value indicates a detrimental impact. The magnitude of each component's contribution is a function of (1) the performance of the component relative to its benchmark, and (2) the weight (beginning of period) of the component in the aggregate.
- The individual Asset Class effect, also called **Selection Effect**, is calculated as
  Actual Weight of Asset Class x (Actual Asset Class Return – Asset Class Benchmark Return)
- The bar labeled **Allocation Effect** illustrates the effect that a Total Fund's asset allocation has on its relative performance. Allocation Effect calculation = (Asset Class Benchmark Return –Total Benchmark Return) x (Actual Weight of Asset Class – Target Policy Weight of Asset Class).
- The bar labeled **Other** is a combination of Cash Flow Effect and Benchmark Effect:
  - Cash Flow Effect describes the impact of asset movements on the Total Fund results. Cash Flow Effect calculation = (Total Fund Actual Return – Total Fund Policy Return) – Current Selection Effect – Current Allocation Effect
  - Benchmark Effect results from the weighted average return of the asset classes' benchmarks being different from the Total Funds' policy benchmark return. Benchmark Effect calculation = Total Fund Policy Return – (Asset Class Benchmark Return x Target Policy Weight of Asset Class)
- **Cumulative Effect**
  Cumulative Effect calculation = Current Effect t *(1+Cumulative Total Fund Actual Return t-1) + Cumulative Effect t-1*(1+Total Fund Benchmark Return t)

Disclaimers and Notes

Disclaimers and Notes

Disclaimers:

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- **Refer to Hedge Fund Research, Inc. www.hedgefundresearch.com for more information on HFR indices**

Notes:

- **The rates of return contained in this report are shown on an after-fees basis unless otherwise noted. They are geometric and time weighted. Returns for periods longer than one year are annualized.**
- **Universe percentiles are based upon an ordering system in which 1 is the best ranking and 100 is the worst ranking.**
- **Due to rounding throughout the report, percentage totals displayed may not sum up to 100.0%. Additionally, individual fund totals in dollar terms may not sum up to the plan totals.**

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Aon Investments USA Inc.
200 E. Randolph Street
Suite 700
Chicago, IL 60601
ATTN: Aon Investments Compliance Officer

Private Markets

Eric Lang, Senior Managing Director
July 2024

Private Markets Philosophy

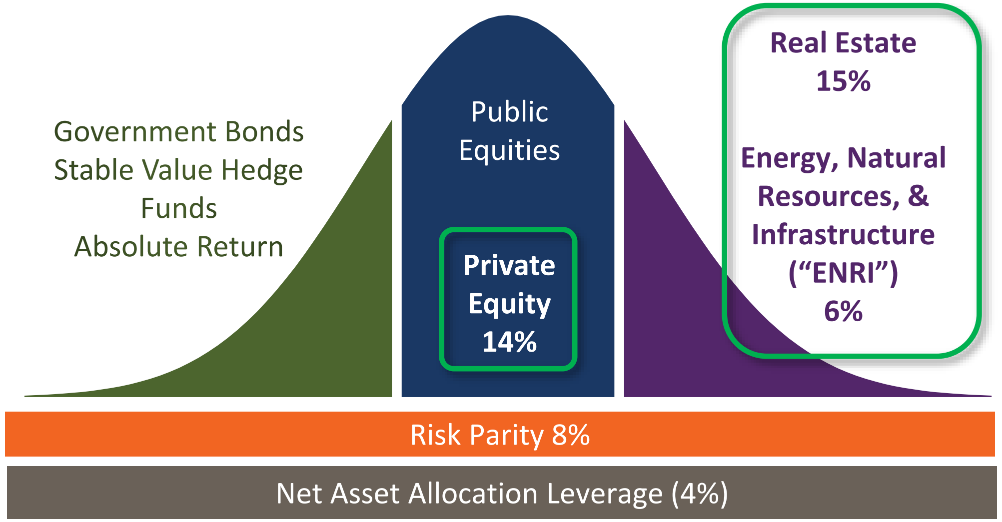
IMD Culture Tenets

- Accountability & Transparency
- Curiosity
- Constructive Candor
- Continuous Improvement

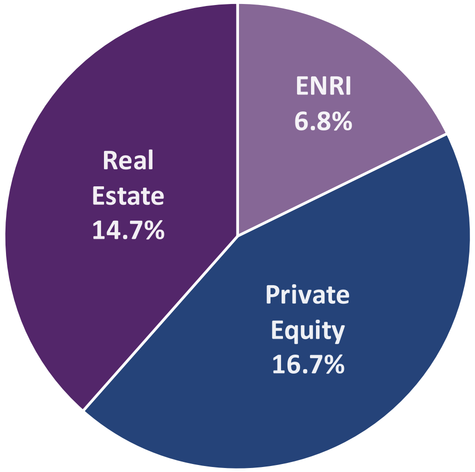
Culture and Team	• Demonstrating the TRS IMD culture through accountability, curiosity, candor, and continuous improvement • Hire and retain great investors for internal capabilities and work across the Trust
World Class Investors through Partnership	• Being the partner of choice for our managers using speed, consistency, predictability, and our people
Transparency	• Improving transparency through reporting and communication both internally and externally • “Tell it like it is” and “No Slow Maybes”
Innovate	• Utilizing unique partnership and investment structures • Focusing on technology and data • Always open to new ideas and improvements
Value Driven	• Finding value where others are not looking • Be willing to “take risks”
Industry Leadership	• Maintaining industry leadership roles across all private assets • Growing TRS Private Markets alumni network

Private Markets Role in the Trust

Role in the Trust



Private Markets
(% of Trust)



Source: State Street as of 3/31/24

Key Data Points

4 teams

- Data Analytics / Performance
- ENRI
- Private Equity
- Real Estate

2 offices (Austin/London)

3 Investment Committees

4 Management Committees

35% of Trust Allocation

~$80 billion NAV

745 Active Investments

- 493 Funds
- 252 Principal Investment Vehicles (PIVs)

Industry Involvement

- ILPA Board – Scott Ramsower
- PREA Board – Grant Walker
- PREA KOZA Fellows – Sam Givray, Luke Luttrell
- CFA Society of Austin – Dan Judd
- MIPIM RE Invest Advisory Board – Kimberly Carey
- Urban Land Institute Council – Brendan Cooper, Jennifer Wenzel
- UT McCombs Advisory Boards – Carolyn Hansard, Eric Lang, Neil Randall, Matt Halstead, Justin Wang, Jennifer Wenzel

TRS
TEACHER RETIREMENT SYSTEM OF TEXAS
INVESTMENT MANAGEMENT DIVISION

Private Markets Role in the Trust

Executive Summary ($M)

PORTFOLIO PERFORMANCE											
Portfolio	Market Value	% of Trust	1-Year TWR	3-Year TWR	5-Year TWR	1-Year IRR	3-Year IRR	5-Year IRR	SI IRR	SAA Median Return	PL Invested Managers
ENRI	$13,812	6.8%	9.7%	14.6%	8.2%	9.8%	14.7%	8.5%	7.5%	8.0%	31
Private Equity	$34,211	16.7%	8.1%	11.2%	13.9%	8.8%	11.5%	14.5%	13.4%	9.1%	60
Real Estate	$29,501	14.7%	(5.5%)	8.8%	7.6%	(5.7%)	8.7%	7.6%	8.6%	9.0%	48
Total	**$77,524**	**38.2%**	**2.7%**	**10.8%**	**10.5%**	**3.0%**	**10.9%**	**10.8%**	**10.8%**	**8.8%**	**120**

PRINCIPAL INVESTMENTS ("PI") PERFORMANCE										
Portfolio	Market Value	% of Portfolio	No. (active)	1-Year TWR	3-Year TWR	5-Year TWR	1-Year IRR	3-Year IRR	5-Year IRR	SI IRR
ENRI	$5,632	40.8%	52	11.6%	14.1%	7.0%	11.8%	14.3%	7.7%	9.4%
Private Equity	$9,798	28.6%	81	10.4%	11.6%	12.5%	11.4%	12.1%	13.0%	15.2%
Real Estate	$15,777	53.5%	119	(4.7%)	9.9%	9.0%	(4.8%)	9.5%	8.8%	12.8%
Total	**$31,207**	**40.3%**	**252**	**2.3%**	**11.1%**	**9.8%**	**2.6%**	**11.1%**	**9.9%**	**13.0%**

2023 APPROVAL ACTIVITY NUMBER OF INVESTMENTS			
Portfolio	Funds	PIs	Total
ENRI	6	47	53
Private Equity	16	42	58
Real Estate	10	72	82
Total	**32**	**161**	**193**

2023 APPROVAL ACTIVITY DOLLAR VALUE OF INVESTMENTS			
Portfolio	Funds	PIs	Total
ENRI	$1,025	$1,099	$2,124
Private Equity	$1,659	$ 903	$2,562
Real Estate	$ 950	$1,090	$2,040
Total	**$3,634**	**$3,092**	**$6,726**

2023 CASH FLOWS					
Portfolio	Net Capital Called	Capital Distributions	Income Distributions	Total Distributions	Net Cash Flows
ENRI	$2,360	$1,238	$453	$1,691	($669)
Private Equity	$3,308	$3,227	$296	$3,523	$215
Real Estate	$4,617	$2,638	$938	$3,576	($1,041)
Total	**$10,285**	**$7,103**	**$1,687**	**$8,790**	**($1,495)**

Source: State Street based on 12/31/23 valuations for IRR calculation and 3/31/24 cash adjusted valuations for TWR calculation; Percentage of Trust is as of 3/31/24; Activity based on TRS IMD data
Note: ENRI TWR reflects ENR performance from 10/01/13 through 9/30/2016 and ENRI (ENR plus Infrastructure) from 10/01/16 through 3/31/24
Note: ENRI IRR reflects performance from fund investments initially transferred to ENRI portfolio (inception date: 10/28/04)
Note: Approval activity does not include Emerging Managers
Note: SAA Median Return is from the 2024 Expected Return Forecast presented to Board in May; the total for Private Markets is weighted average using asset class target allocations

TRS TEACHER RETIREMENT SYSTEM OF TEXAS INVESTMENT MANAGEMENT DIVISION

Private Markets Role in the Trust

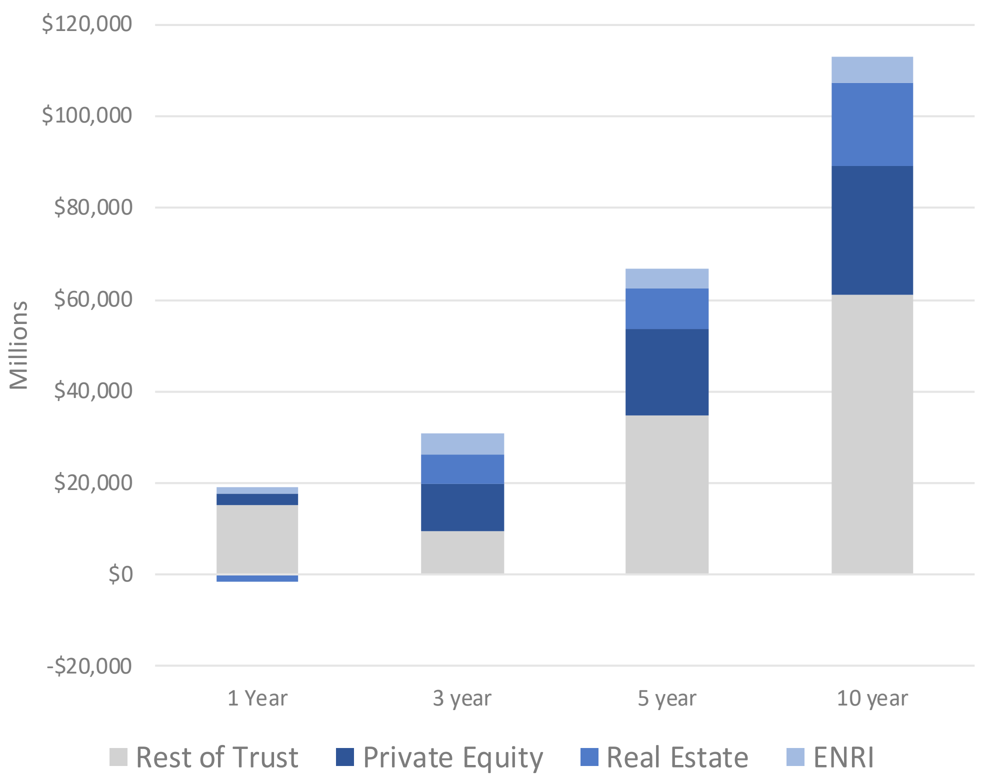
Portfolio Detail Returns

PORTFOLIO	MEASURE	1-YEAR RETURN	3-YEAR RETURN	5-YEAR RETURN	COMMENTS
ENRI	IRR	9.8%	14.7%	8.5%	• Excellent result over all time periods • Energy continues to perform well • Infrastructure continues to provide consistent returns • Excess returns across the board
	TWR	9.7%	14.6%	8.2%	
	Benchmark	5.4%	12.5%	7.7%	
	Excess Return	4.3%	2.1%	0.5%	
Private Equity	IRR	8.8%	11.5%	14.5%	• One year returns are back in positive territory and longer-term returns remain strong • PE is the highest returns private asset class on 5-year basis • Leading peers on 5-year basis
	TWR	8.1%	11.2%	13.9%	
	Benchmark	6.6%	11.7%	14.7%	
	Excess Return	1.5%	(0.5%)	(0.8%)	
	TUCS Peer (%)	29th	55th	25th	
Real Estate	IRR	(5.7%)	8.7%	7.6%	• The TRS portfolio is more resilient than the benchmark • RE portfolio values are challenged by higher interest rates • Outstanding excess returns over longer periods • Leading peers on a 3-year and 5-year basis
	TWR	(5.5%)	8.8%	7.6%	
	Benchmark	(12.7%)	4.0%	3.3%	
	Excess Return	7.2%	4.8%	4.3%	
	TUCS Peer (%)	37th	25th	18th	

Source: State Street based on 12/31/23 valuations for IRR calculation and 3/31/24 cash adjusted valuations for TWR calculation; TUCS as of 3/31/24

Private Markets Performance

Dollar Value Add to Trust



2024 Performance – Early Preview

- ENRI and Private Equity continue to perform well
- Real Estate is expecting to see continued value declines throughout 2024
- We continue to see our Energy investments doing well

Preview of Q1 2024 Performance			
Portfolio	**Q1 2024 IRR**	**1-Year IRR**	**% of NAV Reported**
ENRI	3.6%	11.0%	96.9%
Private Equity	2.0%	8.6%	93.8%
Real Estate	(1.3%)	(5.6%)	94.6%
Total	**1.0%**	**3.2%**	**94.6%**

Source: State Street cash adjusted as of 3/31/24.
Note: Q1 2024 IRR includes only valuations received as of 6/24/2024. The 1-Year IRR is based on cash adjusted valuations as of 3/31/24.

Special Topic – Data Centers and AI

Quick Facts

- The demand for data has exponentially increased due to the widespread use of AI and Cloud computing
- Demand could lead to over $1T invested by the hyperscalers over the next 5 years, equating to a need of 28GW of power generation
- New chips have changed the game
- It is all about power and water – megawatts and cooling
- Data can live anywhere, subject to latency and reliable power

Exposure and Plans

- Data Centers touch many areas of the Trust
  - RE, ENRI, PE, and Special Opportunities
- TRS has 80+ investments in the space
- Private Markets and Special Opportunities have over $2B invested in the space
  - This is growing as commitments are funded, and valuations increase
- We continue to be very active in the space and expect to see more investments throughout 2024

Sources: TRS IMD

Private Markets People

TRS
TEACHER RETIREMENT SYSTEM OF TEXAS
INVESTMENT
MANAGEMENT DIVISION

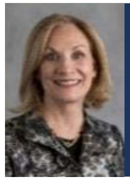
APPENDIX

Private Markets Overview

Organizational Structure

Eric Lang
Sr. Managing Director
BBA, UT Austin
MBA, University of Houston

Private Markets
35% OF TRUST BENCHMARK



Carolyn Hansard
Managing Director
BCom, Griffith University
LLB, Griffith University

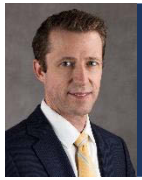
ENRI
6% OF TRUST BENCHMARK
13 Team Members

Neil Randall
Managing Director
BBA, Texas A&M
MS, Texas A&M

Private Equity
14% OF TRUST BENCHMARK
24 Team Members

Grant Walker
Managing Director
BBA, Baylor University
MBA, St. Edward's University

Real Estate
15% OF TRUST BENCHMARK
21 Team Members



Tim Koek
Director
BCom, Griffith University
LLB, Griffith University

Private Markets Analytics
8 Team Members

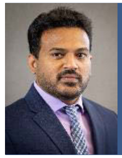
LeAnn Gola, CPA
Investment Manager
BBA, Texas State University
MAcy, Texas State University

Portfolio Initiatives

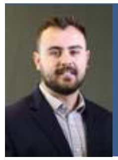
PRIVATE MARKETS ANALYTICS AND SUPPORT

Jeff Stafford
Senior Associate
BS, Pepperdine University

Barbara Woodard, CPA
Senior Associate
BBA, Texas A&M



Nikhil Mothukuri
Contractor
B-Tech, JNTU, India
MS, University of Hartford

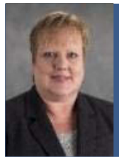


Tyler Kniskern
Associate
BBA, New Mexico State Univ.

Sam Zedan, CAIA
Associate
BA, University of Illinois, Chicago

Roxie Chung
Senior Analyst
BS, UCSD
MFE, UCLA Anderson

Alex Huang
Analyst
BS, New York University

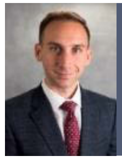


Melissa Kleihege
Analyst
BS, Texas A&M

Sienna Hilton
Assistant

TRICOT – TRS LONDON

Kimberly Carey**
Director, RE
BBA, Texas A&M



Mikhael Rawls, CFA
Director, PE
BA, Harvard University

Pasquale Pedata**
Investment Mgr., RE
BA, Parthenope University
MCF, LUISS University

Thomas Maguire
Associate, RE
BBA, University of Wisconsin

Sara Shan**
Junior Analyst
LLB, Middlesex University

TRS TEACHER RETIREMENT SYSTEM OF TEXAS INVESTMENT MANAGEMENT DIVISION

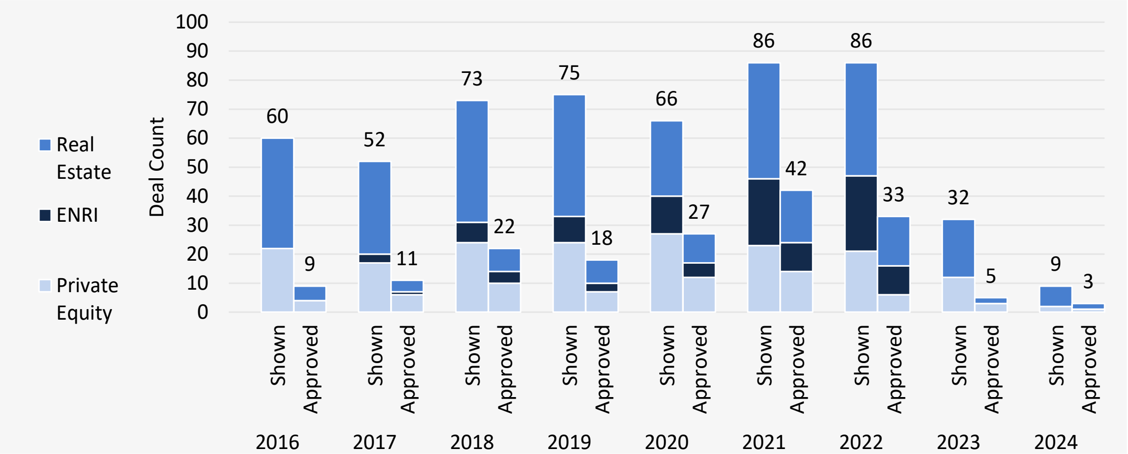
***TRICOT direct hires*

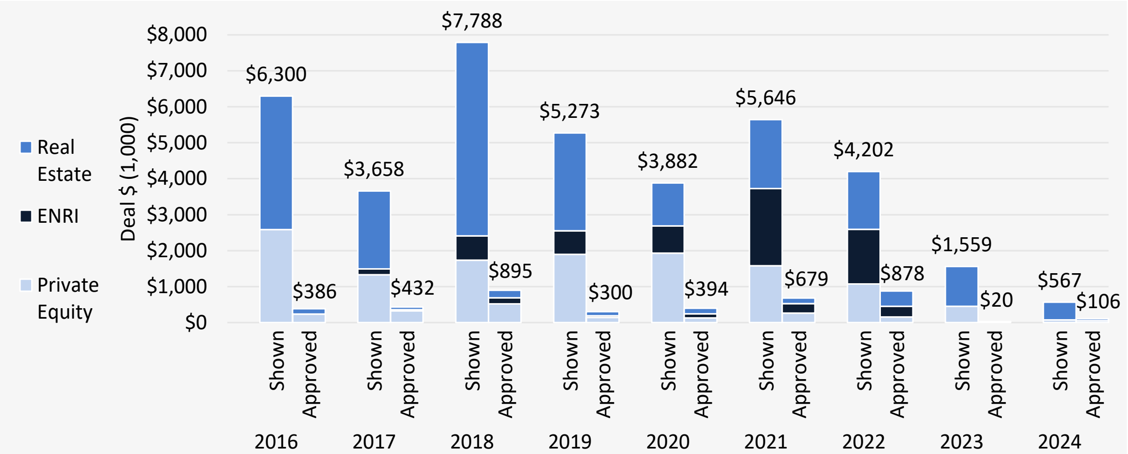
TRICOT Update

Overview

- TRICOT is now a well recognized brand within the European space – resulting in attractive deal flow and increasingly-sophisticated underwriting
- The Principal Investment deal flow decreased dramatically in 2023 similar with the overall market
- TRICOT is a team of 6 now: 3 Direct Hires, 3 Secondees
- TRICOT **recommended 5 deals** in 2023, representing **$20 million** of capital across Private Markets in the Principal investment space. On the Funds side, TRICOT recommended **4** funds/separate accounts, representing **$393 million**

Historical Principal Investment Deal Summary





Source: TRS IMD

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Real Estate

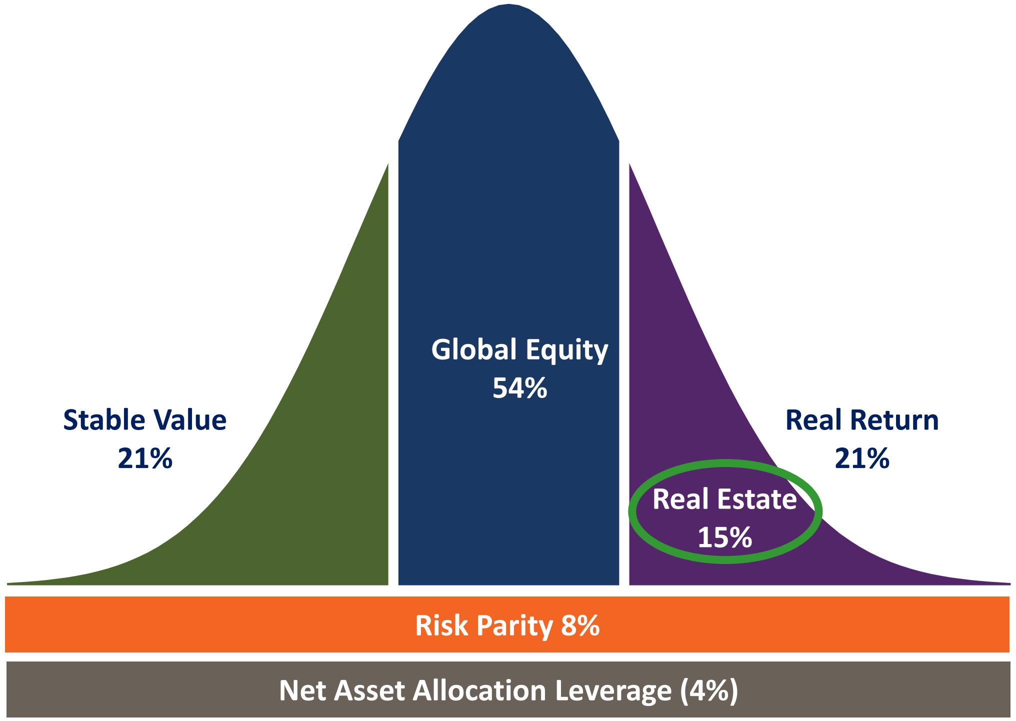
Grant Walker, Managing Director

July 2024

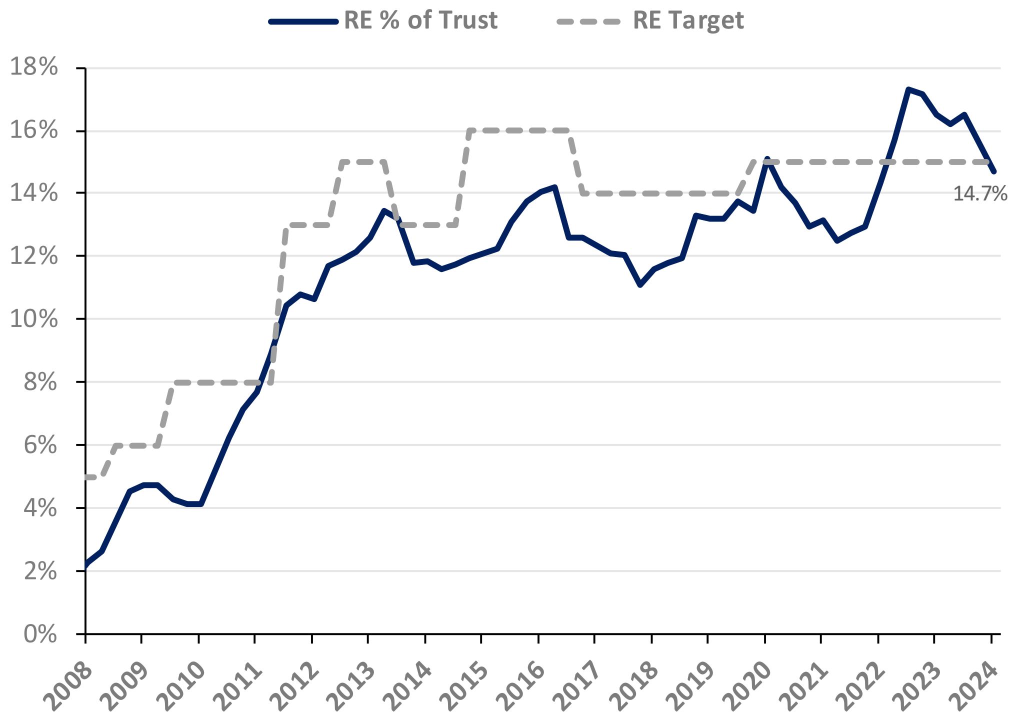
Role in the Trust

Real Estate (RE)

RE TARGET % OF TRUST



HISTORICAL TRUST ALLOCATION



Source: State Street as of 3/31/24

Note: Per the TRS Investment Policy Statement, target allocation weights represent transitional benchmarks (2006-2014), long-term target allocations (2015-present)

TRS TEACHER RETIREMENT SYSTEM OF TEXAS INVESTMENT MANAGEMENT DIVISION

Performance Summary

($M)

PORTFOLIO PERFORMANCE			
Asset Class	**1-Year Return**	**3-Year Return**	**5-Year Return**
Real Estate IRR	(5.7%)	8.7%	7.6%
Real Estate TWR	(5.5%)	8.8%	7.6%
Real Estate Benchmark	(12.7%)	4.0%	3.3%
Real Estate Excess Return	7.2%	4.8%	4.3%
TUCS Peer (Percentile)	37th	25th	18th

PORTFOLIO GROWTH			
Real Estate	**1-Year**	**3-Year**	**5-Year**
Ending Value	$29,501	$29,501	$29,501
less Starting Value	30,210	23,513	19,621
less Contributions	4,617	14,718	24,060
plus Distributions	3,576	15,112	23,150
Investment Return	**($1,750)**	**$6,382**	**$8,969**

FUNDS AND PRINCIPAL INVESTMENT PERFORMANCE										
Portfolio	**Market Value**	**% of Portfolio**	**No. (active)**	**1-Year TWR**	**3-Year TWR**	**5-Year TWR**	**1-Year IRR**	**3-Year IRR**	**5-Year IRR**	**SI IRR**
Funds	$13,724	46.5%	156	(6.4%)	7.6%	6.3%	(6.7%)	7.9%	6.5%	7.0%
Principal Investments	15,777	53.5%	119	(4.7%)	9.9%	9.0%	(4.8%)	9.5%	8.8%	12.8%
Total	**$29,501**	**100.0%**	**275**	**(5.5%)**	**8.8%**	**7.6%**	**(5.7%)**	**8.7%**	**7.6%**	**8.6%**

PORTFOLIO STRATEGY SUMMARY								
Strategy	**Target Portfolio Weight**	**RE Portfolio Leverage**	**% of Portfolio**			**Investment Returns**		
			12/31/2023	**12/31/2020**	**Change**	**1-Year IRR**	**3-Year IRR**	**SI IRR**
Core	35% (+/- 5%)	35.1%	26.4%	31.0%	(4.6%)	(9.3%)	10.9%	10.0%
Value Add	15% (+/- 4%)	49.4%	16.1%	14.5%	1.5%	(11.3%)	0.6%	4.9%
Opportunistic	40% (+/- 5%)	48.9%	48.6%	39.4%	9.1%	(3.0%)	10.5%	8.6%
RASS	10% (+/- 3%)	61.3%	8.8%	14.4%	(5.6%)	2.2%	8.4%	10.8%
Other Real Assets	0%	0.0%	0.1%	0.6%	(0.5%)	(4.3%)	(0.2%)	1.6%
REAL ESTATE TOTAL	**100%**	**47.2%**	**100.0%**	**100.0%**	**0.0%**	**(5.7%)**	**8.7%**	**8.6%**

Source: State Street based on 12/31/23 valuations; TWR and TUCS as of 3/31/24
Note: Inception date of RE portfolio is April 2006
Note: Currency hedges and legal fees are included in the total aggregate IRR and TWR performance
Note: RE Portfolio Leverage from General Partner reporting as of 9/30/23
Note: ODCE benchmark had 24.9% leverage as of 9/30/23

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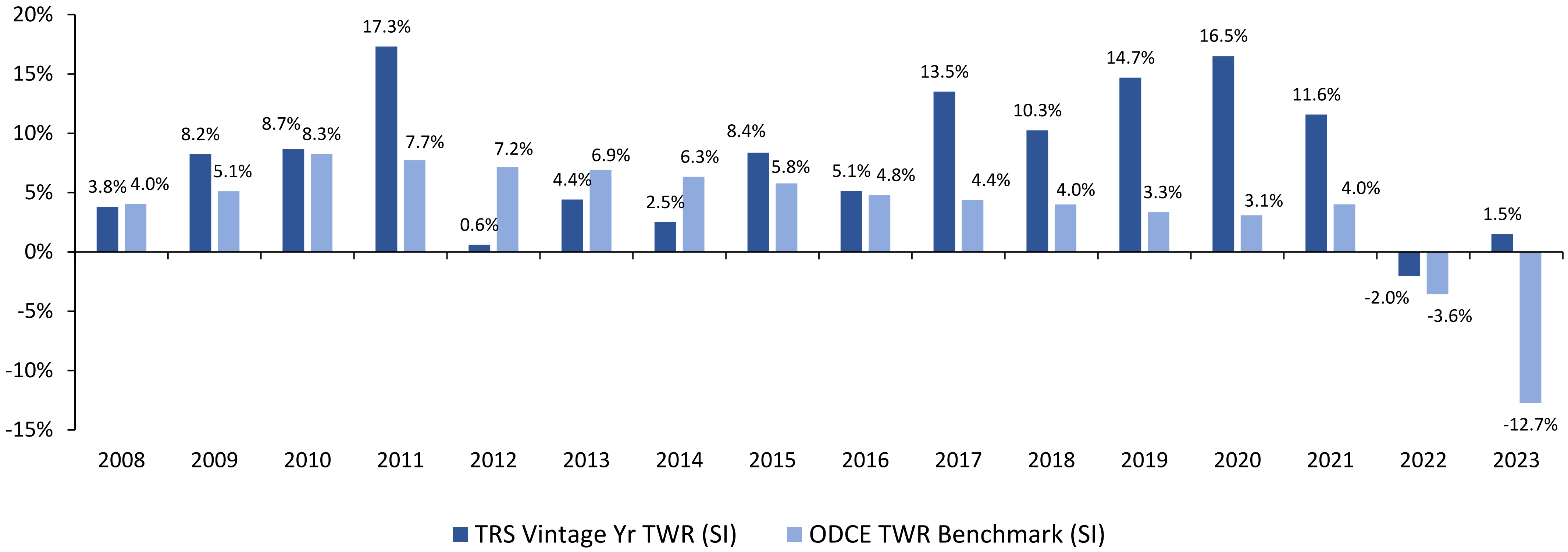
INVESTMENT MANAGEMENT DIVISION

Performance Summary

TRS Vintage Year Comparison

- RE's vintage year investments have outperformed the benchmark 12 out of the last 16 years
- Portfolio positioning and security selection the past five years have been successful

RE PORTFOLIO VINTAGE YEAR COMPARISON



Source: State Street and NCREIF data as of 12/31/23

Note: The TRS Real Estate Benchmark is NFI-ODCE, which is a capitalization weighted, open-end, diversified core equity real estate index

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Spotlight – Data Centers
Skyrocketing Demand Met With Limited Supply

Exponential demand growth

Driven by two major trends

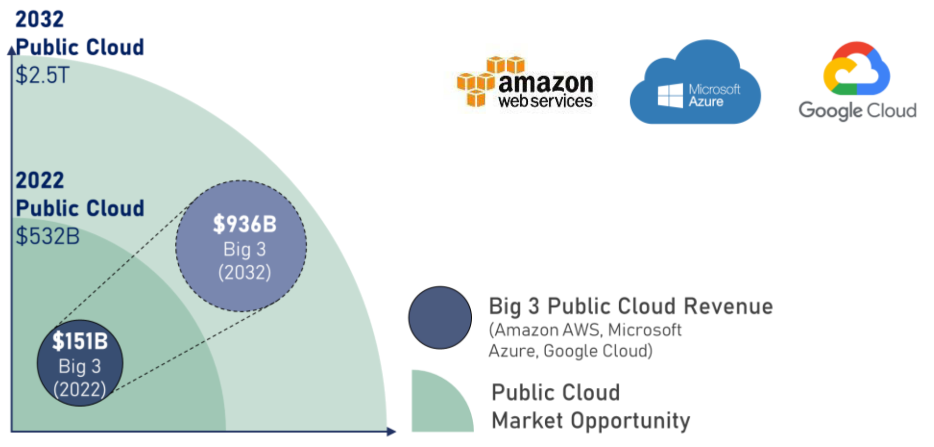
- Continued migration to <u>cloud computing and data storage</u>
  - Global market size: ~$500 billion in 2022 → ~2.5 trillion in 2032
- Advent of <u>generative artificial intelligence (“GenAI”)</u>
  - Global projected revenue: $40 billion in 2022 → $1.3 trillion in 2032

Limited supply growth

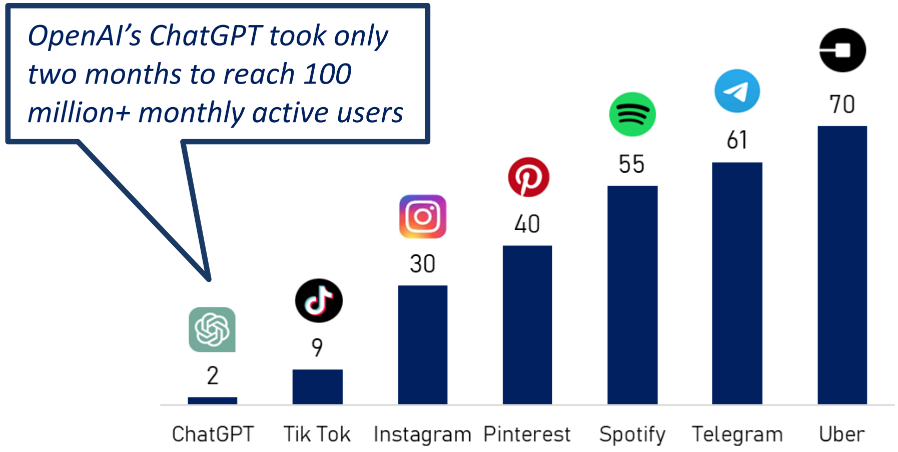
Driven by two factors

- <u>Power constraints:</u> Power lead times vary from 2-7 years across major markets
- <u>Capital intensity:</u> Likely the most expensive real estate product to develop on a per square foot (PSF) basis
  - Total capitalization can reach $15 million per megawatt (or $1,000+ PSF) for turnkey development in primary markets, translating to $750 million for a 50MW project

Cloud Computing Market Size – 2022 - 2032



Number of Months Taken to Reach 100 Million+ Active Users



Sources: Morgan Stanley, Bloomberg, Morgan Stanley via ClearBridge Investments, “Investment Implications of Generative AI”, June 2023, UBS / Yahoo Finance.

Spotlight – Data Centers

Key Markets and Investment Opportunities

The TRS Real Estate team is actively exploring data center development and acquisition opportunities, with a particular focus on hyperscale developments.

What are hyperscale data centers?

- These are purpose-built facilities leased to hyperscale cloud providers such as Amazon, Google, Meta, and Microsoft and used for cloud computing, storage, and AI processing.
  - Typical size: 20MW ~ 100MW+ ($300+ million)
  - Typical leases: 10~15 years leased to single tenant

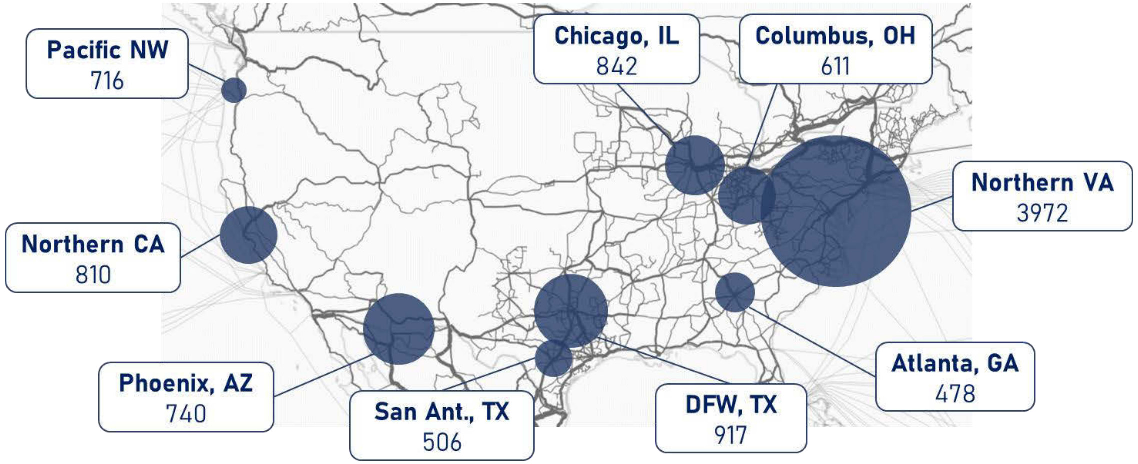
Why are they an attractive opportunity?

- High development yield: 7%+ (an attractive return profile in today's high interest rate environment)
- Credit tenants with stable leases: These assets are pre-leased to high credit quality tenants for ~15 years with 2-3% annual rent bumps
- High barriers to entry: 1) Limited availability of powered land in key data center markets; 2) Requirements for state-of-the-art facilities with liquid cooling capability to enable high-intensity computing

Diligence Themes

- Advances in technology – obsolescence risk
- Overabundance of capital – oversupply risk
- Regulation & legislation – "stroke of the pen" risk
- Supply chain – high-performing chip supply is limited
- Availability & cost of energy – operating cost volatility

Major U.S. Data Center Markets & Sizes (MW)



Sources: Affinius Capital, datacenterHawk, International Telecommunication Union, JLL.

Summary: Accomplishments and Priorities

RE

2023 Accomplishments

- Performance
  - TRS RE portfolio exceeded benchmark on 1-year, 3-year, and 5-year periods
    - TRS TWR outperformed by over 700 bps for the 1-year period, and by over 400 bps for both the 3-year and 5-year periods
    - TUCS peer percentile is 25th and 18th for 3-year and 5-year periods respectively
- Team Update
  - Hired 2 full-time team members in early 2024; 1 Sr. Analyst and 1 Analyst
- Maintained allocation of approximately 50% to Funds and 50% to Principal Investments
- Capital Plan (as of 12/31/2023): Committed $1.7 billion toward a $1.9 billion plan
  - $0.7 billion to Funds
  - $0.9 billion to Principal Investments
  - $0.1 billion to Emerging Managers

2024 Priorities

- Commit approximately $2.5 billion with at least 50% in Principal Investments
- Collaborate with EPM Data Analytics Team
  - Work closely with Private Markets Data Analytics team to integrate improved Real Estate holdings data into portfolio management
- Active Portfolio Management
  - Continue engagement with GPs to monitor debt maturity schedule and capital needs associated with refinancing
  - Monitor impact on portfolio given broader market conditions and constrained lending environment
- Evaluate direct investing via Real Estate Title Holding Companies
  - Determine if TRS should implement for our Real Estate Portfolio

Source: State Street based on 12/31/23 valuations; TWR and TUCS as of 3/31/24

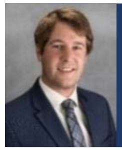
APPENDIX

Organization

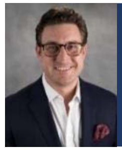
RE Team

Grant Walker *
Managing Director
BBA, Baylor
MBA, St. Edwards

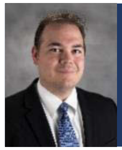
Kimberly Carey
TRICOT Director, RE
BBA, Texas A&M



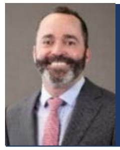
Brendan Cooper*
Director
BA, Carleton College
MS, University of Minnesota



Matt Halstead*
Director
BBA, UT Austin
MPA, UT Austin



Jared Morris, CFA*
Director
BBA, Texas A&M
MS, Texas A&M



Craig Rochette, **CFA, CAIA***
Director
BS, University of Arizona

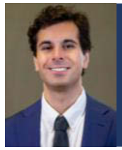
Jennifer Wenzel*
Director
BBA, UT Austin

Catherine Beaudoin
Investment Manager
BBA, Duke

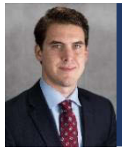
Elliott Fry, CFA
Investment Manager
BBA, University of Georgia
MBA, Columbia

Lucas McNulty
Investment Manager
BA, Bates College
MS, New York University

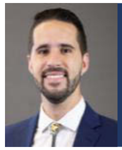
Pasquale Pedata
Investment Manager
BA, Parthenope University
MCF, LUISS University



Samuel Givray
Senior Associate
BA, Cornell University



Luke Luttrell
Senior Associate
BBA, Abilene Christian
JD/MBA, Texas Tech

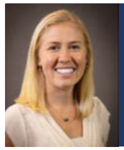


Tucker McCrabb
Senior Associate
BBA, Babson College

Chase Lewis
Associate
BBA, UT Austin

Thomas Maguire
Associate
BBA, Univ. of Wisconsin

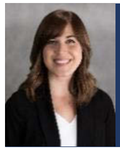
Meagan Bowden
Senior Analyst
BS, Univ. of Colorado-Boulder



Ellory Tippen
Senior Analyst
BA, MS, UT Austin

George Zhang
Senior Analyst
BS, Washington University
MS, Harvard University

Jessica Lee
Analyst
BBA, UT Austin



Gracie Marsh
Program Analyst
BA, UC Davis

Sara Shanmugalingam
Junior Analyst
LLB, Middlesex University

** Real Estate Investment Committee (REIC) members; REIC also Includes Eric Lang*

TRS
TEACHER RETIREMENT SYSTEM OF TEXAS
INVESTMENT
MANAGEMENT DIVISION

RE Strategy Definitions

Core

- Institutional quality, best-located and best-leased assets in the market in each of the traditional property types (office, multifamily, retail, industrial)
- Typical leverage is up to 50% loan-to-value (LTV)
- 35% (+/- 5%) allocation target

Value-Add

- Return-enhancing strategies executed at the property level designed to enhance value through execution of one or more of the following strategies: lease-up, rehabilitation, repositioning
- Typical leverage is 50% to 65% LTV
- 15% (+/- 4%) allocation target

Opportunistic

- Broad range of risk and return via opportunity funds, specialized investments, and mezzanine debt or equity with the majority of strategies involving some level of development or distress
- Typical leverage is 70% LTV and higher
- 40% (+/- 5%) allocation target

Real Assets Special Situations (RASS)

- Publicly traded shares of listed REITs (Real Estate Investment Trusts) and REOCs (Real Estate Operating Companies) or other real asset related entities, public or private real asset debt
- 10% (+/- 3%) allocation target

Other Real Estate (ORE)

- Land and other opportunistic investments providing inflation protection with relatively low expected volatility

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Energy, Natural Resources, and Infrastructure

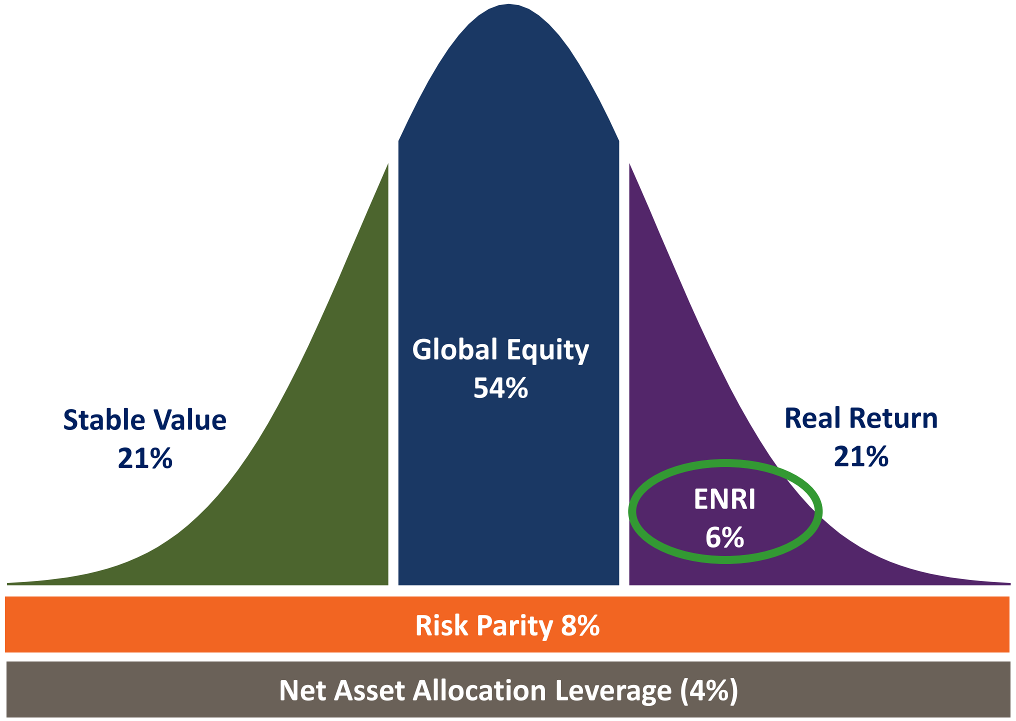
Carolyn Hansard, Managing Director

July 2024

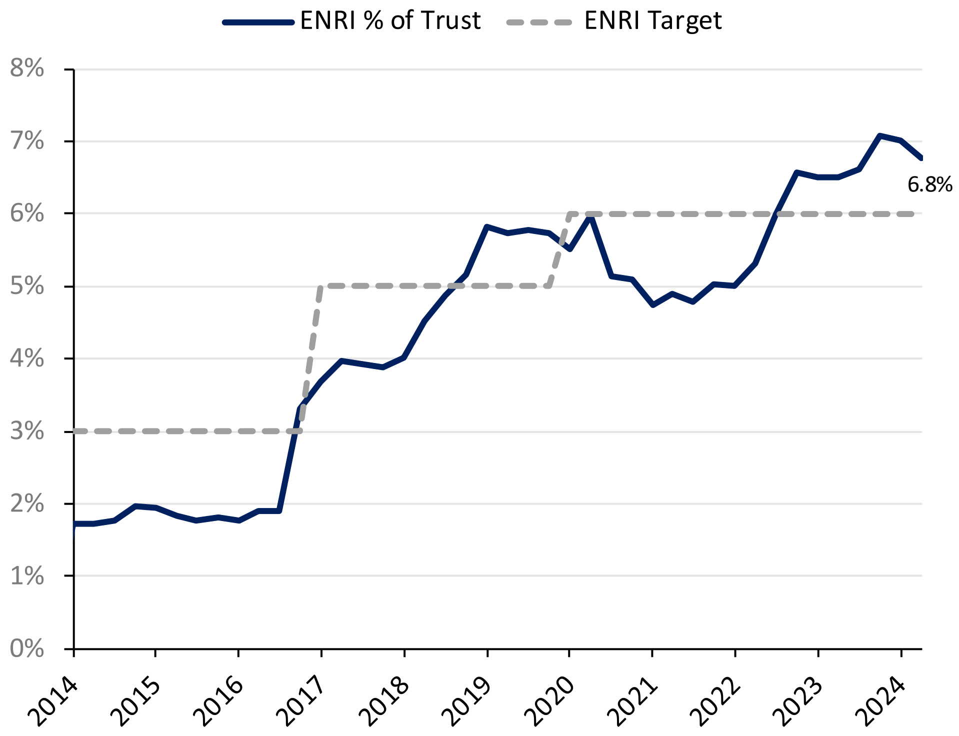
Role in the Trust

Energy, Natural Resources & Infrastructure (ENRI)

ENRI TARGET % OF TRUST



HISTORICAL TRUST ALLOCATION



Source: State Street as of 3/31/24

Note: Per the TRS Investment Policy Statement, target allocation weights represent transitional benchmarks (2006-2014), long-term target allocations (2015-present)

Performance Summary
($M)

PORTFOLIO PERFORMANCE			
Asset Class	1-Year Return	3-Year Return	5-Year Return
ENRI IRR	9.8%	14.7%	8.5%
ENRI TWR	9.7%	14.6%	8.2%
ENRI Benchmark	5.4%	12.5%	7.7%
ENRI Excess Return	**4.3%**	**2.1%**	**0.5%**

PORTFOLIO GROWTH			
ENRI	1-Year	3-Year	5-Year
Ending Value	$13,812	$13,812	$13,812
less Starting Value	11,939	8,802	8,465
less Contributions	2,360	6,575	9,526
plus Distributions	1,691	6,078	8,632
Investment Return	**$1,204**	**$4,513**	**$4,453**

FUND AND PRINCIPAL INVESTMENTS PERFORMANCE										
Portfolio	Market Value	% of Portfolio	No. (active)	1-Year TWR	3-Year TWR	5-Year TWR	1-Year IRR	3-Year IRR	5-Year IRR	SI IRR
Funds	$8,180	59.2%	84	8.2%	14.9%	8.8%	8.5%	14.9%	9.0%	6.6%
Principal Investments	5,632	40.8%	52	11.6%	14.1%	7.0%	11.8%	14.3%	7.7%	9.4%
Total	**$13,812**	**100.0%**	**136**	**9.7%**	**14.6%**	**8.2%**	**9.8%**	**14.7%**	**8.5%**	**7.5%**

PORTFOLIO STRATEGY SUMMARY BY RISK							
Strategy	Target Portfolio Weight	% of Portfolio			Investment Returns		
		12/31/2023	12/31/2020	Change	1-Year IRR	3-Year IRR	SI IRR
Core	10-20%	6.1%	2.1%	4.0%	9.4%	13.8%	9.3%
Value-Add	50-70%	56.7%	63.1%	(6.4%)	8.5%	10.6%	7.9%
Opportunistic	20-30%	37.2%	34.8%	2.4%	11.8%	22.0%	6.9%
ENRI TOTAL	**100%**	**100.0%**	**100.0%**	**0.0%**	**9.8%**	**14.7%**	**7.5%**

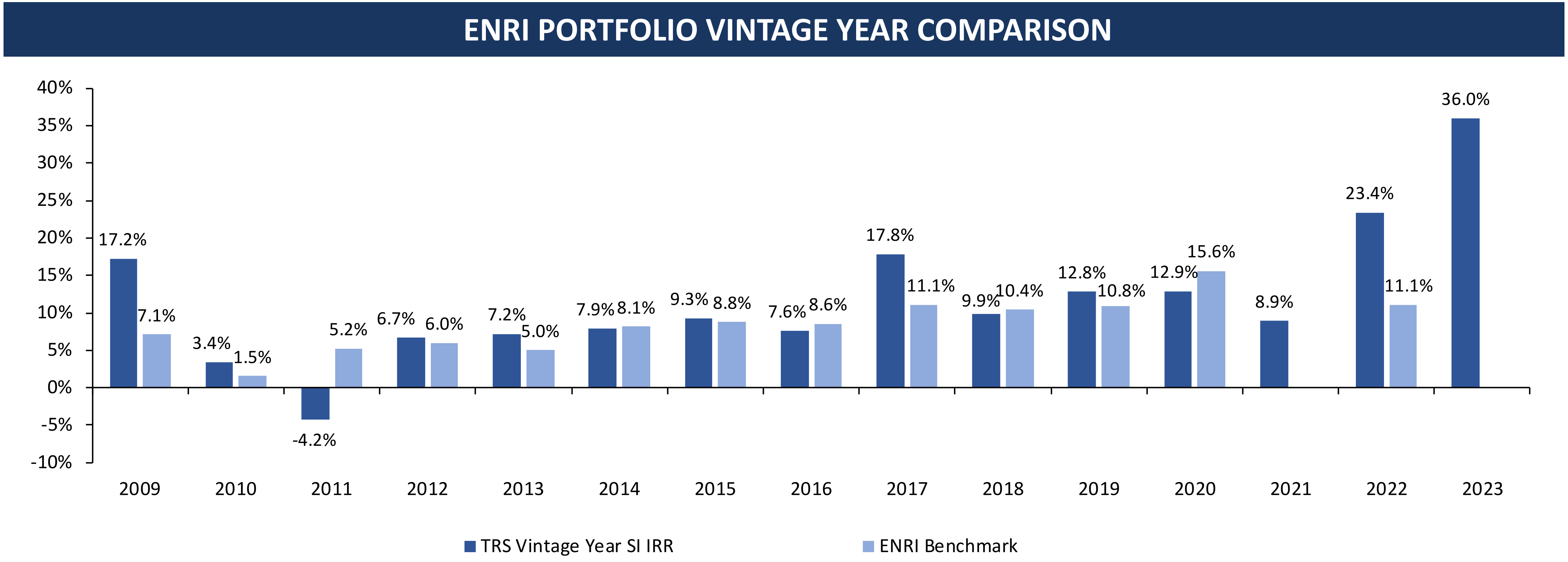
PORTFOLIO SECTOR SUMMARY BY SECTOR							
Sector	Target Portfolio Weight	% of Portfolio			Investment Returns		
		12/31/2023	12/31/2020	Change	1-Year IRR	3-Year IRR	SI IRR
Infrastructure	N/A	54.3%	50.1%	4.2%	10.3%	11.7%	11.3%
Energy Diversified	N/A	39.5%	43.4%	(3.9%)	9.7%	20.4%	3.9%
Natural Resources	N/A	6.2%	6.5%	(0.3%)	6.5%	4.8%	11.3%
ENRI TOTAL	N/A	**100.0%**	**100.0%**	**0.0%**	**9.8%**	**14.7%**	**7.5%**

Source: State Street based on 12/31/23 valuations; TWR as of 3/31/24
Note: Inception date as 10/28/04, when fund investments were initially transferred to ENRI portfolio
Note: TWR and Benchmark reflect ENR performance from 10/01/13 through 9/30/2016 and ENRI (ENR plus Infrastructure) from 10/01/16 through 3/31/24

Performance Summary

TRS Vintage Year Comparison

- ENRI outperformed the current benchmark returns for 60% of the vintage years since 2009



Source: State Street as of 12/31/23

Note: ENRI benchmark calculated using Cambridge vintage year IRRs (40% Infrastructure and 40% Natural Resources) and 20% annualized CPI

Note: Cambridge does not have sufficient constituents to report a return for Natural Resources for vintage years 2021 and 2023

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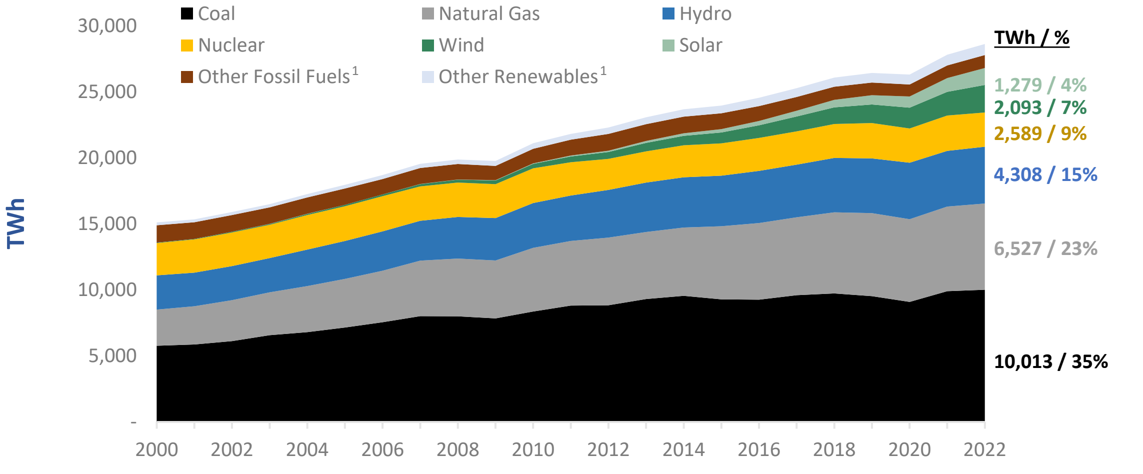
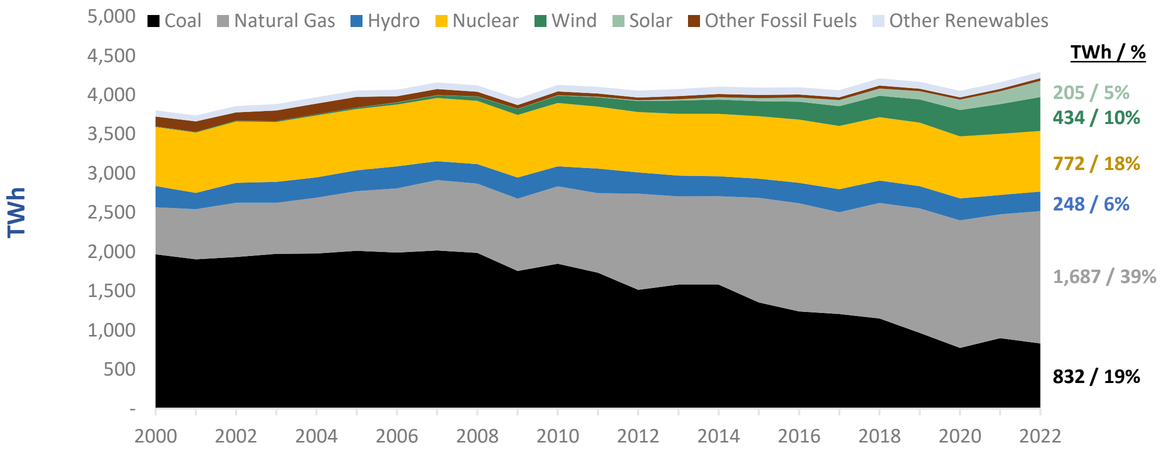
Spotlight – Power Market Overview

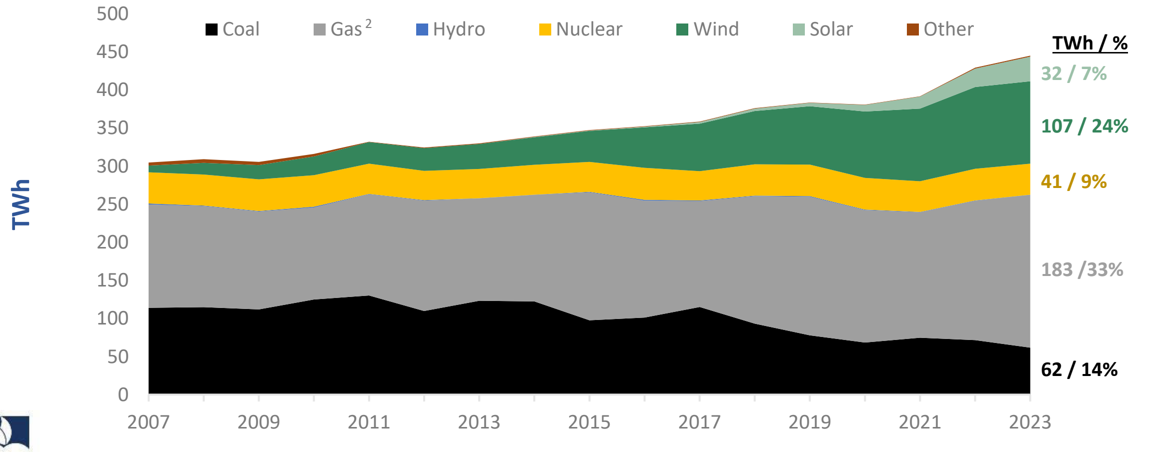
Global Electricity Generation Evolution (2000-2022)



US Electricity Generation Evolution (2000-2022)



Texas (ERCOT) Electricity Generation Evolution (2007-2023)



- Globally, electricity demand has increased primarily through growth in emerging markets, with 58% of the market supplied by traditional sources and more recent supply growth through renewable sources
- In the U.S., electricity demand has remained relatively flat over the last two decades, with natural gas replacing coal as a fuel source. In the last several years, however, electricity demand has increased in select markets with varied regional drivers
- One of these markets is Texas with the electricity demand in ERCOT increasing substantially over the last 5 years. This increased demand has been met through increased supply of renewable sources, primarily wind

Source: EIA Monthly Energy Review Data, EIA Electricity 2024 – Analysis and Forecast to 2026, ERCOT Fuel Mix Report.

1. *"Other Fossil Fuels" includes: Oil and Other Gases; "Other Renewables" includes: Geothermal, Tide & Wave, and Biomass & Waste.*
2. *Gas contains natural gas and combined cycle.*

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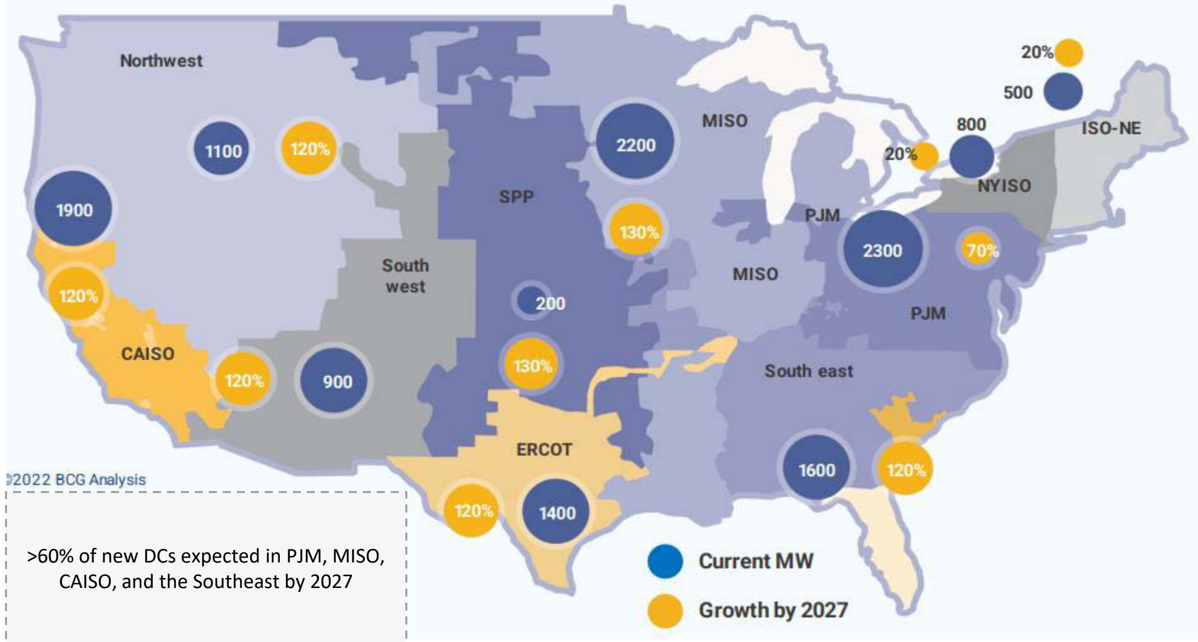
Spotlight – Power Market Outlook

Data center energy demand is expected to grow substantially by 2030 in several key markets

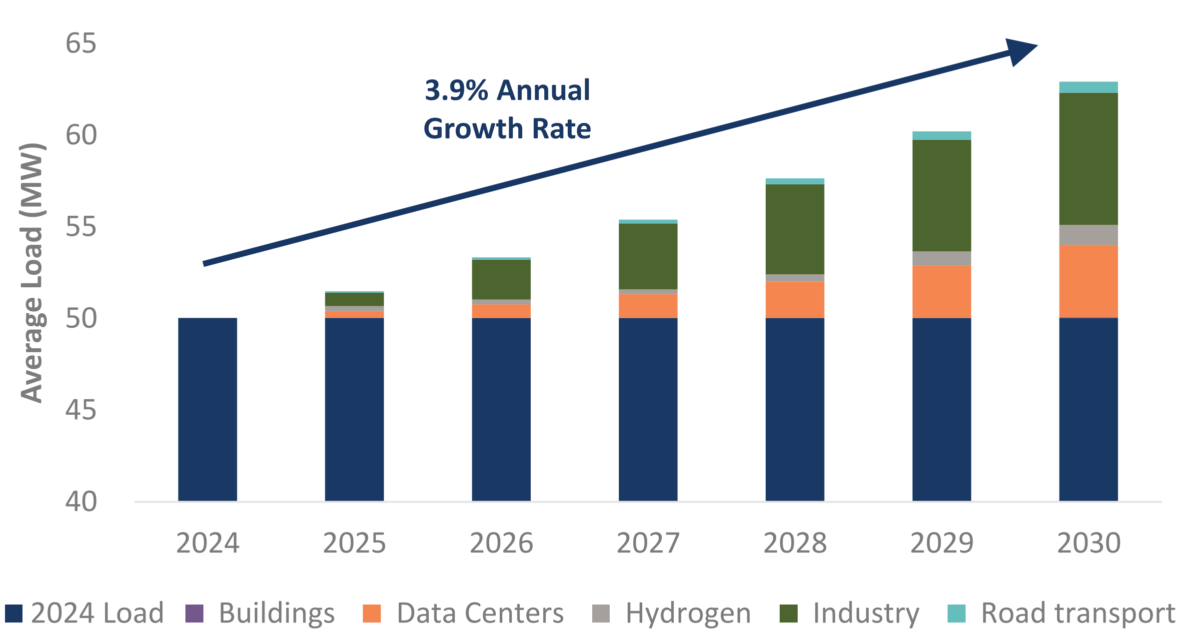
Energy demand across ERCOT is expected to grow proportionally across all sectors over the next 7 years

US Data Center Composition by Power Market



>60% of new DCs expected in PJM, MISO, CAISO, and the Southeast by 2027

Projected ERCOT Demand by Sector



- While renewable sources have added increased power supply, data centers require uninterruptible power generation
- This creates both a challenge and investment opportunities in meeting power needs

- Industry growth is also leading to increased power demands
- As ERCOT is a merchant market with significant renewable resources, the ability to supply consistent power sources creates investment opportunities

Source: EIA Electricity 2024 – Analysis and Forecast to 2026, BCG, and McKinsey & Co, using conservative "Fading Momentum" scenario with specific adjustments for ERCOT hydrogen projects.

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Summary: Accomplishments and Priorities

ENRI

2023 ACCOMPLISHMENTS

- Performance
  - Overall, generated IRR of 9.8%, 14.7% and 8.5% for 1, 3 and 5-year periods, respectively
  - Principal investments generated IRR of 11.8%, 14.3%, and 7.7% for 1, 3 and 5-year periods, respectively
- Team Update
  - Added 3 Analysts / Senior Analysts
  - Hired 1 Senior Analyst starting July 2024
- Portfolio Construction
  - Developed new energy opportunities/relationships
  - Kicked off SAA
- Capital Plan Impact
  - Approximately $2.0 billion
    - $975 million to Funds
    - $998 million to Principal Investments

2024 PRIORITIES

- Capital Plan
  - Commit approximately $1.6 billion with 40% in Principal Investments
- Team
  - ENRI Team is fully staffed
- Portfolio Construction
  - Continue to review bespoke energy opportunities
  - Cautious on valuations for infrastructure opportunities
  - Assess mining opportunities
- Date Analytics
  - Continue to aggregate detailed data from managers to allow further insight and analysis of the ENRI portfolio
  - Continue to develop automated processes to assist in underwriting and monitoring portfolio more efficiently

TRS TEACHER RETIREMENT SYSTEM OF TEXAS INVESTMENT MANAGEMENT DIVISION

Source: Performance data from State Street as of 12/31/23.

APPENDIX

Organization

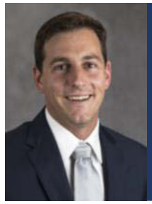
ENRI Team

Carolyn Hansard*
Managing Director

BS, UT Austin
MBA, UT Austin

Mark Cassens*
Director

BS, UT Austin
MBA, UT Austin



Daniel Judd, CFA*
Director

BBus, Griffith University
MBA, Bond University

Ryan Zafereo*
Director

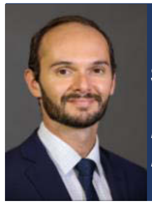
BBA, UT Austin

Emerson Halstead, CFA
Investment Manager

BS, UT Austin
MBA, IU Bloomington
MLA, Harvard University

Hunter Coleman, CFA
Senior Associate

BBA, Texas A&M



Murilo Martins
Senior Associate

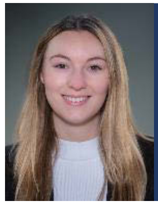
BS, Louisiana Tech University
MBA, UT Austin

James Gilbert
Associate

BS, University of Arkansas
MBA, Columbia University

Patrick Quinn
Associate

BA, Providence College
MBA, UT Austin



Ashley Arabia
Senior Analyst

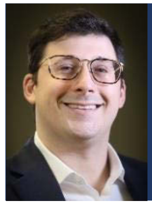
BA, Texas A&M
MSF, UT Austin

Nabil Mirzaei
Analyst

BBA, UT Austin

Matthew Wheatley
Analyst

BS, Texas A&M
MSF, Texas A&M
Joining ENRI In July 2024



Adam Wilensky
Analyst

BBA, UT Austin

Susan White
Junior Analyst

BS, Penn State University

** ENRI investment committee (ENRI IC) members; ENRI IC also includes Eric Lang*

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MANAGEMENT DIVISION

Private Equity

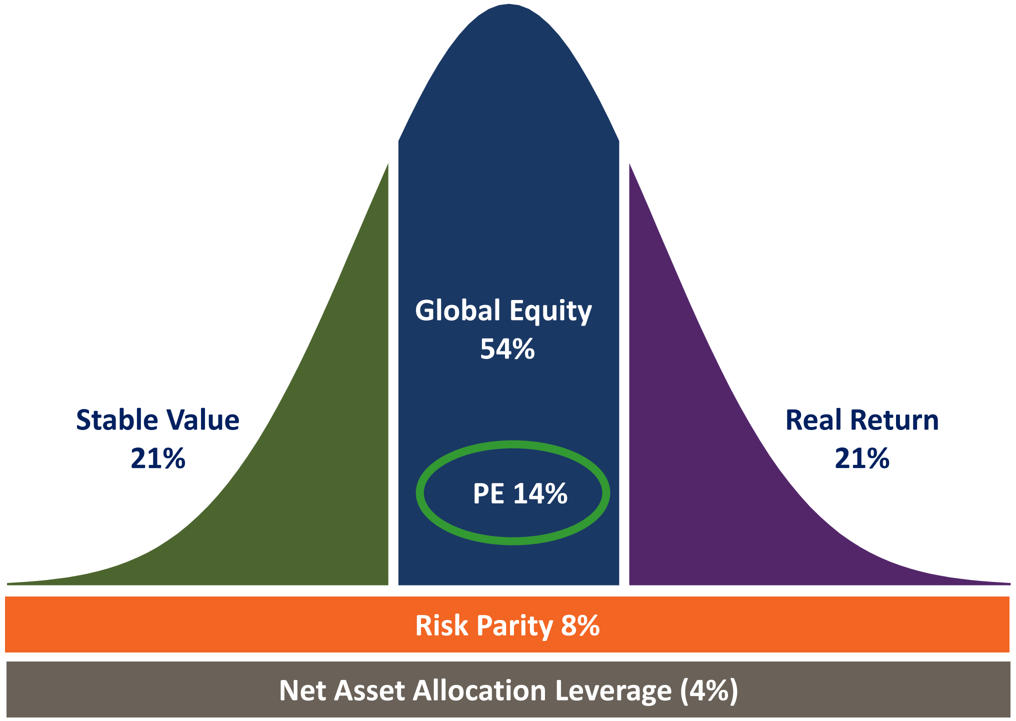
Neil Randall, Managing Director

July 2024

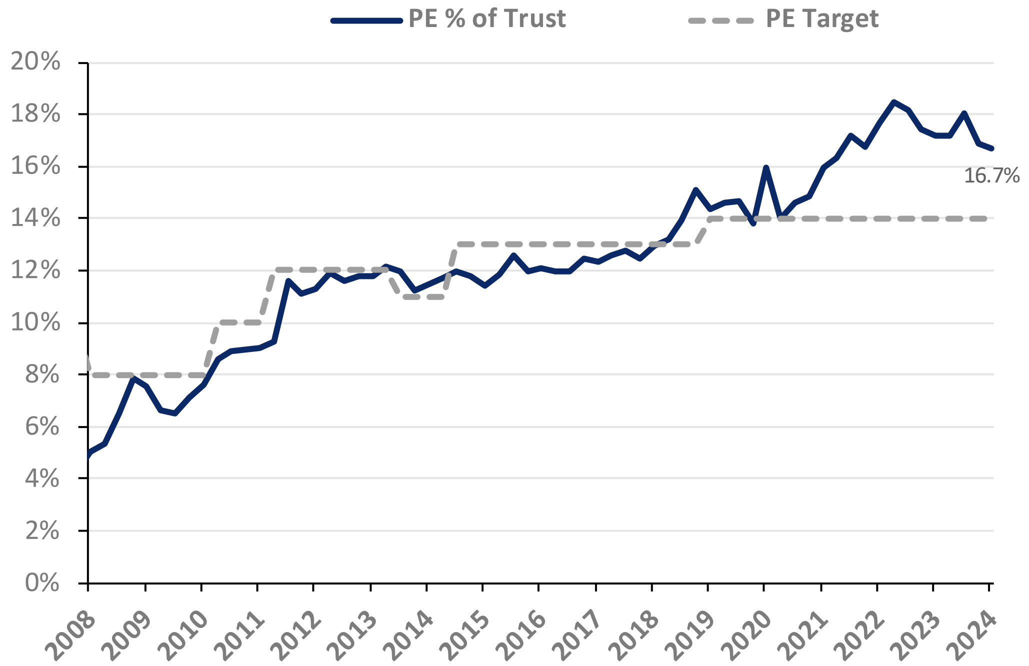
Role in the Trust

Private Equity (PE)

PE TARGET % OF TRUST



HISTORICAL TRUST ALLOCATION



Source: State Street as of 3/31/2024

Note: Per the TRS Investment Policy Statement, target allocation weights represent transitional benchmarks (2006-2014), long-term target allocations (2015-present)

Performance Summary
($M)

PORTFOLIO PERFORMANCE			
Asset Class	1-Year Return	3-Year Return	5-Year Return
Private Equity IRR	8.8%	11.5%	14.5%
Private Equity TWR	8.1%	11.2%	13.9%
Private Equity Benchmark	6.6%	11.7%	14.7%
Private Equity Excess Return	**1.5%**	**(0.5%)**	**(0.8%)**
TUCS Peer (Percentile)	29th	55th	25th

PORTFOLIO GROWTH			
Private Equity	1-Year	3-Year	5-Year
Ending Value	$34,211	$34,211	$34,211
less Starting Value	31,628	29,935	21,617
less Contributions	3,308	12,112	20,709
plus Distributions	3,523	17,871	26,882
Investment Return	**$2,798**	**$10,035**	**$18,767**

FUNDS AND PRINCIPAL INVESTMENT PERFORMANCE										
Portfolio	Market Value	% of Portfolio	No. (active)	1-Year TWR	3-Year TWR	5-Year TWR	1-Year IRR	3-Year IRR	5-Year IRR	SI IRR
Funds	$24,413	71.4%	253	7.2%	11.0%	14.5%	7.9%	11.2%	15.1%	13.2%
Principal Investments	9,798	28.6%	81	10.4%	11.6%	12.5%	11.4%	12.1%	13.0%	15.2%
Total	**$34,211**	**100.0%**	**334**	**8.1%**	**11.2%**	**13.9%**	**8.8%**	**11.5%**	**14.5%**	**13.4%**

PORTFOLIO STRATEGY SUMMARY							
Style	Target Portfolio Weight	% of Portfolio			Investment Returns		
		12/31/2023	12/31/2020	Change	1-Year IRR	3-Year IRR	SI IRR
Total Buyout	**82.5%**	**80.2%**	**79.0%**	**1.2%**	**9.5%**	**13.4%**	**14.2%**
Mega Buyout (>$10bn)	20-25%	36.9%	34.6%	2.3%	8.2%	11.1%	12.2%
Large Buyout ($3-10bn)	35-40%	26.0%	31.6%	(5.6%)	9.1%	13.4%	16.5%
Mid/Small Buyout (<$3bn)	20-25%	17.3%	12.8%	4.5%	13.4%	19.0%	14.3%
Venture Capital	**17.5%**	**14.5%**	**13.0%**	**1.5%**	**5.0%**	**6.6%**	**11.9%**
Credit / Special Situations	**0.0%**	**5.3%**	**8.0%**	**(2.7%)**	**10.2%**	**3.3%**	**9.3%**
PRIVATE EQUITY TOTAL	**100.0%**	**100.0%**	**100.0%**	**0.0%**	**8.8%**	**11.5%**	**13.4%**

Source: State Street based on 12/31/23 valuations; TWR and TUCS as of 3/31/24. Performance includes Emerging Managers
Note: Since Inception IRR of PE Portfolio reflects performance since June 1992, the strategies within the portfolio have various inception dates

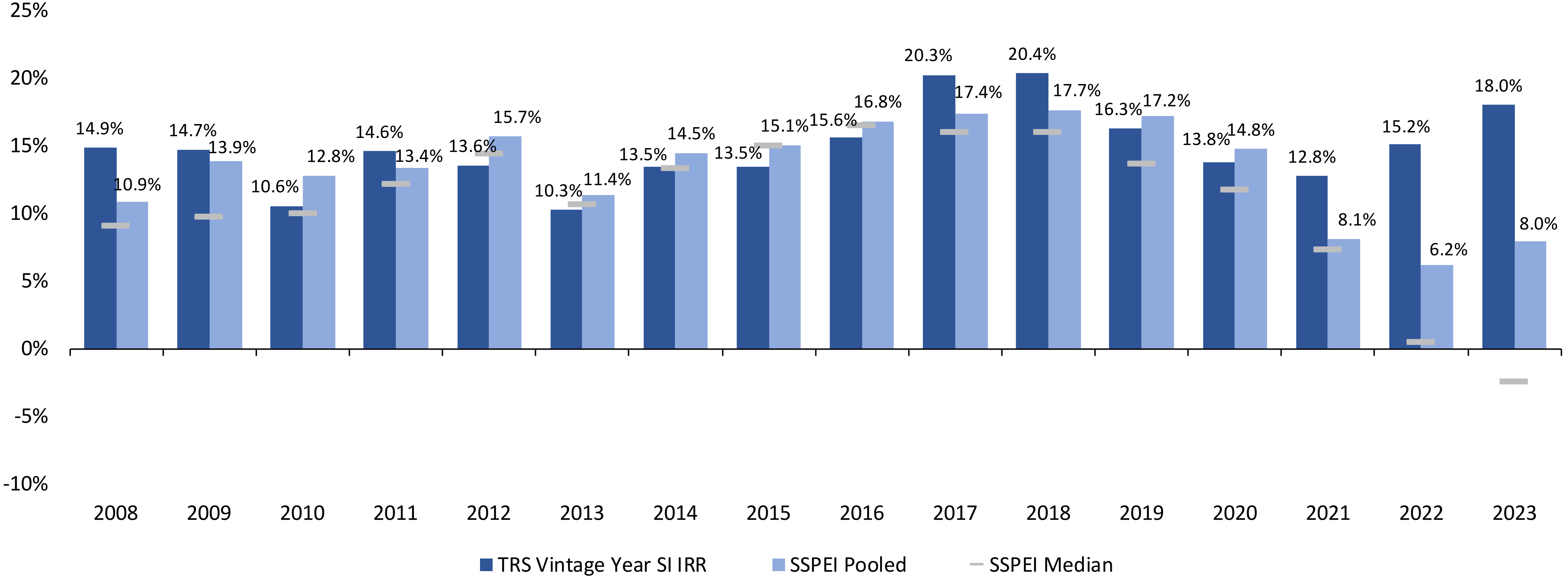
TRS TEACHER RETIREMENT SYSTEM OF TEXAS INVESTMENT MANAGEMENT DIVISION

Performance Summary

TRS Vintage Year Comparison

- PE outperforming the benchmark pooled average 8 of 16 vintage years and the median 12 of 16 vintage years

TOTAL PE PORTFOLIO VERSUS BENCHMARK



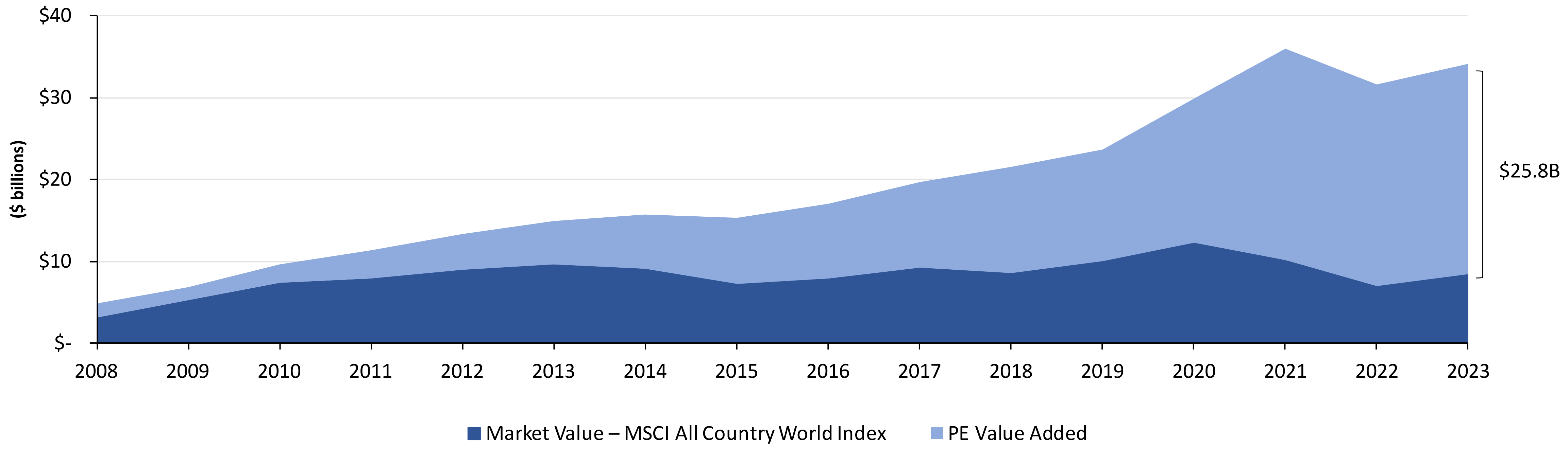
Source: State Street as of 12/31/23

Performance

PE Value Added

- $25.8 billion of value added over the public benchmark (MSCI All Country World Index)

PRIVATE EQUITY PERFORMANCE RELATIVE TO PUBLIC MARKETS



Source: State Street as of 12/31/23
Note: Public Market values calculated by assuming investments were made in the MSCI All Country World Index in the same size and timing as TRS Private Equity cash flows
Note: Alpha calculated from 2001

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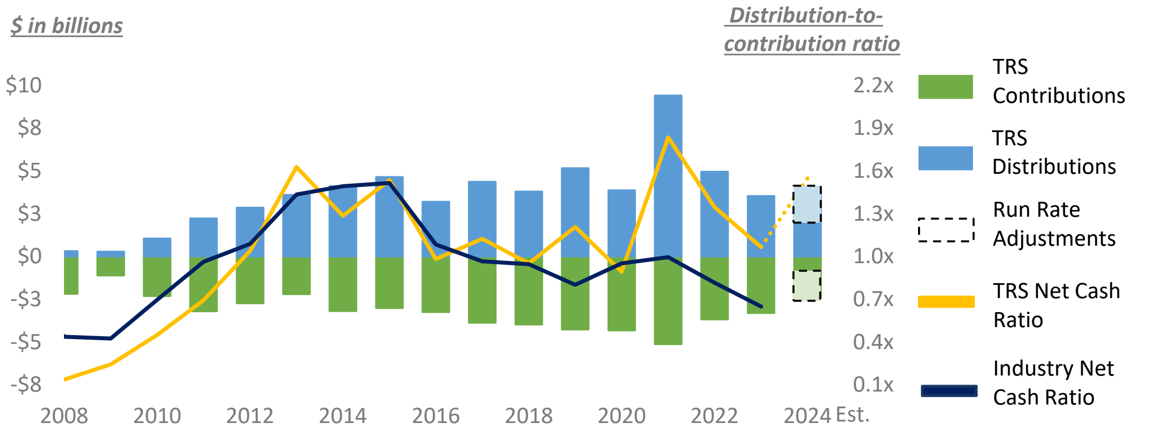
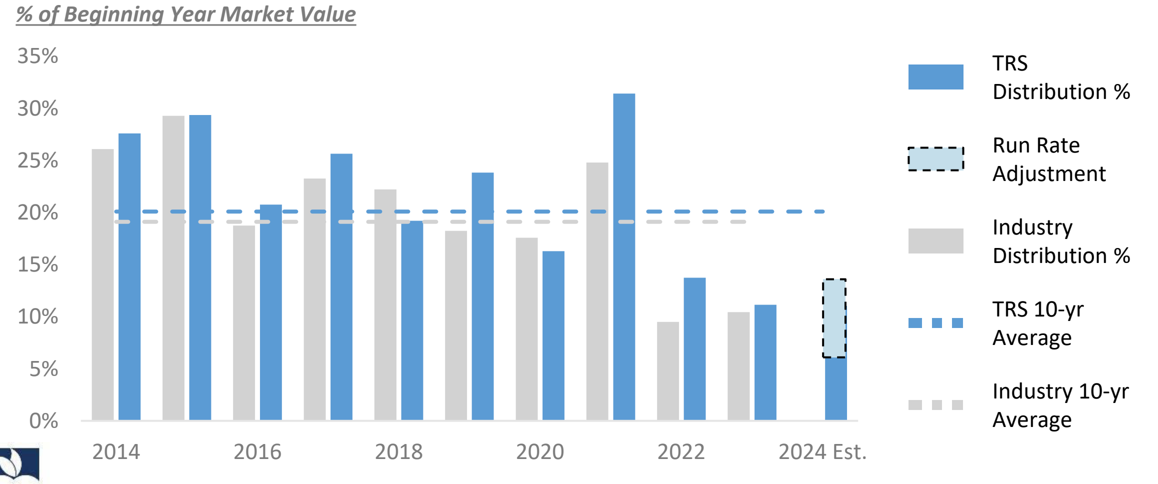
Spotlight – PE Distribution Environment

PE Net Cash Flows



PE Distributions



Commentary

- Aggregate TRS PE distributions have outpaced contributions since 2019; net cash back to the Trust has been >$6 billion over the past 5 years
- TRS cash flows have been favorable (i.e. more cash generative) than the broader industry as evidenced by the higher ratio of distributions-to-contributions

Key Considerations

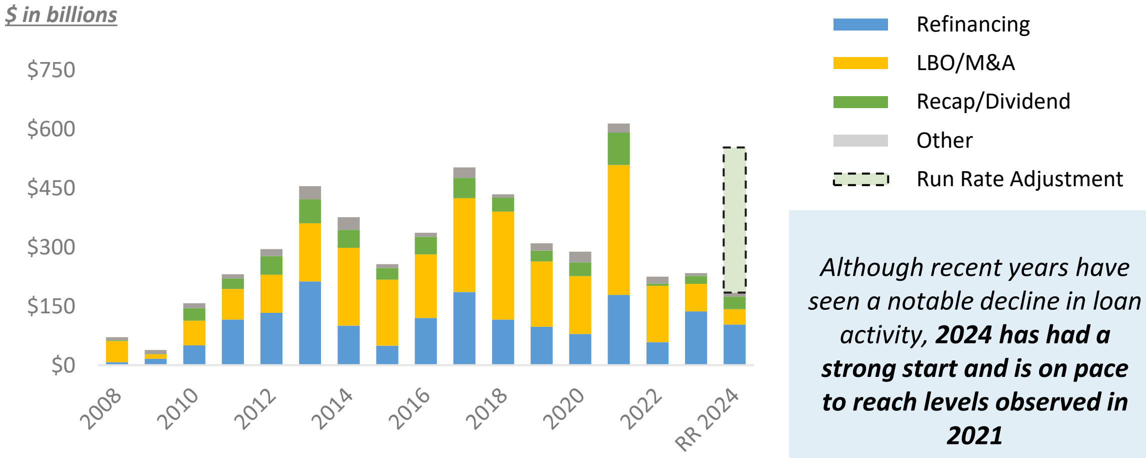
- Private Equity distributions declined materially beginning in 2022 with the rising interest rate environment and escalating market volatility
- TRS PE distributions have been more favorable relative to the broader market
- YTD 2024 remains well below the 10-yr average

Source: Pitchbook; Bain Global Private Equity Report 2024; TRS IMD
Note: Bottom left quadrant, Industry distributions represent both PE & VC distributions; TRS Distributions include PE, VC, and Emerging Managers

Spotlight – PE Distribution Environment (cont.)

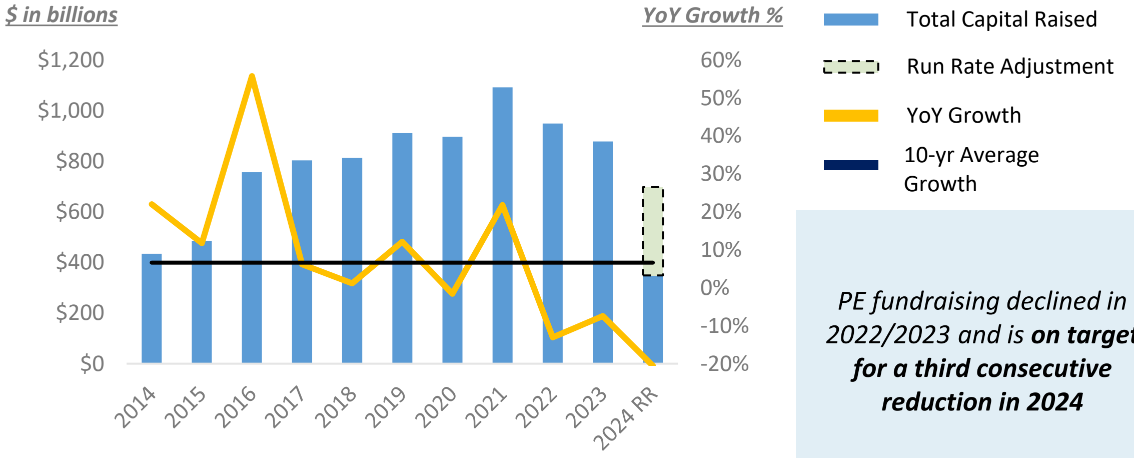
- Despite the current slow environment, PE is cautiously optimistic that distributions will improve over the next 12-18 months

Loan Issuance Volume by Proceeds



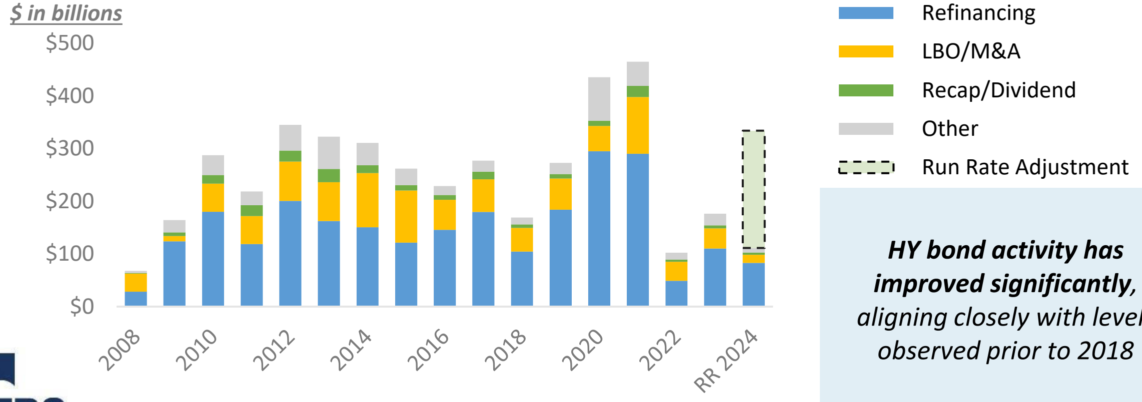
*Although recent years have seen a notable decline in loan activity, **2024 has had a strong start and is on pace to reach levels observed in 2021***

PE Fundraising



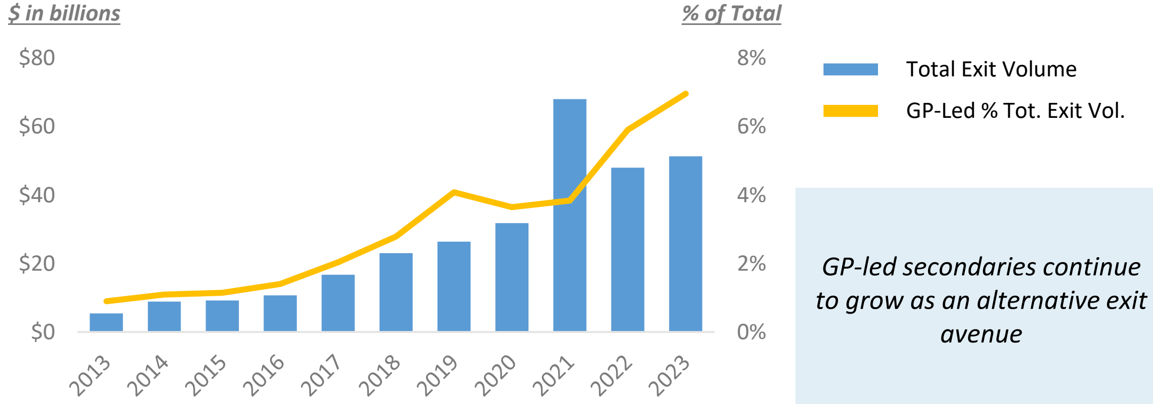
*PE fundraising declined in 2022/2023 and is **on target for a third consecutive reduction in 2024***

High Yield Bond Issuance by Proceeds



***HY bond activity has improved significantly,** aligning closely with levels observed prior to 2018*

GP-Led Secondary Transactions



GP-led secondaries continue to grow as an alternative exit avenue

Source: Preqin, PitchBook, Apollo

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Summary: Accomplishments and Priorities

PE

2023 Accomplishments

- Performance
  - PE 1-Year performance shifted back to positive territory in 2023; with very positive alpha versus benchmark
  - Peer performance is top quartile over the TUCS universe across all long-term periods (5, 7, and 10-year horizons)
- Team
  - Fully-staffed team across Funds and Principal Investments
- Capital Plan Impact
  - Approximately $2.7 billion
    - $2.4 billion to Funds
    - $0.9 billion to Principal Investments
    - $0.1 billion to Emerging Managers

2024 Priorities

- Scaling PE Down Market Strategy
  - Evaluate and implement potential changes to sourcing, filtering, and monitoring functions for Funds and Principal Investments as transition the portfolio down market
- PE Benchmark Review
  - Support the Strategic Asset Allocation process to review the PE Benchmark
- Active Portfolio Management
  - Conduct strategic review of secondaries

Source: Performance data from State Street as of 12/31/23; TUCS as of 3/31/24

APPENDIX

TRS Organizational Chart

Private Equity Team

Neil Randall*
Managing Director
BBA, Texas A&M
MS, Texas A&M

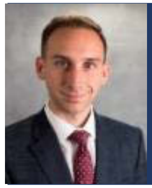
Will Carpenter, CFA*
Co-Head - PI
Director
BBA, Texas A&M
MS, Texas A&M

Michael Lazorik*
Co-Head - PI
Director
BBA, UT Austin

Tamara Polewik*
Co-Head - PI
Director
BA, Dartmouth College
MBA, Univ. of Chicago

Scott Ramsower*
Head of Funds
Director
BBA, Texas A&M

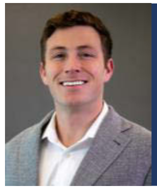
Kaitlin Miles*
Funds / Director
BBA, University of Richmond



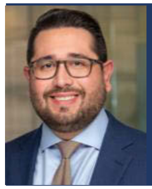
Mikhael Rawls, CFA
Funds Lead TRICOT
Director
BA, Harvard University

Justin Wang*
PI / Director
BBA, UT Austin

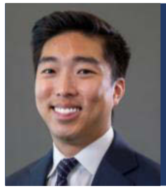
Caitlyn Macdonald
Funds / Investment Manager
BA, Williams College



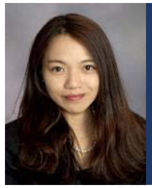
Benjamin Bayles
Senior Associate, PI TRICOT**
BA, Washington & Lee University



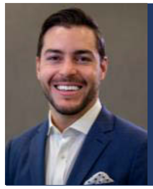
Pierre Duran
Senior Associate, Funds
BS, University of Central Florida



Stephen Y. Kim
Senior Associate, PI
AB, Brown University

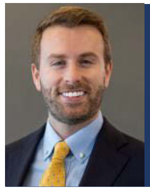


Audrey Li, CFA
Senior Associate, PI
BS, Beijing Jiaotong
MBA, University of Pennsylvania



Ryan Voves
Senior Associate, Funds
BBA Finance, University of Iowa

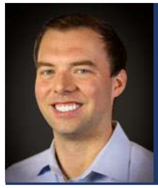
Matt Waldbaum
Senior Associate, Funds
BS, Miami University FSB
MBA, Northwestern University



Kent Zier
Senior Associate, PI
BS, University of Notre Dame
MS, Texas A&M

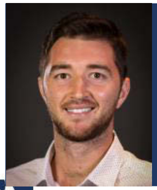
D'Oncee Brockington
Associate, PI
BBA, UT Austin

Aaron Duke
Associate, PI
BS, Baylor University
MBA, Jones Graduate School of Business



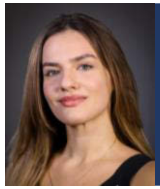
Tyler Hull
Associate, Funds
BBA, UT Austin

Jake Melville
Associate, Funds
BA, Denison University



David Micevski
Associate, PI
MS Finance, University of Utah

Kyle von Kreisler
Senior Analyst, PI
BBA, UT Austin



Klea Hysenbelli
Senior Analyst, PI
BS, Tufts University

Adam Bouman
Senior Analyst, Funds
BBA, UT Austin
Starting June 2024

Beth Booker
Junior Analyst
BA, Ursuline College
MLIS, Kent State University

** Private Equity Investment Committee (PEIC) members; PEIC also includes Eric Lang*

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Strategic Asset Allocation (SAA) Study Update

Mike Simmons, Director
Risk and Portfolio Management

July 2024

Proposed Board Timeline

December
- Best practices
- Long term objectives
- What has changed?
- Timeline

February
- Risk tolerance
- Asset class review
- Peer review
- Capital Market Assumptions

May
- Risk analysis
- Alternative allocations
- Benchmark review

July
- Final recommendation
- Risk budget
- Asset-liability considerations
- Policy review

September
- Board approves policy updates
- Implementation plan

SAA Study followed Best Practices

		Aon Best Practices	TRS SAA Study Timeline
1	**Update / Review Long-Term Objectives**	▪ What are long term goals? ▪ What has changed? ▪ What level of risk is tolerable?	▪ **December**: Reviewed goals and what has changed ▪ **February**: Dr. Brown discussed risk tolerance
2	**Develop Forward Looking Capital Market Assumptions (CMA)**	▪ Which asset classes to add or eliminate? ▪ Develop return, risk, correlation assumptions	▪ **February**: Reviewed asset classes and results of 2024 CMA Survey
3	**Evaluate Alternative Portfolios / Model Results**	▪ Determine metrics for comparing alternatives ▪ Review benchmarks and ranges ▪ Consider practices of peers ▪ Evaluate interaction of the assets and liabilities through stochastic analysis	▪ **February**: Peer comparison ▪ **May**: Compared alternate portfolios and Aon reviewed benchmarks ▪ **July:** Aon is evaluating the assets and liabilities
4	**Consider Implementation Issues**	▪ Active vs. passive; currency hedging; internal vs. external ▪ Review risk budgets ▪ Incorporate investor competitive advantages	▪ **December**: Competitive advantages ▪ **July**: Active vs. passive, currency considerations, internal vs. external, risk budgeting, alpha assumptions
5	**Adopt a New Policy Asset Allocation & Commitment Ranges**	▪ Review current target relative to alternatives ▪ Formally adopt a new target in IPS	▪ **July**: Review conclusions to SAA Study; Board adoption of policy weights ▪ **September**: Review and adopt changes to Investment Policy: benchmarks, ranges, any other changes
6	**Implementation and Monitoring**	▪ Design plan for implementation of any changes ▪ Monitor compliance with new targets and ranges over time	▪ **Q4 2024 – Q1 2025** : Execute on any changes ▪ **Ongoing**: Compliance monitoring, updating CMAs

SAA considerations have a modest impact

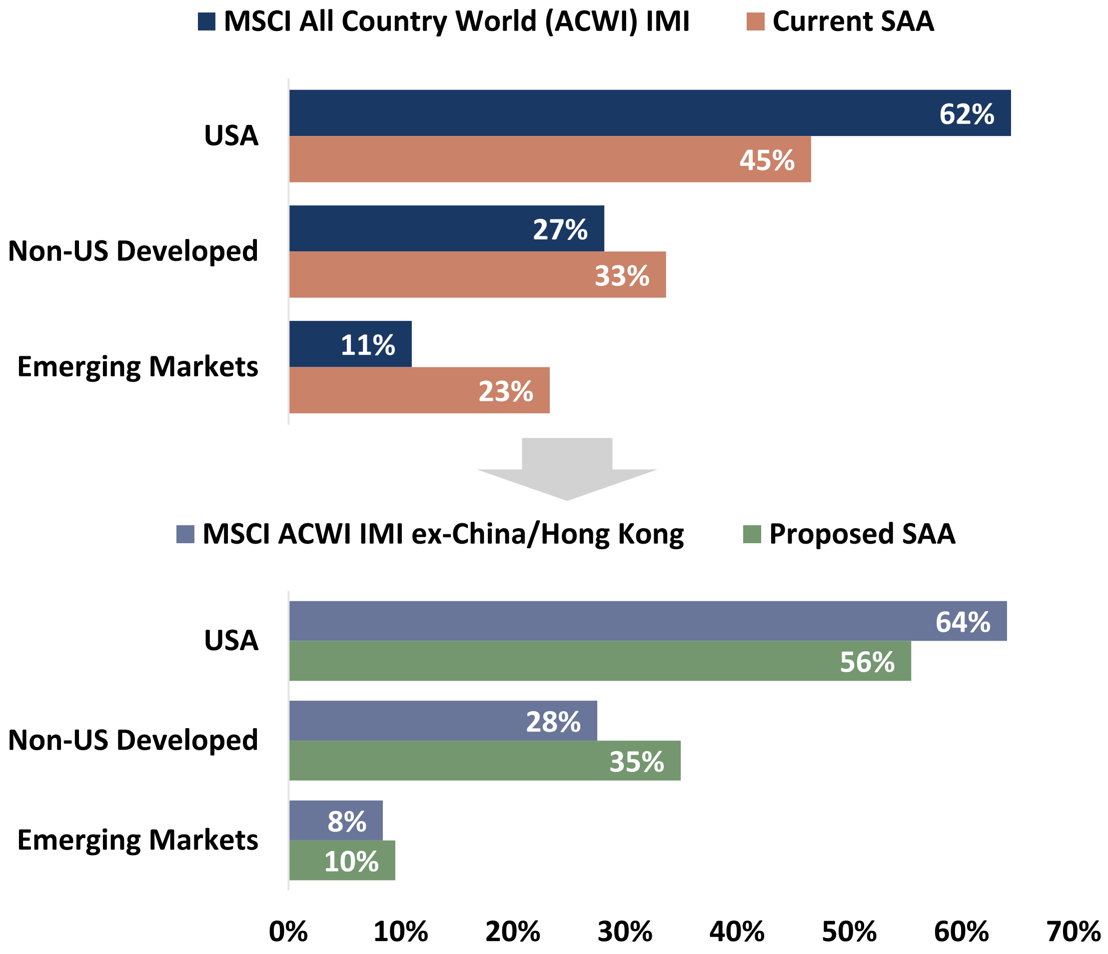
	Current SAA	1. Public Equity	2. Private Equity	3. Gov't Bonds	4. Total Risk	Proposed SAA
All Country		+33%	+3%		+3%	39%
USA	18%	-18%				
Non-US Developed	13%	-8%				5%
Emerging Markets	9%	-8%				1%
Private Equity	14%		-2%			12%
Government Bonds - Nominal	16%			-6%		10%
Government Bonds - Real				+6%		6%
Absolute Return						
Stable Value Hedge Funds	5%					5%
Real Estate	15%					15%
ENRI	6%					6%
Commodities						
Risk Parity	8%				-3%	5%
Cash	2%					2%
Asset Allocation Leverage	-6%	+1%	-1%			-6%
Long-Term Expected Return	7.8%	-0.1%	0.0%	0.0%	0.0%	7.7%
Long-Term Expected Volatility	11.7%	-0.2%	+0.1%	+0.2%	+0.2%	12.0%
Max Historical Drawdown	-26.1%	+0.1%	-1.1%	-0.7%	-0.9%	-28.7%
SAA Liquidity Ratio	1.9	+0.0	+0.1	0.0	-0.0	1.9
Trust Duration (Years)	3.2	0.0	0.0	-0.5	-0.3	2.4

1. Shift from Emerging to Developed Markets lowers expected return and risk
   - *Reduces tail risk associated with investing in Emerging Markets*
2. Less Private Equity increases historical drawdown
   - *Competition expected to weigh on Private Equity returns*
3. Reduced duration increases volatility
   - *Less sensitivity to inflation risk*
4. Move to public equity from Risk Parity increases volatility
   - *Better capture potential upside from economic growth through equities*

SAA Liquidity Ratio: Long-Term Liquidity Sources / Uses
Trust Duration: Trust sensitivity to a change in interest rates (ex., the Current SAA is estimated to have a +3.2% impact from a 1% decline in interest rates)

Move closer to the market portfolio within Public Equity

Public Equity Regional Weights



Remove China and Hong Kong from benchmarks

1. Economic weakness
   - Limits to investment led growth
   - Real estate distress
   - Demographics
2. Political environment
   - Prioritization of social stability over profitability
   - Regulatory environment
3. Geopolitical concerns
   - China listed on the USA foreign adversaries list

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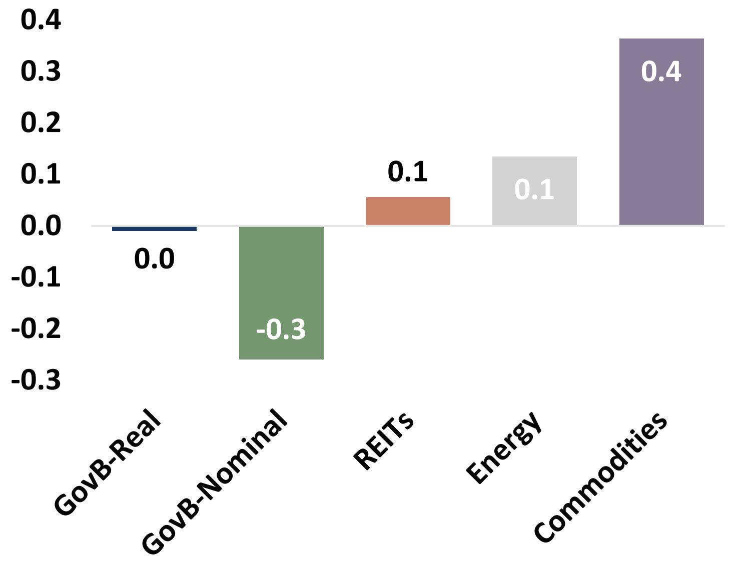
Source: MSCI and Code of Federal Regulations - Foreign Adversaries List; Weights may not sum to 100% due to rounding, as of March 15th, 2024

Real Government Bonds as a Stable Value asset

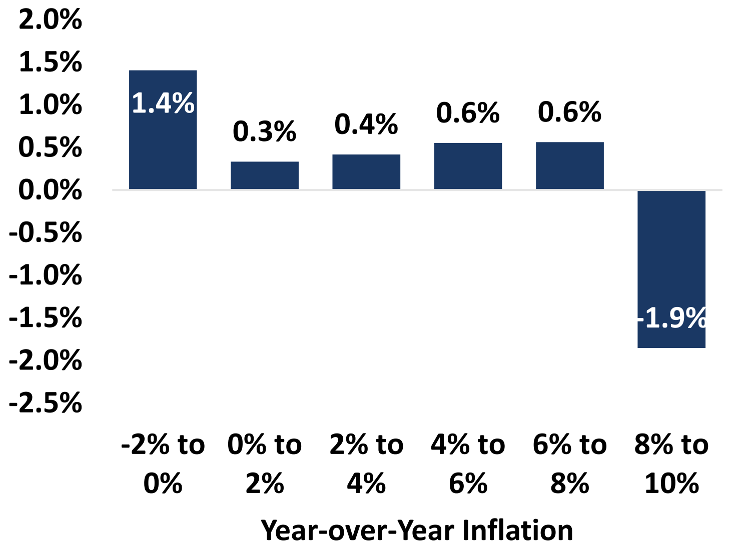
Real Government Bonds are hedged-to-inflation more than an inflation hedge

Correlation to Inflation



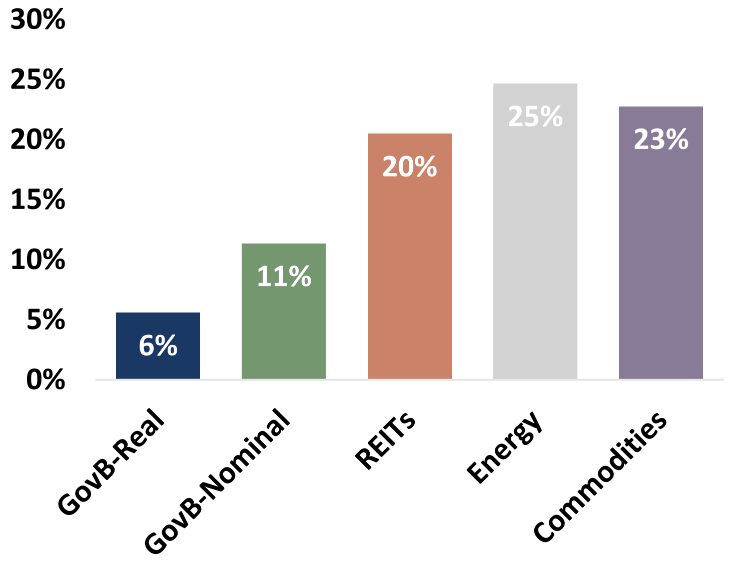
Real Government Bonds have not performed well during high inflation

GovB-Real Avg. Monthly Return



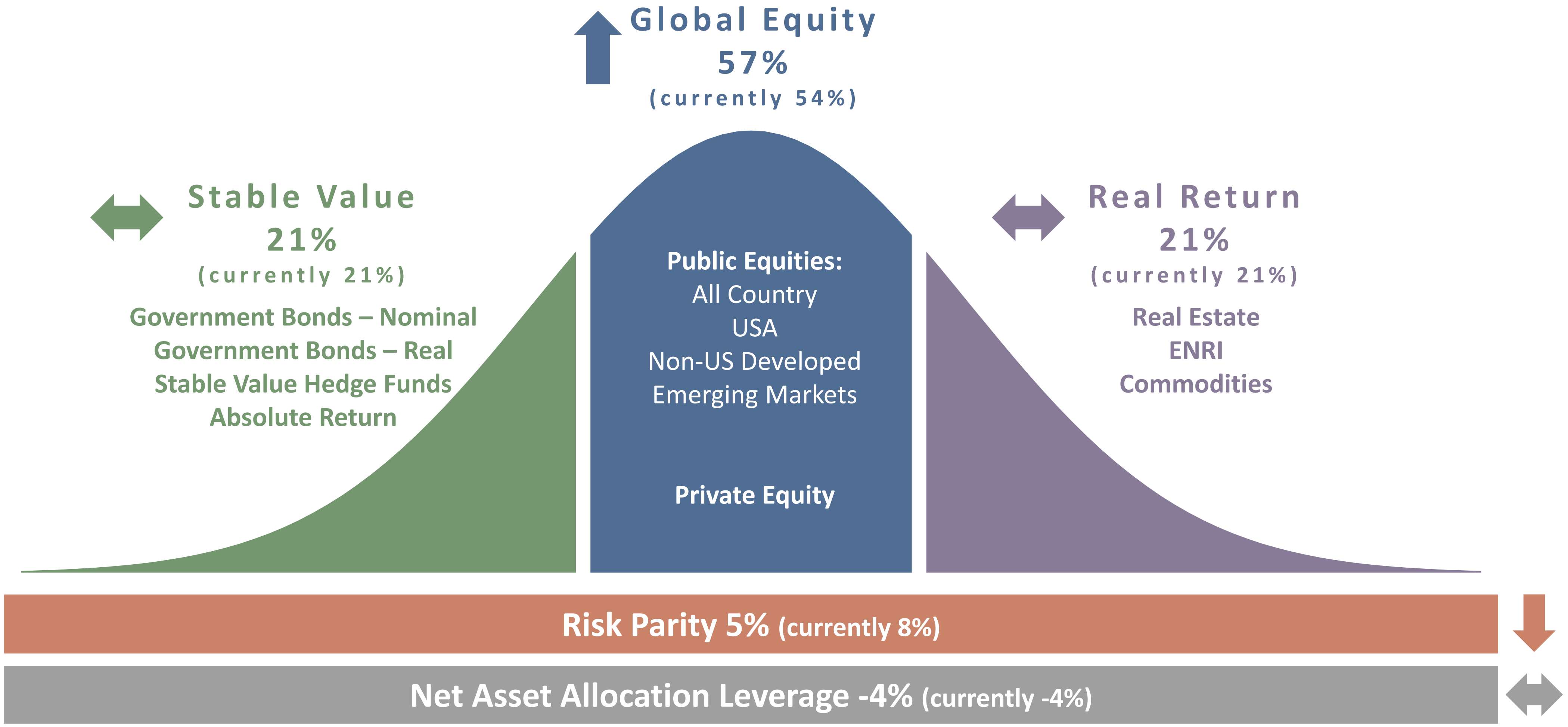
Lower volatility is more consistent with Stable Value

Annualized Volatility



Source: Bloomberg; April 1997 to May 2024
CPI: CPI Index (CPI INDX), GovB-Real: TIPS (LBUTTRUU), GovB-Nominal: Long Treasuries (LUTLTRUU), REITs: MSCI US REITS (RMSG), Energy: S&P 1500 Energy (SPTRENRS), Commodities: GSCI (SPGSCITR)

Proposed Diversification Framework



Risk Budget and Implementation Considerations

	Non-USD Currency	Active vs. Passive	Internal vs. External	Risk Contribution
Current SAA	**25%** of current exposure is non-USD	**84% / 16%** of current allocation is in active/ passive strategies	**48% / 52%** of current allocation is in internal/external strategies	**4.1%** of Trust VaR from Global Equity allocation
Recommended SAA	**22%**	**83% / 17%**	**48% / 52%**	**4.9%**
	Increase to USA Equities reduces foreign currency exposure	*Percentage of Trust in active strategies slightly decreases*	*Percentage of Trust in internal strategies remains the same*	*Contribution to VaR from Global Equity expected to increase*

Source: TRS IMD. Weights are as a fraction of investment exposure as of 3/31/24. Recommended SAA uses current estimates with proposed target SAA weights

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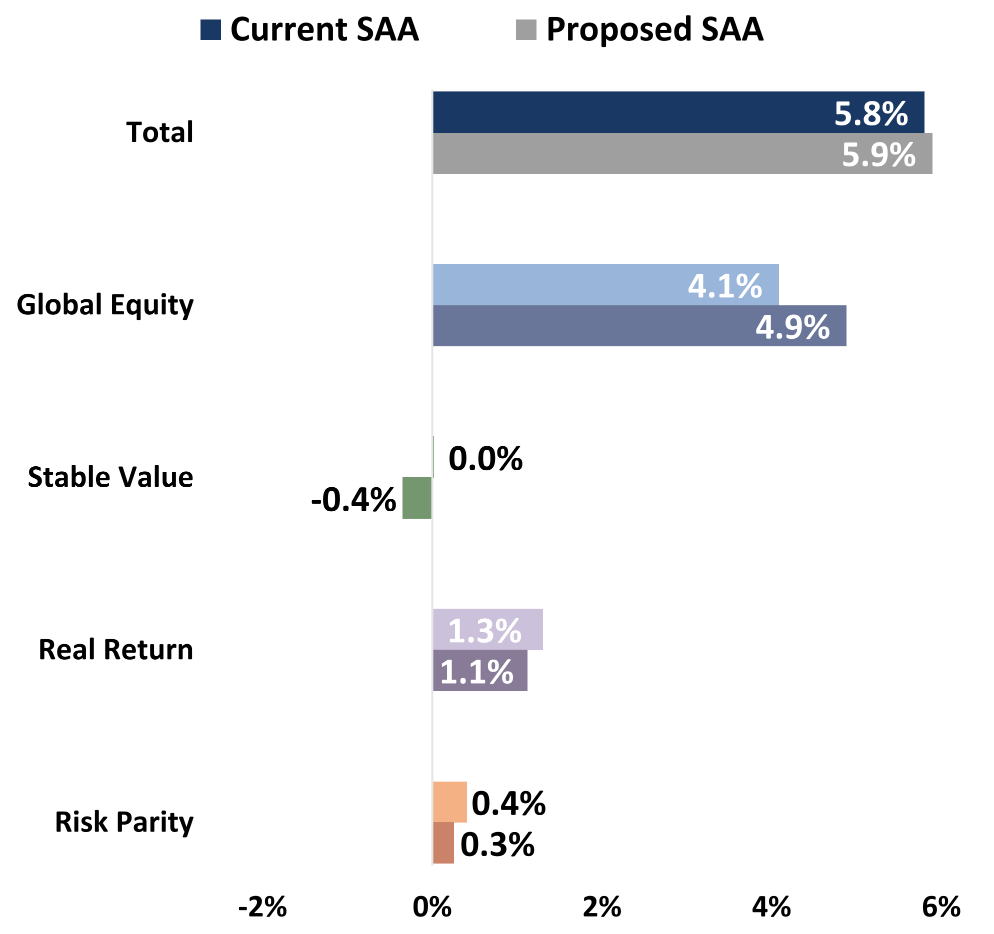
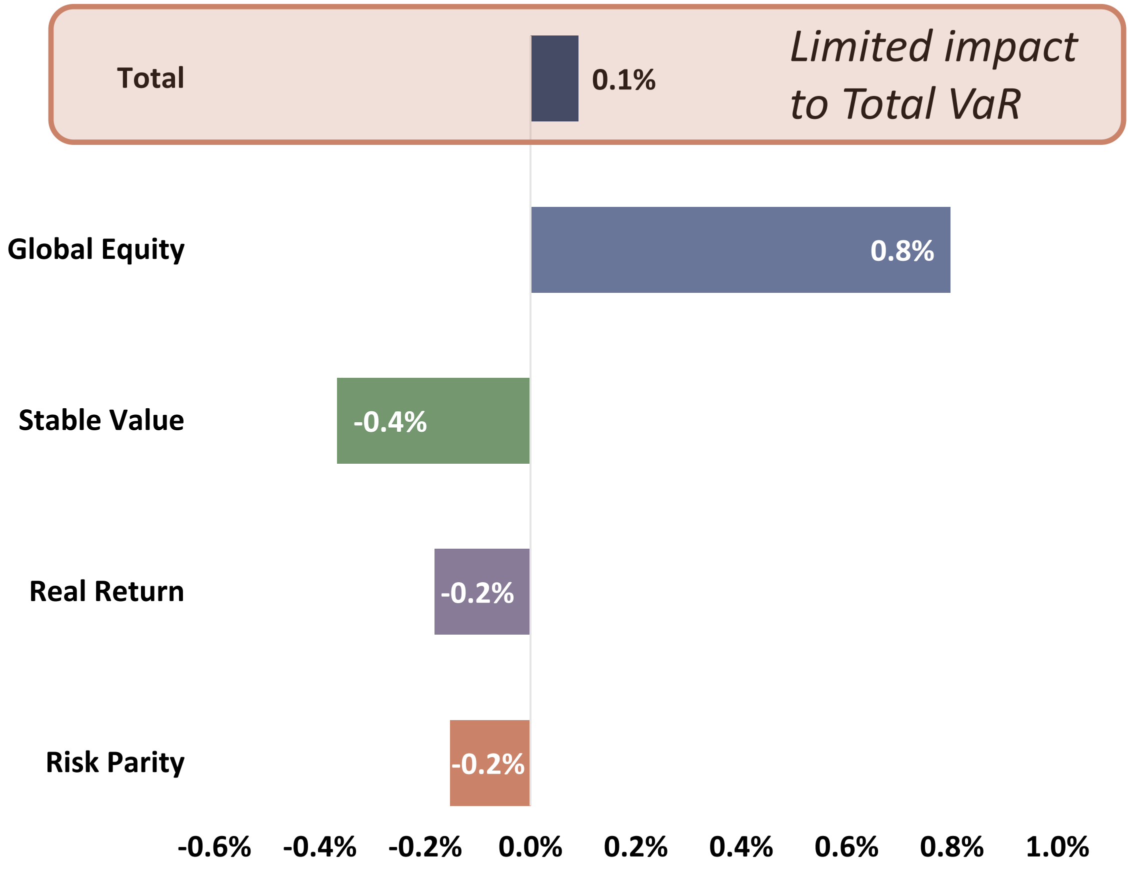
Global Equity contribution increases, but Total risk remains the same

Value-at-Risk (VaR) Contribution by Asset Sleeve



Change in VaR Contribution by Asset Sleeve



95% VaR using current asset class benchmarks with expanding window since January 2008

Final SAA Recommendation

	Current	Proposed	Change
All Country	0%	39%	+39%
USA	18%	0%	-18%
Non-US Developed	13%	5%	-8%
Emerging Markets	9%	1%	-8%
Private Equity	14%	12%	-2%
Total Global Equity	**54%**	**57%**	**+3%**
Government Bonds - Nominal	16%	10%	-6%
Government Bonds - Real	0%	6%	+6%
Stable Value Hedge Funds	5%	5%	-
Absolute Return	0%	0%	-
Total Stable Value	**21%**	**21%**	**-**
Real Estate	15%	15%	-
ENRI	6%	6%	-
Commodities	0%	0%	-
Total Real Return	**21%**	**21%**	**-**
Risk Parity	**8%**	**5%**	**-3%**
Investment Exposure	**104%**	**104%**	**-**
Cash	2%	2%	-
Asset Allocation Leverage	-6%	-6%	-
Net Asset Allocation Leverage	**-4%**	**-4%**	**-**

Current vs. Proposed Portfolio Characteristics from Capital Market Assumptions

7.8% → 7.7%

Long-term expected return remains above actuarial rate

11.7% → 12.0%

Expected volatility rises

0.4 → 0.4

Expected Sharpe ratio remains roughly the same

Source: 2024 TRS Capital Markets Assumptions survey
Note: Recommendation also includes public equity benchmarks moving to Investable Market Indices and the removal of China and Hong Kong

SAA Study Overview

1. Capital market assumptions indicate TRS is expected to generate returns above 7% actuarial rate

2. Proposed changes:
   - Lean into public equity risk premia for the long run
   - Maintain balance between Stable Value and Real Return

3. In summary, the proposed SAA improves portfolio resiliency with limited impact to forward-looking returns or risk

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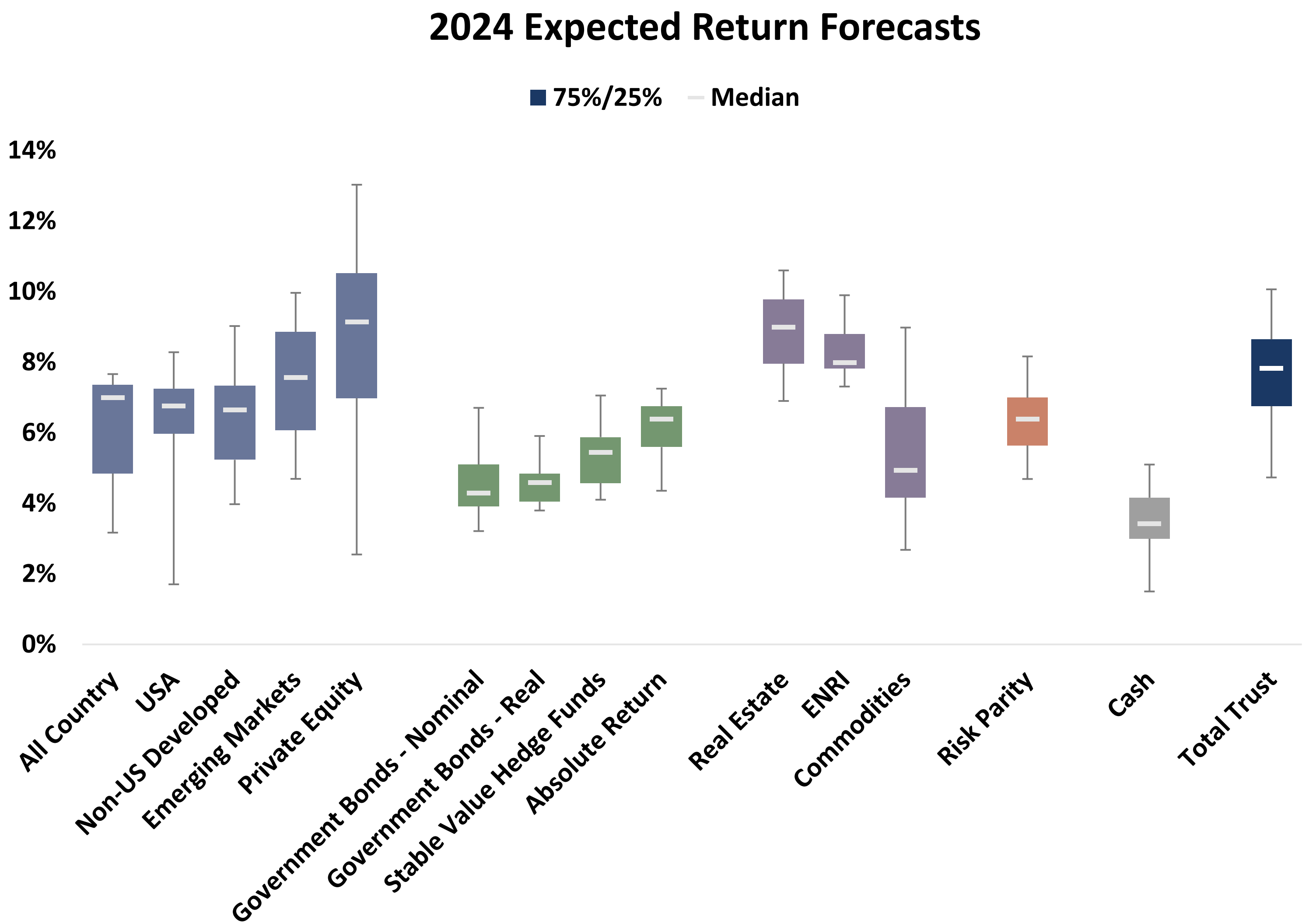
Appendix

2024 Capital Market Assumptions Survey Results

	Long-Term Expected Return	Long-Term Expected Volatility
All Country	7.0%	16.7%
USA	6.8%	16.6%
Non-US Developed	6.6%	17.6%
Emerging Markets	7.6%	21.1%
Private Equity	9.1%	20.1%
Government Bonds - Nominal	4.3%	12.4%
Government Bonds - Real	4.6%	5.8%
Stable Value Hedge Funds	5.4%	5.2%
Absolute Return	6.4%	8.4%
Real Estate	9.0%	15.3%
ENRI	8.0%	11.2%
Commodities	4.9%	18.0%
Risk Parity	6.4%	11.5%
Cash	3.4%	0.6%
Total Trust	7.8%	11.7%



Source: 2024 TRS CMA Survey and JPM Long Term Capital Market Assumptions (LTCMAs)
Note: Some estimates are derived from other asset class forecasts provided. Expected Total Trust uses current Investment Policy SAA target weights.
China: Expected Return: 7.8%; Expected Volatility 29.3%, Expected Inflation: 2.4%

Alpha Risk Budget

	Alpha Target (bp)	X	Proposed Weight	=	Assumed Contribution (bp)	10-Year Realized Alpha (annualized bp)
All Country	75		39%		29.3	na
USA	75		0%		0.0	-117
Non-US Developed	75		5%		3.8	57
Emerging Markets	75		1%		0.8	105
Private Equity	125		12%		15.0	27
Stable Value Hedge Funds	75		5%		3.8	287
Real Estate	150		15%		22.5	332
ENRI	125		6%		7.5	125
Risk Parity	30		5%		1.5	42
Total Trust	75		100%		84.0	70

- Government Bonds, Cash, and Asset Allocation Leverage have zero alpha target

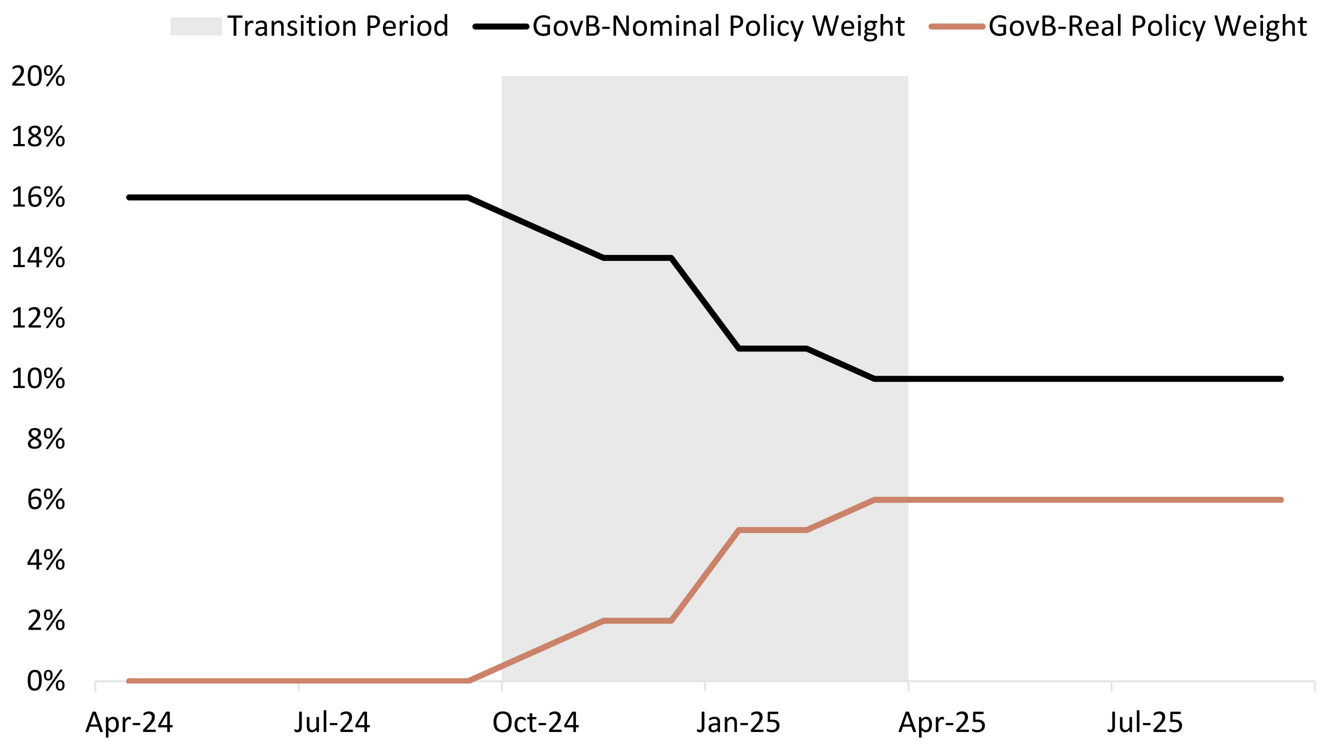
Data as of 3/31/2024

Note: ENRI and Risk Parity returns since inception (9/30/2016 and 9/30/14, respectively); Numbers may not sum due to rounding

Transition to the new SAA designed to minimize market impact

- The transition to policy target will occur over a six-month period
- The benchmark weight for all assets will be set two days before previous month end by the CIO
- The CIO can authorize an early end to the transition
    - Note: Transition to Private Market targets will occur over multiple years and new targets will be incorporated into annual capital plans

Hypothetical Transition Example: Government Bonds



Transition plan achieves 2 main goals:

1. Minimize market impact
2. Diversify entry and exits points

Alternative SAAs

	Option 1 Current SAA	Option 2 Proposed SAA	Option 3 Less Risk	Option 4 More Risk	Average US Pension	70/30
All Country		39%	34%	42%	42%	70%
USA	18%					
Non-US Developed	13%	5%	5%	1%		
Emerging Markets	9%	1%	1%	5%		
Private Equity	14%	12%	12%	12%	13%	
Government Bonds - Nominal	16%	10%	12%	8%	16%	30%
Government Bonds - Real		6%	3%	8%	2%	
Absolute Return					8%	
Stable Value Hedge Funds	5%	5%	5%	5%	3%	
Real Estate	15%	15%	15%	15%	10%	
ENRI	6%	6%	5%	6%	3%	
Commodities						
Risk Parity	8%	5%	5%	8%	1%	
Cash	2%	2%	3%	2%	1%	3%
Asset Allocation Leverage	-6%	-6%		-12%	-1%	-3%
Long-Term Expected Return	7.8%	7.7%	7.5%	7.9%	7.4%	6.5%
Long-Term Expected Volatility	11.7%	12.0%	11.0%	13.0%	11.3%	11.6%
Max Historical Drawdown	-26.1%	-28.7%	-25.9%	-31.0%	-27.4%	-32.6%
SAA Liquidity Ratio	1.9	1.9	2.2	1.8	2.1	4.5
Trust Duration (Years)	3.2	2.4	2.5	2.5	1.8	2.2

Option 1: Current SAA

- Current policy is a well-balanced portfolio expected to meet the actuarial rate of return

Option 2: Alternative SAA

- Make the portfolio more resilient to potential downside scenarios

Option 3: Less Risk

- Reduce investment exposure while still expecting to exceed the actuarial rate of return

Option 4: More Risk

- Increase investment exposure and public equities while maintaining balance

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SAA Liquidity Ratio: Long-Term Liquidity Sources / Uses
Trust Duration: Trust sensitivity to a change in interest rates (ex., the Current SAA is estimated to have a +3.2% impact from a 1% decline in interest rates)

Modification 1 – 4

Implement the 2024 Strategy Asset Allocation study proposals

Excerpt from IMC – IPS Presentation

- Proposed Asset Allocation table
- Clean version on next page

3 – Update Benchmarks

4 – Update Ranges

1 – New Targets

2 – New All Country

2 – New Govt. Bonds - Real

Asset Class	Benchmark	Minimum Range[1,2,3]	Maximum Range[1,2]	Target[2,9]
Global Equity:				
All Country	MSCI All Country World Investible Market ex China and Hong Kong[4]	34%	44%	39%
USA	MSCI USA Investible Market[~~3~~4]	~~13~~ -5%	~~23~~ 5%	~~18~~ 0%
Non-US Developed	MSCI EAFE and Canada Investible Market ex Hong Kong[~~3~~4]	~~8~~ 0%	~~18~~ 10%	~~13~~ 5%
Emerging Markets	~~50% MSCI EM/50%~~ MSCI EM Investible Market ex China[~~3~~4]	-4%	~~14~~ 6%	~~9~~ 1%
Private Equity	Customized State Street Private Equity Index – lagged one quarter[~~4~~5]	~~9~~ 7%	19%	~~14~~ 12%
Total Global Equity	***Target-weighted Blend***	***~~47~~ 50%***	***~~61~~ 64%***	***~~54~~ 57%***
Stable Value:				
Government Bonds – Nominal[5]	Bloomberg ~~Barclays~~ Long Treasury Index	0%	~~21~~ 15%	~~16~~ 10%
Government Bonds – Real	Bloomberg US Treasury Inflation-Linked Index	0%	11%	6%
Absolute Return (Including Credit Sensitive Investments)[6, 8]	SOFR + 4%	0%	20%	0%
Stable Value Hedge Funds[8]	~~HFRI Fund of Funds Conservative~~SOFR + 2.5%	0%	10%	5%
Total Stable Value	***Target-weighted Blend***	***14%***	***28%***	***21%***
Real Return:				
Real Estate	NCREIF ODCE – lagged one quarter	10%	20%	15%
Energy, Natural Resources and Infrastructure	40% Cambridge Associates Natural Resources/40% Cambridge Associates Infrastructure/20% quarterly Consumer Price Index– lagged one quarter	1%	11%	6%
Commodities	Goldman Sachs Commodity Index	0%	5%	0%
Total Real Return	***Target-weighted Blend***	***14%***	***28%***	***21%***
Risk Parity:				
Risk Parity	HFR Risk Parity Vol 12 Institutional Index	0%	~~13~~ 10%	~~8~~ 5%
INVESTMENT EXPOSURE			***115%***	***104%***
Asset Allocation Leverage:				
Cash	FTSE 3 Month Treasury Bill	0%	7%	2%
Asset Allocation Leverage[7, 8]	SOFR + 26.161 bp			-6%
Net Asset Allocation Leverage				**-4%**
TOTAL FUND	***Target-weighted Blend***			***100%***

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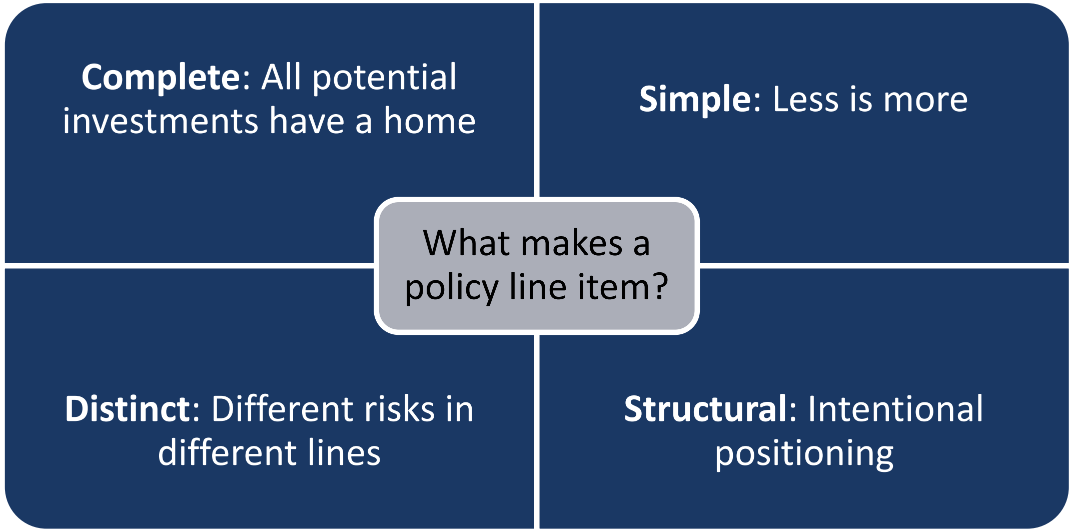
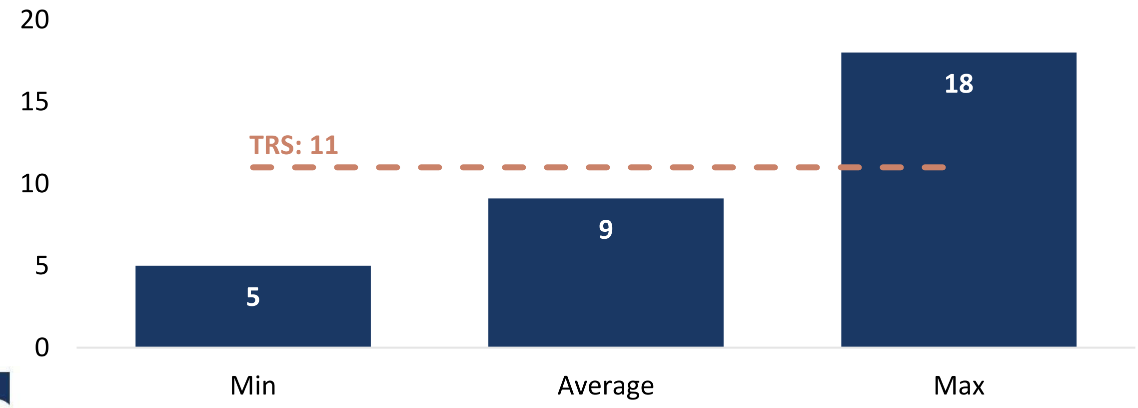
TRS asset classes are similar to peers



Number of Line Items: US Public Pension Peers



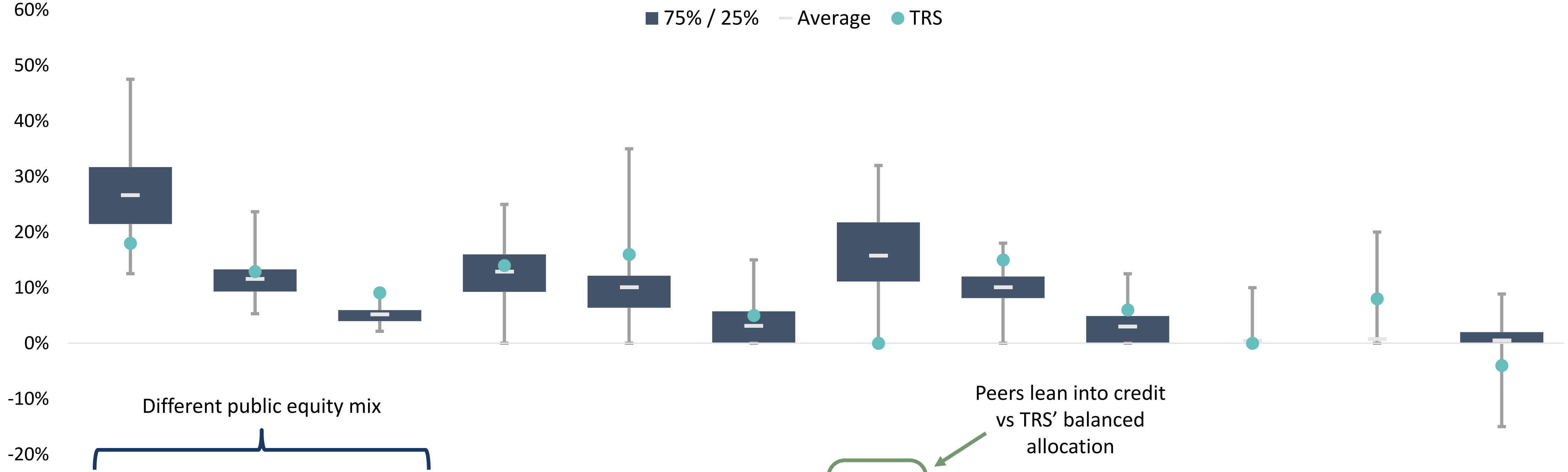
Notable differences from peers

- 17% of peers have an allocation to "opportunistic"
    - TRS allocates to opportunistic but has a 0% neutral weight
- 7% of peers allocate to Risk Parity
- 2% of peers allocate to Energy
- 93% of peers allocate to credit
- TRS uses regional equity benchmarks
    - 44% of public plans use a global aggregate (such as ACWI)
    - 24% use regional benchmarks (same as TRS)
    - 32% use a mix of global aggregate and regional benchmarks

Source: TRS IMD calculations based on data collected from peer websites and Public Plans Data maintained by the Center for Retirement Research at Boston College
Note: The percentages of peers is based on the 42 largest plans by AUM as of the end of 2022 subject to data availability and excludes TRS in the calculation

How does TRS differ from US public pension peers?

Strategic Positioning: US Public Pension Peers



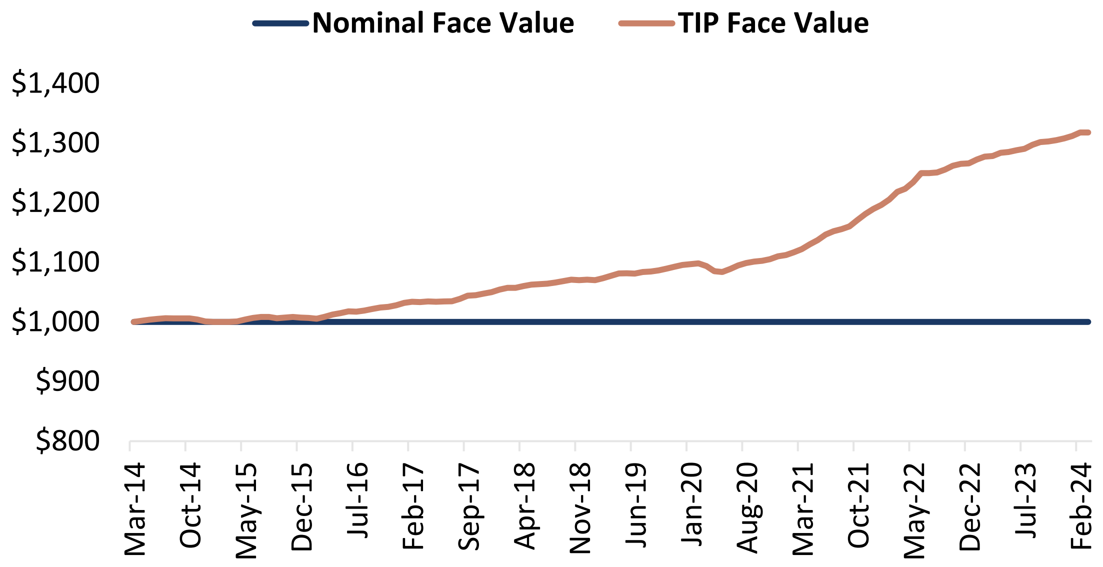
	USA	Non-US Developed	Emerging Markets	Private Equity	Government Bonds	Stable Value HF	Absolute Return	Real Estate	ENRI	Commodities	Risk Parity	Cash
TRS	18%	13%	9%	14%	16%	5%	0%	15%	6%	0%	8%	-4%
Average	27%	12%	5%	13%	10%	3%	16%	10%	3%	0%	1%	0%
Difference	-9%	1%	4%	1%	6%	2%	-16%	5%	3%	0%	7%	-4%

Source: TRS IMD calculations based on data collected from peer websites and Public Plans Data maintained by the Center for Retirement Research at Boston College
42 peers represent $3.7T in assets (Average: $88.2B, Max: $441.6B, Min: $25.2B), 22.9mm members (Average: 546k, Max: 2.2mm, Min: 27k), Actuarial Rates - Average: 6.9%, Max: 7.55%, Min: 5.9%
Note: Cash includes asset allocation leverage

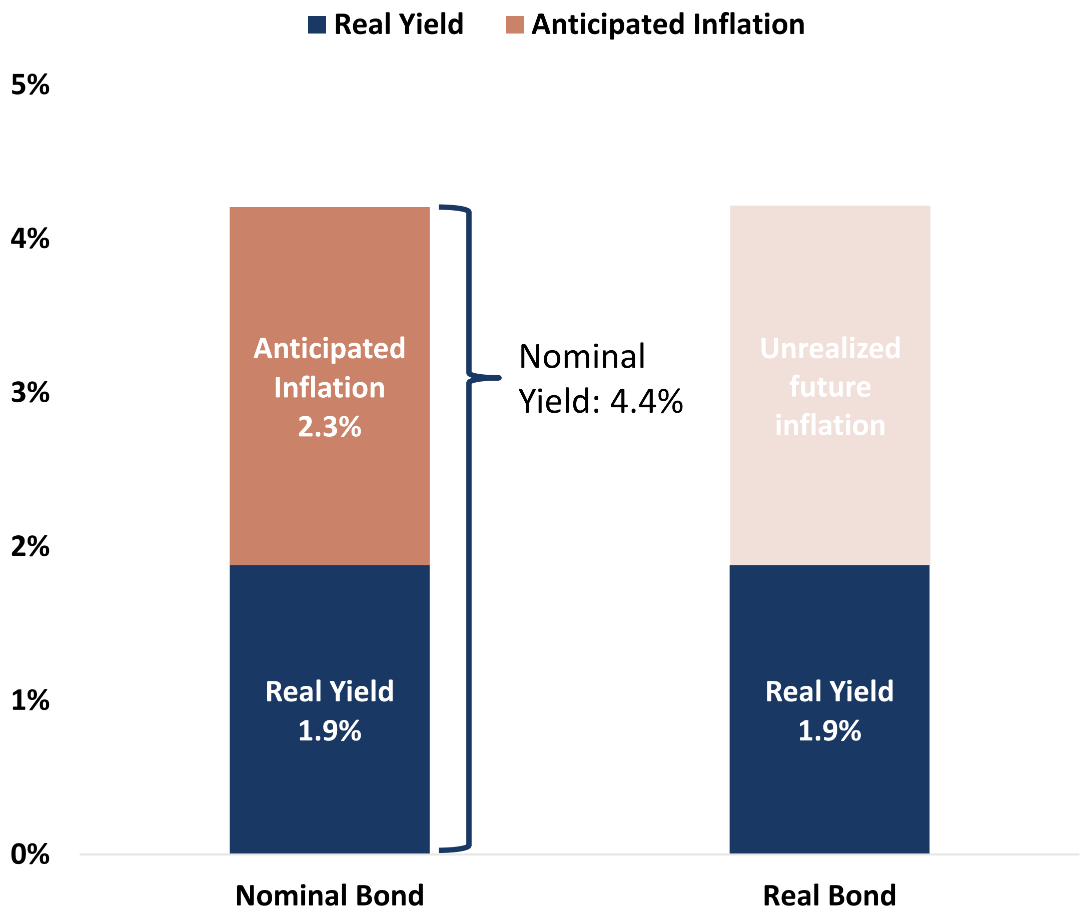
TRS TEACHER RETIREMENT SYSTEM OF TEXAS INVESTMENT MANAGEMENT DIVISION

Treasury Inflation-Protected Securities (TIPS) Primer - Gov. Bonds Real

- **Treasury Inflation-Protected Securities (TIPS)** protect against inflation by linking bond face value to CPI (consumer price index)
  - Investors receive inflation-adjusted cash flows (principal and interest); thus, cash flows increase (decrease) as inflation rises (falls)
  - Deflation cannot reduce an investor’s principal

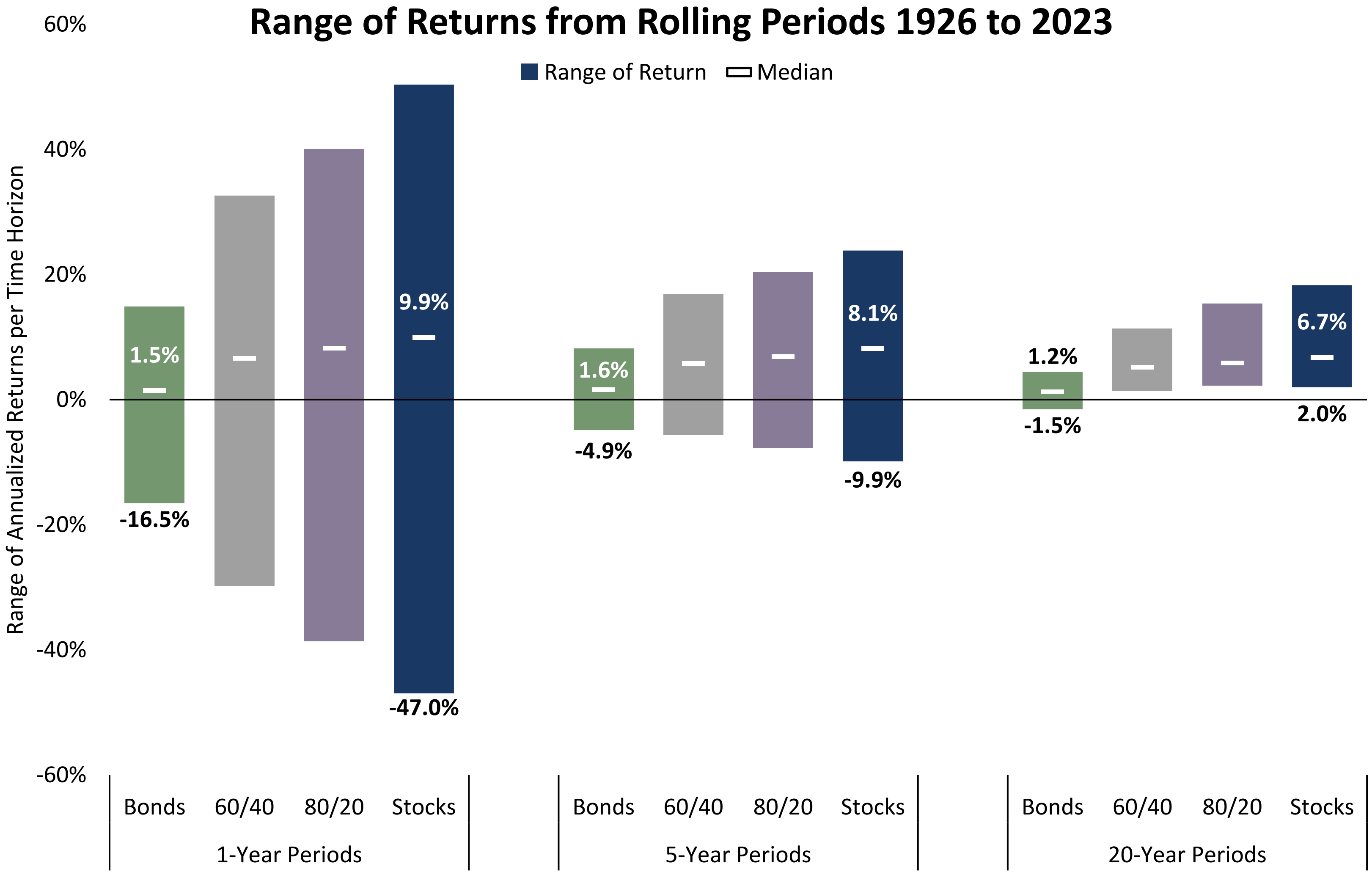


Nominal Bonds vs. Real Bonds (TIPS)



Source: PIMCO – Understanding Treasury Inflation-Protected Securities (TIPS), Bloomberg: 10-year yields and Anticipated Inflation (10-year Breakeven Inflation) as of March 31st, 2024 (righthand chart)

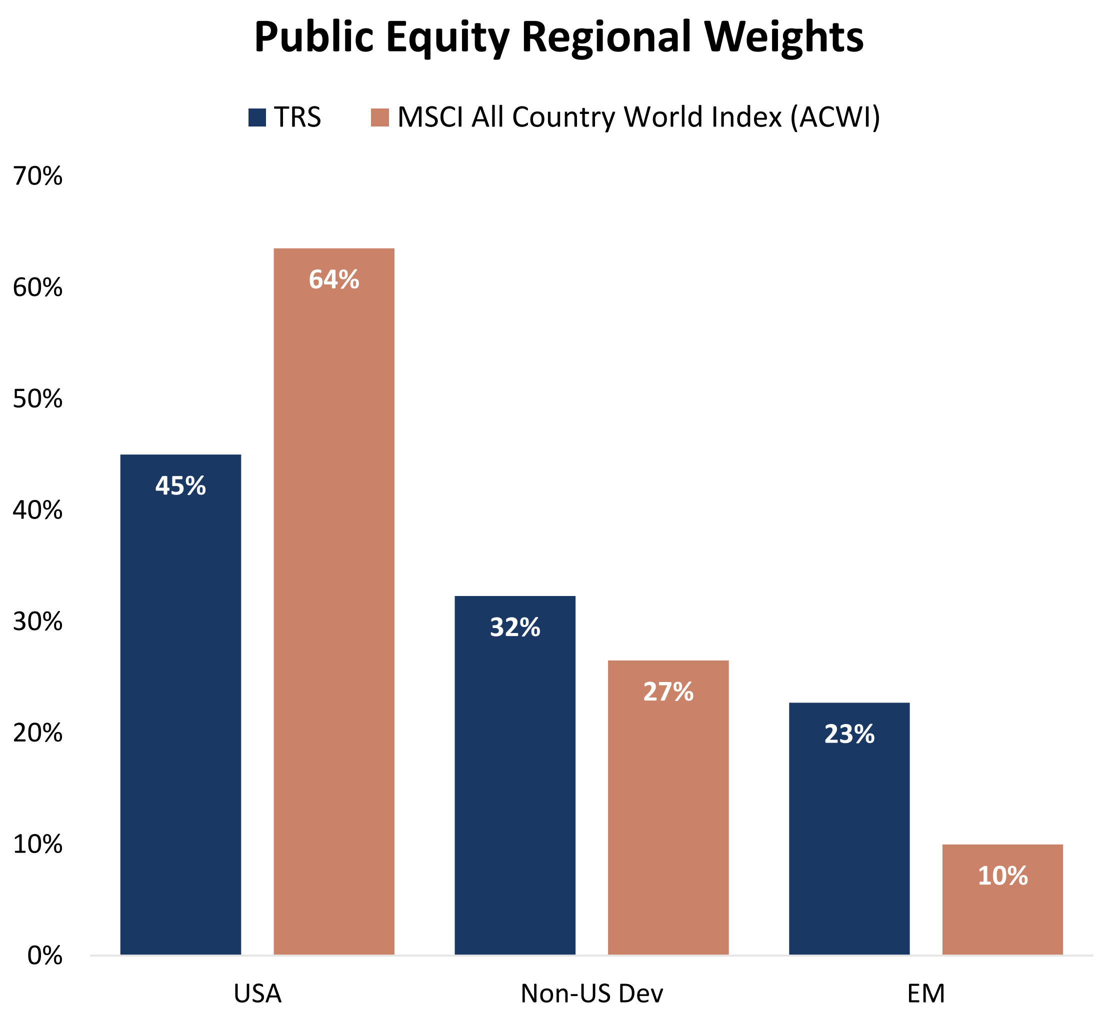
1. **Total Risk:** Long time horizons usually diversify risk

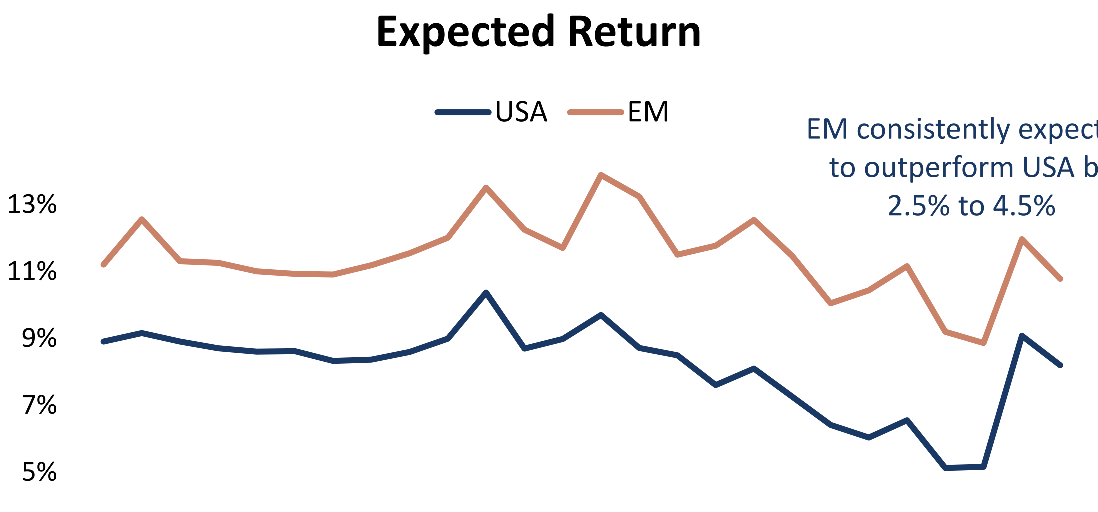


- **1-Year**: Stocks outperform bonds but at higher risk as measured by worst drawdown
- **20-Year**: Stocks outperform bonds in both return **AND** worst drawdown

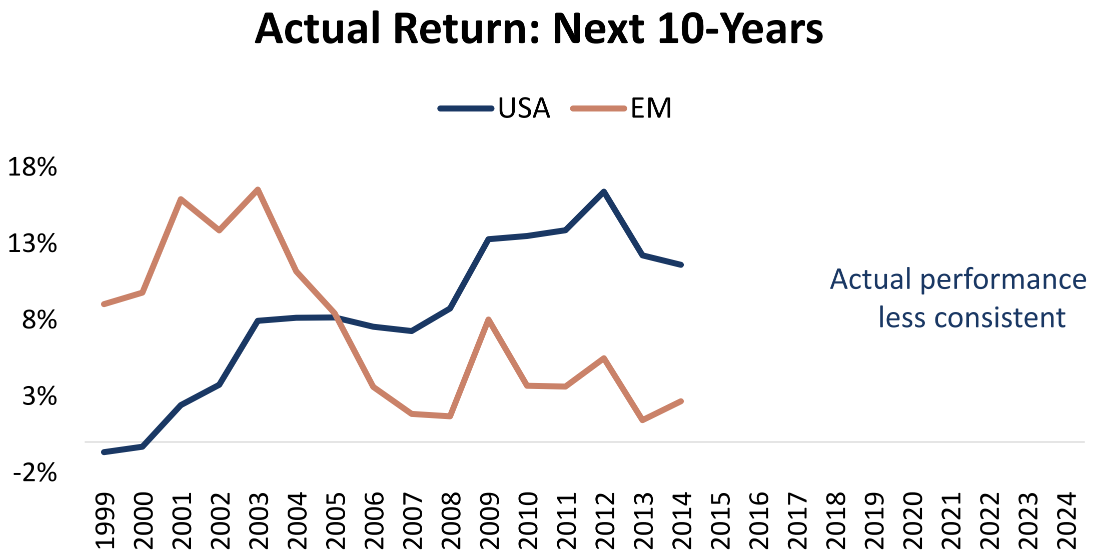
Source: Global stocks and global bonds annualized nominal total return from AQR Century of Factor Premia Data (July 1926 to November 2023)

2. Public Equities: TRS has higher weight to EM equities, but will they outperform?





EM consistently expected to outperform USA by 2.5% to 4.5%



Actual performance is less consistent

Source: Peer websites and BC Public Pension Database; estimation based on 42 funds mapped to TRS asset classes
Expected returns are based on US Large Cap and Emerging Market Equities JPM Long Term Capital Market Assumptions (LTCMAs)

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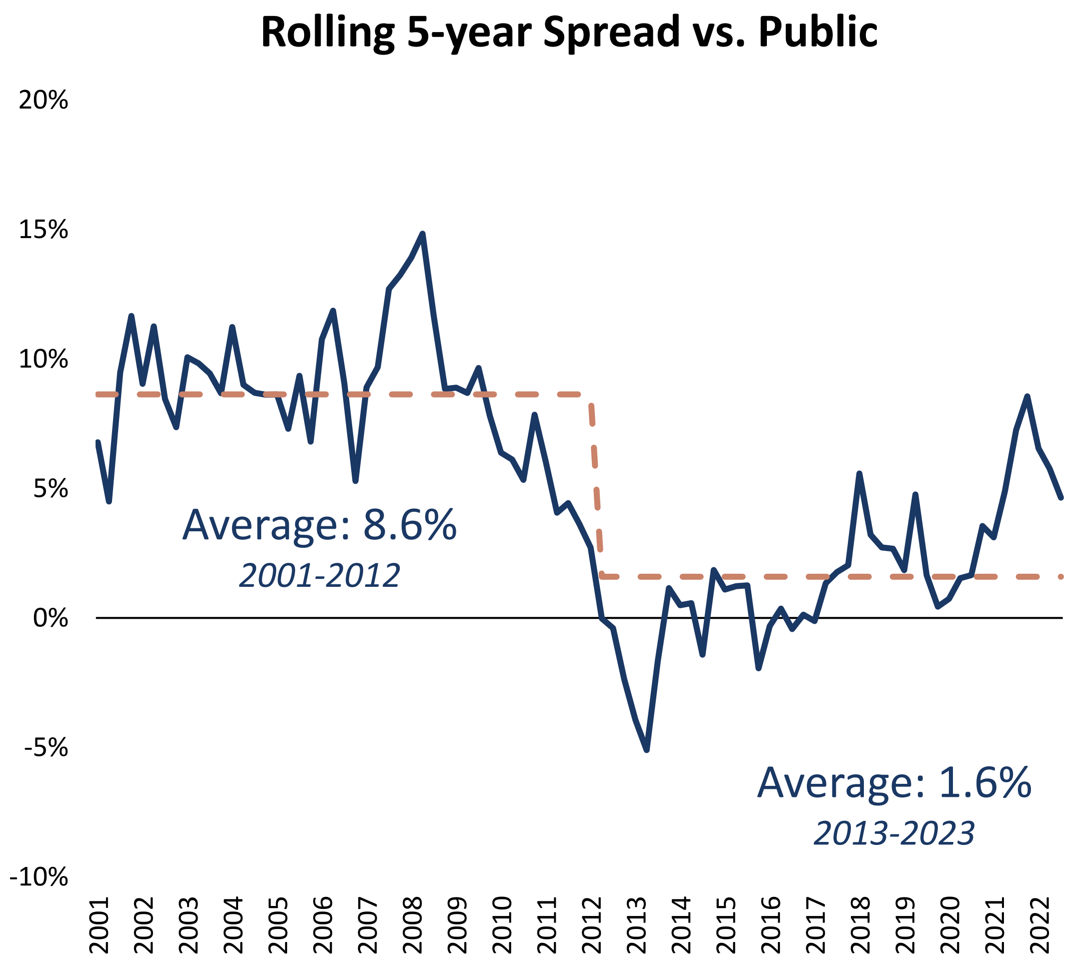
3. **Private Equity:** Spreads have compressed but opportunities remain

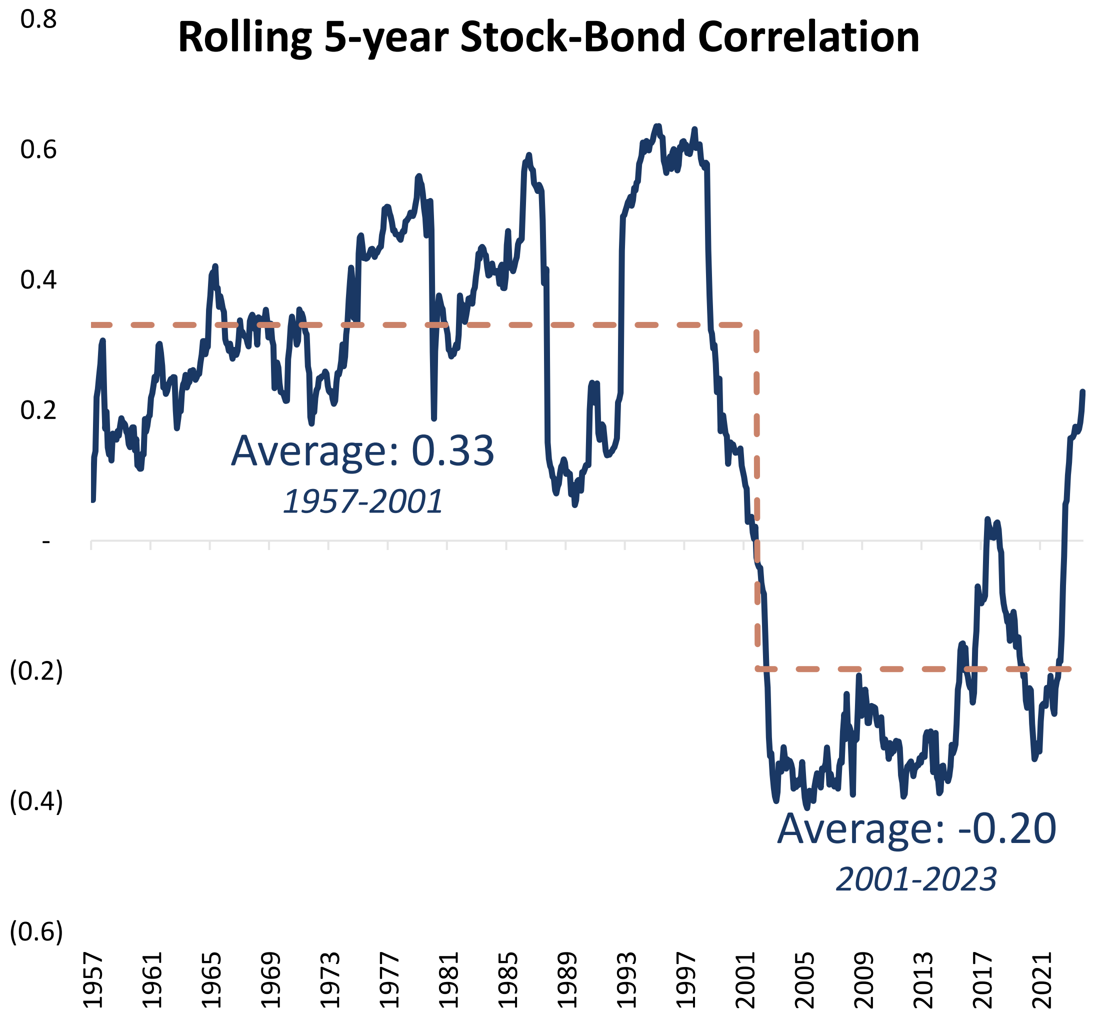


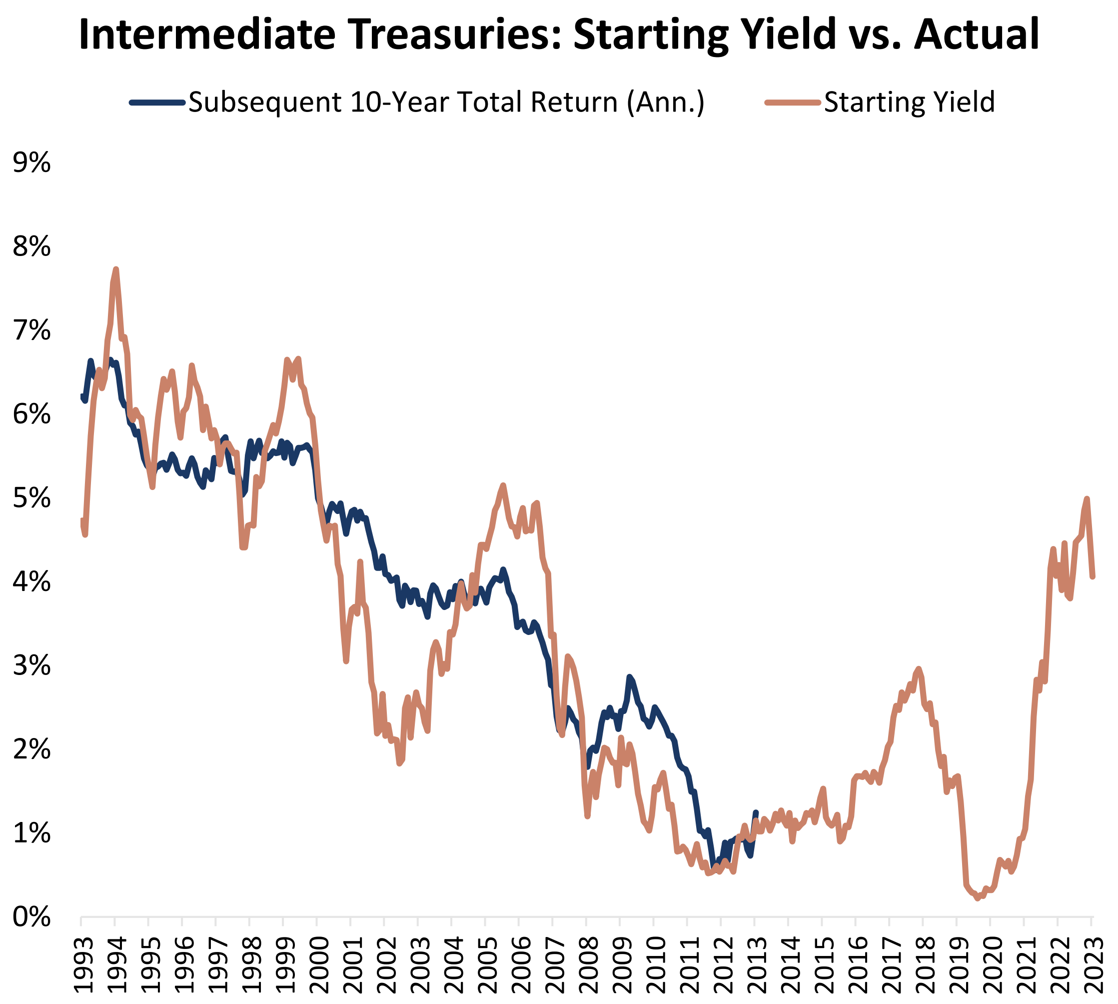
- **Positives**
  - Historically, Private Equity has a positive premium versus public 87% of the time
  - Some LPs may be over-allocated to Private Equity – it could be an attractive time to invest
  - “Private Equity Toolkit” has added value over time
  - Diversification through exposure to newer and smaller companies

- **Negatives**
  - Large amount of existing dry powder
  - Higher interest rates make leverage, an important PE tool, less attractive
  - Many new managers have formed and competition for cheap and inefficient targets has increased
  - Exits are difficult with IPO market sluggish and strategic buyers facing a higher cost of capital

Source: Cambridge Associates and MSCI

4. Bonds: Potentially less diversifying but improved expected returns





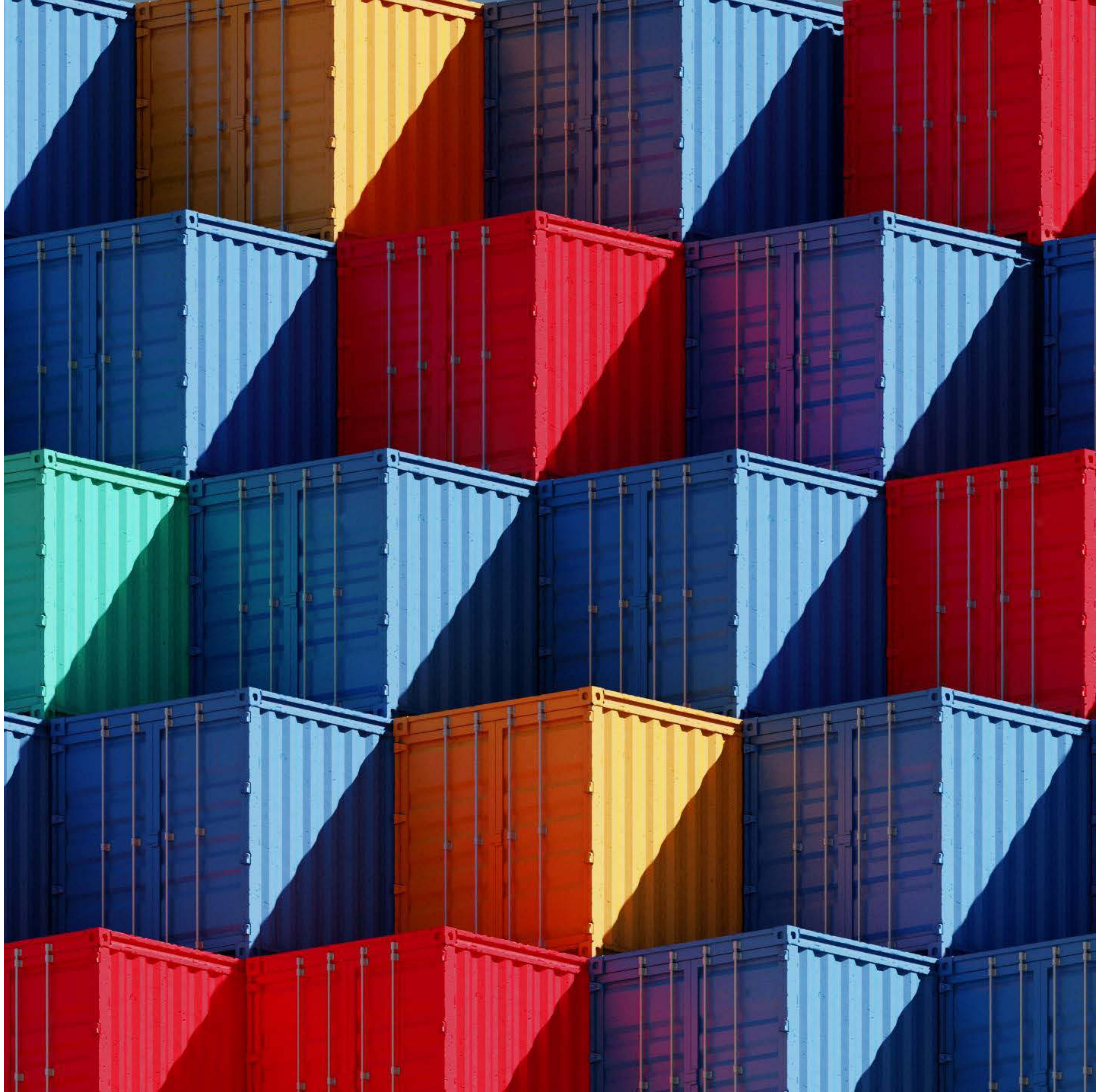
Source: AQR Century of Factor Premia Data July 1926 to November 2023 (lefthand chart) and Bloomberg US Intermediate Treasury Index, LF08TRUU and LF08YW (righthand chart)

TRS INVESTMENT MANAGEMENT DIVISION

Asset-Liability Study Results

Teacher Retirement System of Texas (TRS)

July 2024



Executive Summary

Executive Summary

Background and Purpose

Background

The TRS Investment Management Division (IMD) collected capital market assumptions (CMAs) and model portfolio information from AIUSA as well as other providers to create an alternative Strategic Asset Allocation (SAA) to be analyzed by Aon and presented to the Board. This Alternative SAA is summarized on the right

Goals of the Alternative SAA were as follows:

1. **Public Equity:** add 'All Country' line item to move closer to market capitalization weights
2. **Private Equity:** reduce private equity allocation in favor of public equity
3. **Government Bonds:** shorten and diversify duration to decrease inflation sensitivity
4. **Total Risk:** shift from risk parity to public equity to better match long-term investment horizon

Purpose

AIUSA conducted an asset-liability to analyze the impact of the Current and IMD Proposed Alternative SAA

- AIUSA model portfolio information provided to IMD can be found in the Appendix of this report

	(A)	(B)	(C) = (B) – (A)
Asset Class	**Current SAA**	**Alternative SAA**	**Delta**
U.S. Equities	18%	--	-18%
Non-U.S. Developed Equities	13%	5%	-8%
Emerging Markets Equities	9%	1%	-8%
All Country Equities	--	39%	+39%
Private Equity	14%	12%	-2%
Long Duration Gov't Bonds	16%	10%	-6%
TIPS	--	6%	+6%
Stable Value Hedge Funds	5%	5%	--
Real Estate	15%	15%	--
Infrastructure	6%	6%	--
Risk Parity	8%	5%	-3%
Cash	2%	2%	--
Leverage	-6%	-6%	--
Total	**100%**	**100%**	

Source: https://www.trs.texas.gov/TRS%20Documents/imc-book-may-2024.pdf

Executive Summary

Key themes of the asset-liability study

Portfolio Analysis

- The considered asset allocation change has a modest impact on forward looking expected returns
- The Current Policy has an expected return of **7.59%**[1] while the Alternative Policy has an expected return of **7.46%**[1]
  - Both portfolios exceed the actuarial assumed rate of return (7.00%)
- The Alternative portfolio shifts more toward public equity, slightly reduces private equity and risk parity, and reduces the fixed income duration by moving into TIPS

Asset-Liability Analysis

- The Current and Alternative policies are expected to reach full funding on a market value of assets basis at the following times in the central expectation (50th percentile outcome)
  - Current Policy: FYE 2042
  - Alternative Policy: FYE 2044
- There is a wide range of potential outcomes under each policy due to the static contribution payroll percentage

Liquidity Analysis (appendix)

- TRS's Current and Alternative policies have sufficient liquidity in the modeled Base Case, Recession, and Dark Skies scenarios
  - The modeled scenarios show no problems paying benefits to participants

[1] Expected returns are using Aon's Q2 2024 30-Year Capital Market Assumptions as of 3/31/2024. CMAs contain projections about future returns on asset classes. Our CMA projections are designed to reflect the typical cost of implementing an investment program. Expected returns are calculated using weighted allocations of the underlying CMAs. Expected returns are geometric (long-term compounded; rounded to the nearest decimal) assuming portfolio weights are rebalanced annually. Expected returns presented are models and do not represent the returns of an actual client account. Your actual returns will be reduced by your advisory fees and other expenses you may incur as a client. Analysis includes $81MM in expenses, assumed to be inclusive of investment consulting fees, paid from trust assets. Aon's advisory fees are described in Part 2A of Aon's Form ADV. Not a guarantee of future results. See appendix for capital market assumptions disclosure pages.

Current State Asset-Liability Profile

Current State Overview

As of March 31, 2024

76.5%

Estimated funded ratio as of March 31, 2024

- Based on market value of assets using a 7.00% actuarial discount rate

7.59%

30-year expected return[1]

- Aon's assumption for the current target asset allocation as of March 31, 2024
- Expected return exceeds the actuarial assumed rate of return (7.00%)

+5 bps

Hurdle rate surplus

- Projected asset growth (contributions + investment returns) slightly outpaces projected liability growth, which is expected to improve the near-term funded ratio

83%

Current target level of return-seeking asset

- Return-Seeking assets are diversified with Global Equity, Real Return, and Risk Parity

[1] Expected returns are using Aon's Q2 2024 30-Year Capital Market Assumptions as of 3/31/2024. CMAs contain projections about future returns on asset classes. Our CMA projections are designed to reflect the typical cost of implementing an investment program. Expected returns are calculated using weighted allocations of the underlying CMAs. Expected returns are geometric (long-term compounded; rounded to the nearest decimal) assuming portfolio weights are rebalanced annually. Expected returns presented are models and do not represent the returns of an actual client account. Your actual returns will be reduced by your advisory fees and other expenses you may incur as a client. Analysis includes $81MM in expenses, assumed to be inclusive of investment consulting fees, paid from trust assets. Aon's advisory fees are described in Part 2A of Aon's Form ADV. Not a guarantee of future results. See appendix for capital market assumptions disclosure pages.

Current State Asset-Liability Profile (as of March 31, 2024)

TRS projects to have a slight hurdle rate surplus

Asset-Liability Snapshot				
	As of 8/31/2023		Est. 3/31/2024	
Metric ($, Billions)	**Value**	**Fund %**	**Value**	**Fund %**
Market Value of Assets	$187.2	72.7%	$202.0	76.5%
Actuarial Value of Assets	$199.7	77.5%		
Liability Metrics				
Actuarial Liability (AL) – Funding[1]	$257.5		$264.2	

Asset-Liability Growth Metrics as of 3/31/2024			
Metric ($, Billions)	**Value**	**% Liability**	**% Assets**
AL Discount Cost	$18.50	7.00%	9.16%
AL Normal Cost	$7.11	2.69%	3.52%
Plan Expenses	$0.08	0.03%	0.04%
Total Liability Hurdle Rate	**$25.69**	**9.72%**	**12.72%**
Expected Return on Assets[2]	$15.34	5.80%	7.59%
Total Contributions	$10.47	3.96%	5.18%
Total Exp. Asset Growth	**$25.80**	**9.76%**	**12.77%**
Hurdle Rate (Shortfall)/Surplus	**$0.12**	**0.04%**	**0.05%**
Est. Benefit Payments	$13.85	5.24%	6.85%

Key Takeaways:

- Pension plan is estimated to be **76.5%** funded on a market value of assets basis as of March 31, 2024
- Asset hurdle rate of **12.72%**, via cash funding and investment returns, needed to maintain or improve funded status
- The total expected asset growth rate (EROA plus contributions) exceeds the liability hurdle rate by **5 bps**

Target Asset Allocation as of 3/31/2024		
Metric ($, Billions)	**Value**	**Alloc %**
Return-Seeking		
- U.S. Equity	$36.4	18%
- Int'l Equity (Developed)	$26.3	13%
- Emerging Markets Equity	$18.2	9%
- Private Equity	$28.3	14%
- Real Estate	$30.3	15%
- Infrastructure	$12.1	6%
- Risk Parity	$16.2	8%
- Total	$167.7	83%
Risk-Reducing / Safety		
- Long Duration Gov't	$32.3	16%
- Stable Value Hedge Funds[3]	$10.1	5%
- Cash	$4.0	2%
- Financing	-$12.1	-6%
- Total	$34.3	17%
Total	$202.0	100%

[1] Based on a 7.00% discount rate consistent with the August 31, 2024 actuarial valuation results.

[2] Expected returns are using Aon's Q2 2024 30-Year Capital Market Assumptions as of 3/31/2024. CMAs contain projections about future returns on asset classes. Our CMA projections are designed to reflect the typical cost of implementing an investment program. Expected returns are calculated using weighted allocations of the underlying CMAs. Expected returns are geometric (long-term compounded; rounded to the nearest decimal) assuming portfolio weights are rebalanced annually. Expected returns presented are models and do not represent the returns of an actual client account. Your actual returns will be reduced by your advisory fees and other expenses you may incur as a client. Analysis includes $81MM in expenses, assumed to be inclusive of investment consulting fees, paid from trust assets. Aon's advisory fees are described in Part 2A of Aon's Form ADV. Not a guarantee of future results. See appendix for capital market assumptions disclosure pages.

[3] Hedge funds have elements of both return-seeking and risk-reducing assets. Stable value hedge funds have been categorized as risk-reducing based on the composition of the hedge funds within the TRS portfolio.

Percentages may not sum to 100% due to rounding.

Asset Hurdle Rates

Growth needs of the plan adjust with funded status changes

What is the Asset Hurdle Rate?

Asset Hurdle Rate is the required rate of asset growth needed to keep pace with the growth of the Plan liabilities

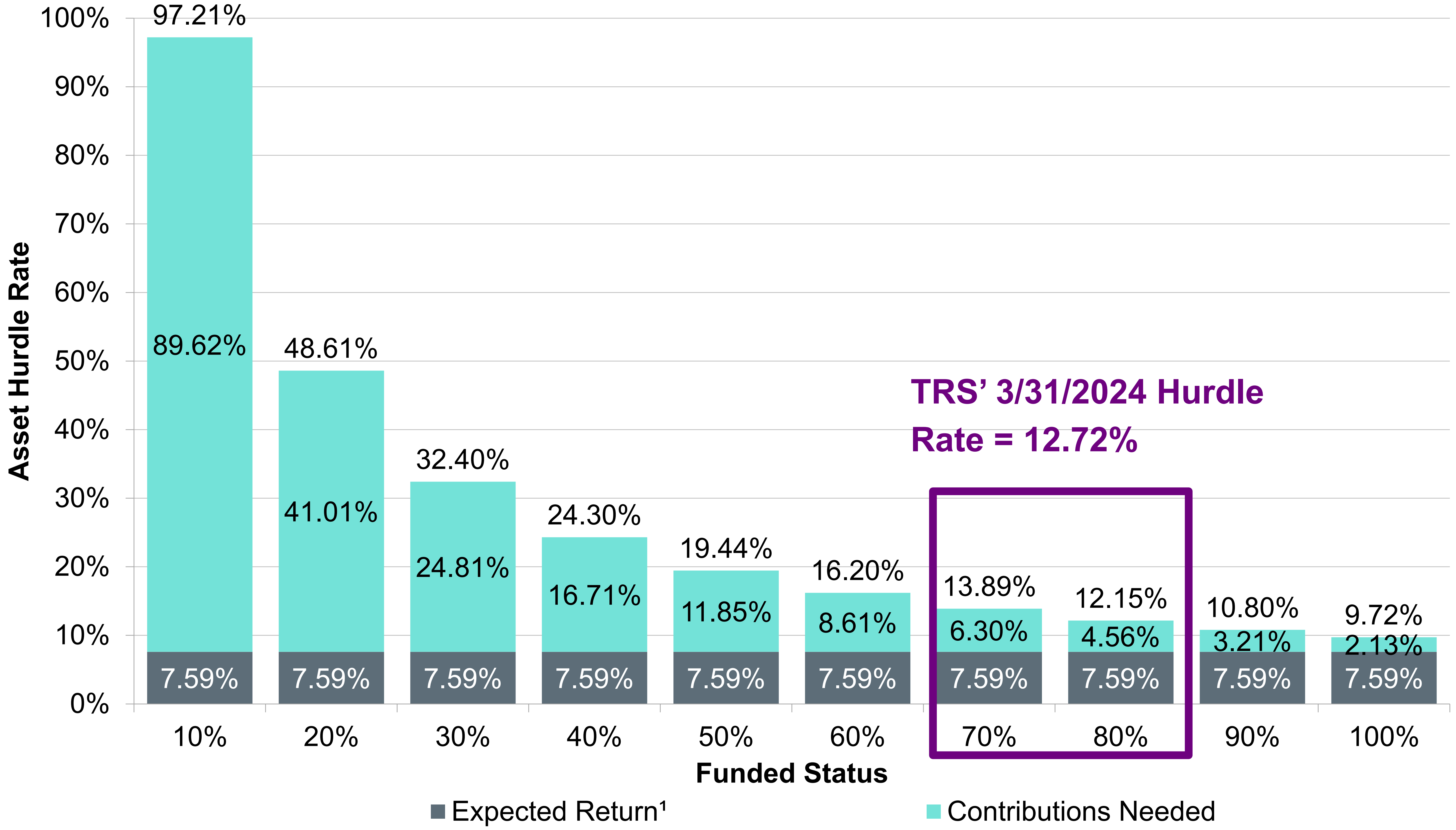
- Assets must grow at this rate or more in order to maintain or reduce a potential funding shortfall
- **Formula = (Normal Cost + Discount Cost + Expenses) / Funded Ratio**

Assets can grow in two ways:

- Investment returns
- Funding contributions

Asset hurdle rates are expected to decline as the funded status increases

Asset Hurdle Rates by Funded Status

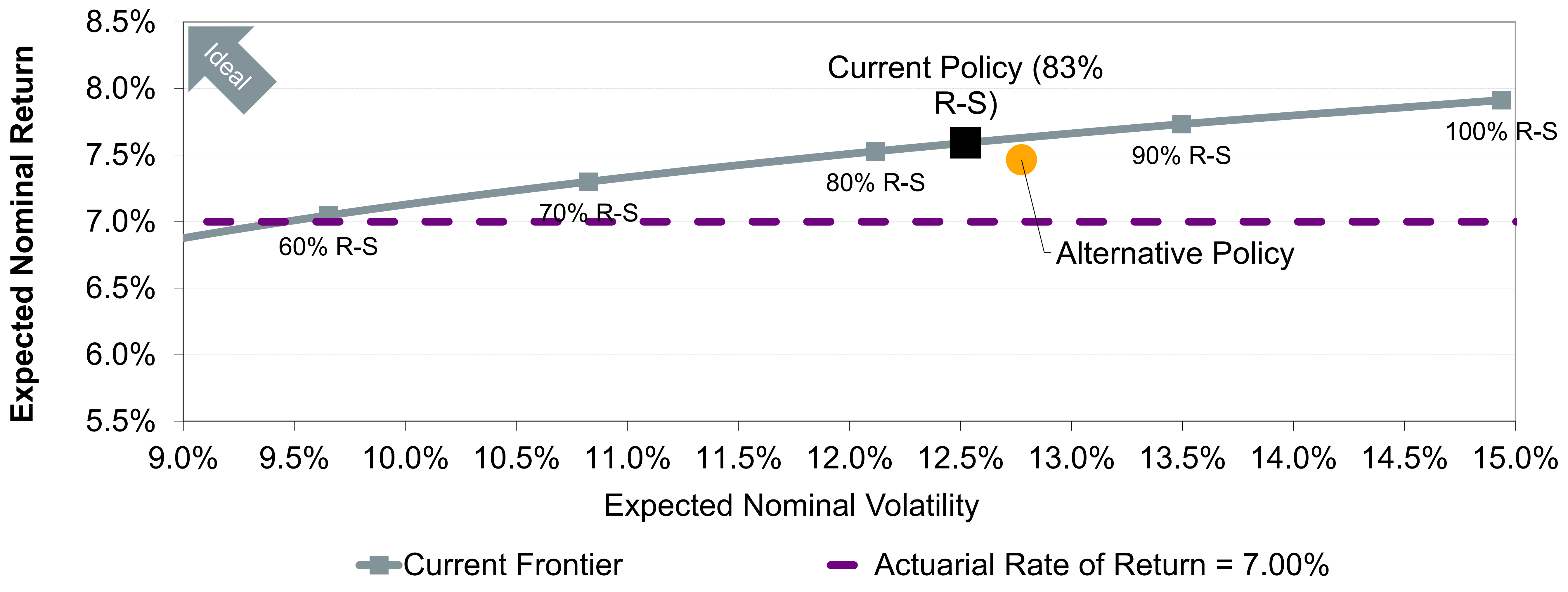


[1] Expected returns are using Aon's Q2 2024 30-Year Capital Market Assumptions as of 3/31/2024. CMAs contain projections about future returns on asset classes. Our CMA projections are designed to reflect the typical cost of implementing an investment program. Expected returns are calculated using weighted allocations of the underlying CMAs. Expected returns are geometric (long-term compounded; rounded to the nearest decimal) assuming portfolio weights are rebalanced annually. Expected returns presented are models and do not represent the returns of an actual client account. Your actual returns will be reduced by your advisory fees and other expenses you may incur as a client. Analysis includes $81MM in expenses, assumed to be inclusive of investment consulting fees, paid from trust assets. Aon's advisory fees are described in Part 2A of Aon's Form ADV. Not a guarantee of future results. See appendix for capital market assumptions disclosure pages.

Portfolio Analysis

Portfolio Analysis

Risk/reward spectrum



Key Observations:

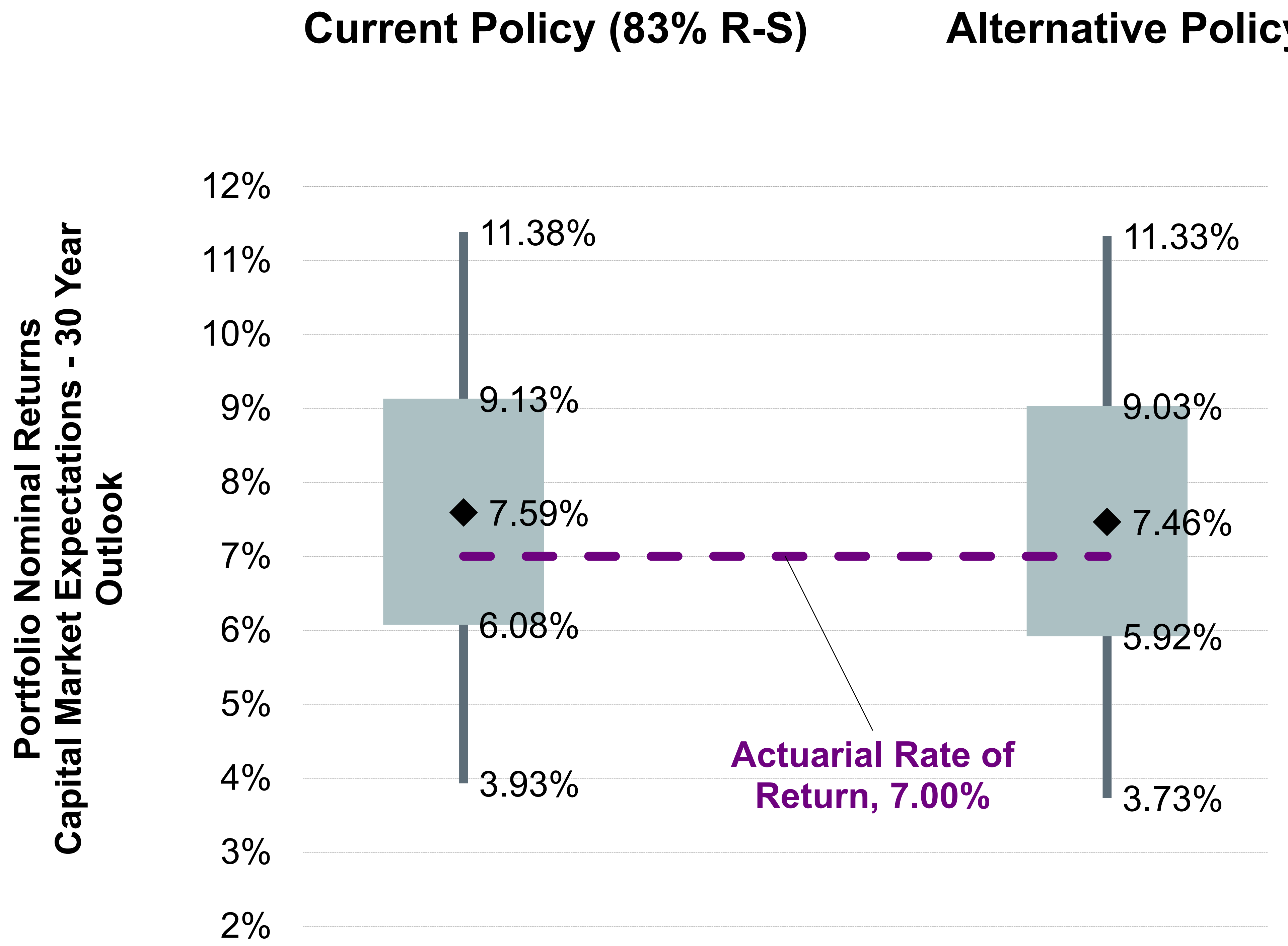
- Current portfolio has an expected return of **7.59%** while the Alternative portfolio has an expected return of **7.46%**
  - Both portfolios exceed the actuarial assumed rate of return (7.00%)
- The Alternative portfolio shifts more toward public equity, slightly reduces private equity and risk parity, and reduces the fixed income duration by moving into TIPS

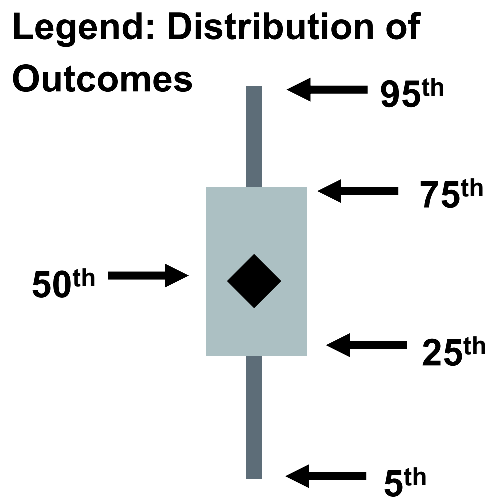
	Portfolio Metrics			Return-Seeking (R-S) Assets								Risk-Reducing/Safety Assets				Financing
	Exp. Nominal Return[1]	Exp. Nominal Volatility	Sharpe Ratio	U.S. Equity	Dev. Int'l Equity	Emerg. Markets Equity	Private Equity	Risk Parity	Core Real Estate	Non-Core Real Estate	Infra-structure	TIPS	Cash	Stable Value Hedge Funds	Long Duration Gov't Bonds	Leverage
Current Policy (83% R-S)	7.59%	12.52%	0.29	18%	13%	9%	14%	8%	6%	9%	6%	0%	2%	5%	16%	-6%
Alternative Policy	7.46%	12.77%	0.28	24%	16%	5%	12%	5%	6%	9%	6%	6%	2%	5%	10%	-6%

[1] Expected returns are using Aon's Q2 2024 30-Year Capital Market Assumptions as of 3/31/2024. CMAs contain projections about future returns on asset classes. Our CMA projections are designed to reflect the typical cost of implementing an investment program. Expected returns are calculated using weighted allocations of the underlying CMAs. Expected returns are geometric (long-term compounded; rounded to the nearest decimal) assuming portfolio weights are rebalanced annually. Expected returns presented are models and do not represent the returns of an actual client account. Your actual returns will be reduced by your advisory fees and other expenses you may incur as a client. Analysis includes $81MM in expenses, assumed to be inclusive of investment consulting fees, paid from trust assets. Aon's advisory fees are described in Part 2A of Aon's Form ADV. Not a guarantee of future results. See appendix for capital market assumptions disclosure pages.

Portfolio Analysis – Range of Nominal Returns

Current and Alternative policies have expected return[1] above the actuarial rate of return





[1] Expected returns are using Aon's Q2 2024 30-Year Capital Market Assumptions as of 3/31/2024. CMAs contain projections about future returns on asset classes. Our CMA projections are designed to reflect the typical cost of implementing an investment program. Expected returns are calculated using weighted allocations of the underlying CMAs. Expected returns are geometric (long-term compounded; rounded to the nearest decimal) assuming portfolio weights are rebalanced annually. Expected returns presented are models and do not represent the returns of an actual client account. Your actual returns will be reduced by your advisory fees and other expenses you may incur as a client. Analysis includes $81MM in expenses, assumed to be inclusive of investment consulting fees, paid from trust assets. Aon's advisory fees are described in Part 2A of Aon's Form ADV. Not a guarantee of future results. See appendix for capital market assumptions disclosure pages.

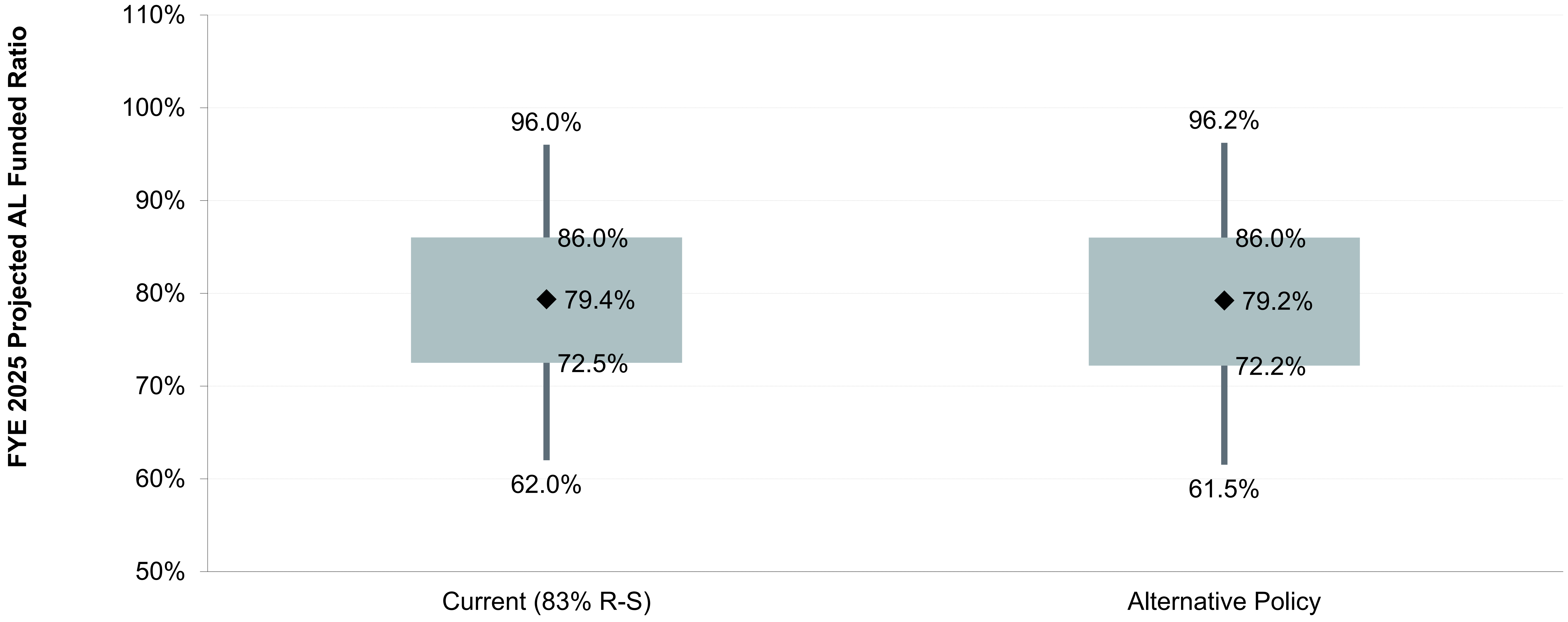
Key Observations

- Median expected return for the both Current and Alternative policies is above the actuarial assumed rate of return (7.00%)
- The probability of meeting the actuarial rate of return by portfolio is the following:
  - **Current Policy: 60%**
  - **Alternative Policy: 58%**

Asset-Liability Projection Analysis

Asset-Liability Projection Analysis – Funded Ratio

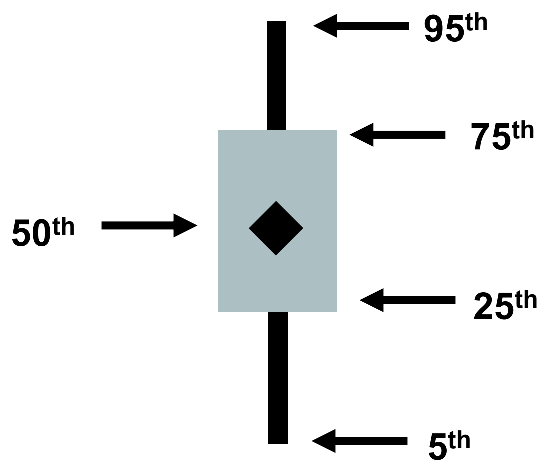
Wide variability in short-term funded ratio driven by projected asset performance



Key Takeaways:

- Higher risk portfolios are projected to have both more upside and downside potential over a short time horizon
- Similarly, lower risk portfolios will have a narrower range of potential outcomes

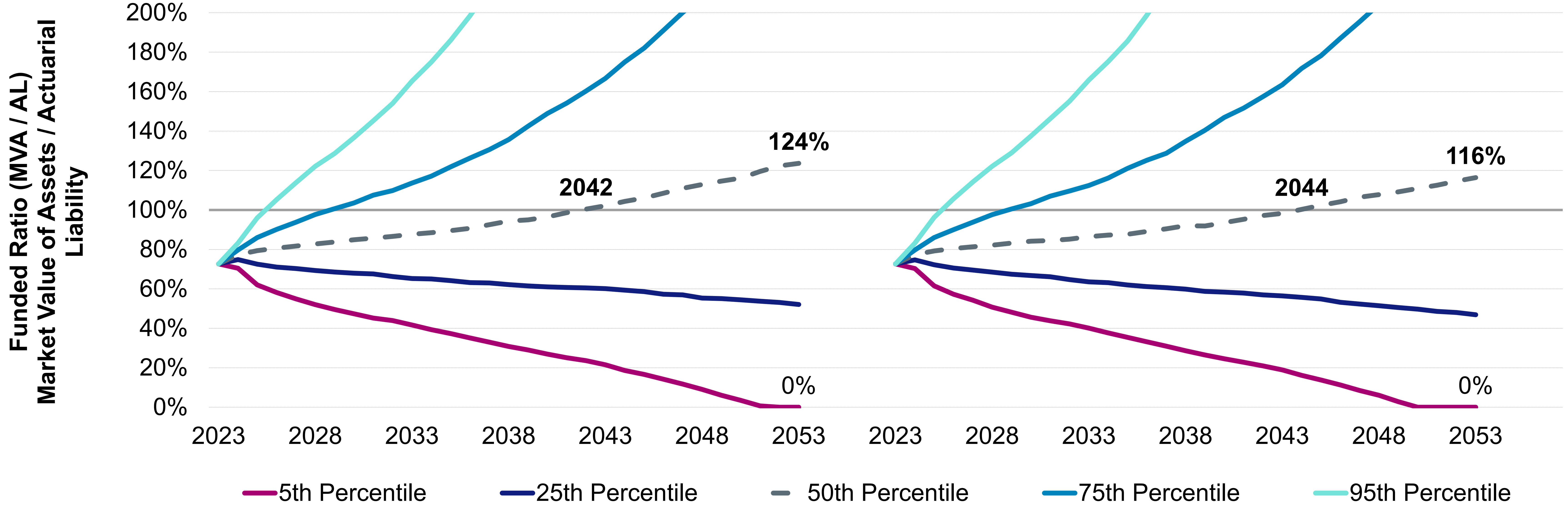
Legend: Distribution of Outcomes



Projections assume a constant 7.00% discount rate for pension liabilities for all investment policies studied and reflect actual investment returns through March 31, 2024. Projections in this material include estimated expenses paid from plan assets, assumed to start at $81MM annually increased with inflation, which is assumed to be inclusive of investment management fees. These are increased with inflation for projection purposes. Actual fees and expenses may differ from those presented.

Asset-Liability Projection Analysis – Funded Ratio

Plan is expected to attain full funding on a market value of asset basis under both investment strategies modeled over the long-term



Strategy	Current Policy (83% R-S)			Alternative Policy		
Year	**2033**	**2043**	**2053**	**2033**	**2043**	**2053**
5th Percentile	42%	21%	0%	40%	19%	0%
25th Percentile	65%	60%	52%	64%	56%	47%
50th Percentile	88%	102%	124%	86%	98%	116%
75th Percentile	114%	167%	>200%	112%	163%	>200%
95th Percentile	165%	>200%	>200%	166%	>200%	>200%
Probability > 100%	38%	51%	58%	37%	49%	56%

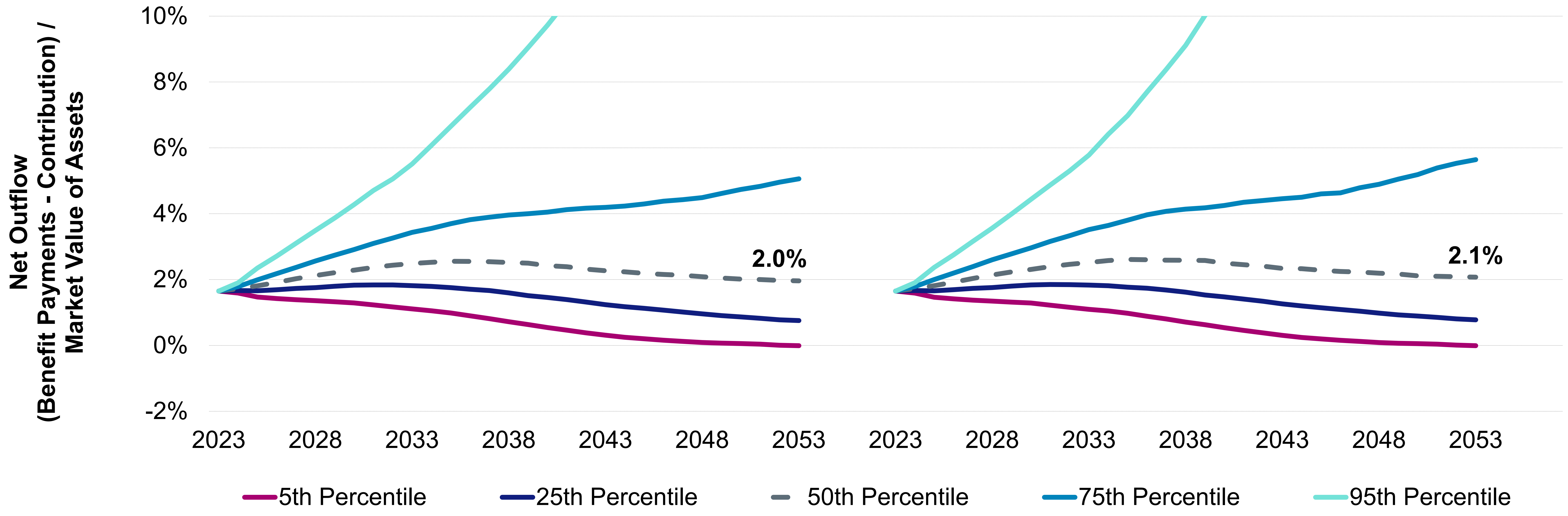
Projections assume a constant 7.00% discount rate for pension liabilities for all investment policies studied and reflect actual investment returns through March 31, 2024. Projections in this material include estimated expenses paid from plan assets, assumed to start at $81MM annually increased with inflation, which is assumed to be inclusive of investment management fees. These are increased with inflation for projection purposes. Actual fees and expenses may differ from those presented.

Key Observations

- The portfolios modeled are assumed to reach full funding at the following times in the central expectation (50th percentile outcome)
  - **Current Policy: FYE 2042**
  - **Alternative Portfolio: FYE 2044**
- There is a wide range of potential outcomes under each policy due to the static contribution payroll percentage

Asset-Liability Projection Analysis – Net Outflow

Net outflow is consistent across investment strategies at 2-3%



Strategy	Current Policy (83% R-S)			Alternative Policy		
Year	**2033**	**2043**	**2053**	**2033**	**2043**	**2053**
5th Percentile	1.1%	0.3%	0.0%	1.1%	0.3%	0.0%
25th Percentile	1.8%	1.2%	0.8%	1.8%	1.3%	0.8%
50th Percentile	2.5%	2.3%	2.0%	2.5%	2.3%	2.1%
75th Percentile	3.4%	4.2%	5.1%	3.5%	4.5%	5.6%
95th Percentile	5.5%	12.5%	100.0%	5.8%	14.6%	100.0%
Probability > 10%	<1%	11%	24%	<1%	14%	24%

Projections assume a constant 7.00% discount rate for pension liabilities for all investment policies studied and reflect actual investment returns through March 31, 2024. Projections in this material include estimated expenses paid from plan assets, assumed to start at $81MM annually increased with inflation, which is assumed to be inclusive of investment management fees. These are increased with inflation for projection purposes. Actual fees and expenses may differ from those presented.

Key Observation

- Net outflow is consistent across the policies modeled with central expectations (50th percentile outcome) in the 2-3% range

Asset-Liability Projection Analysis – Economic Cost and Risk

Longer time horizons incentivize risk taking

Economic Cost[1]

Present Value of Contributions plus AL Funding Shortfall/(Surplus)* at 7.00%, $ Billions

Economic Cost

August 31, 2025		
Strategy ($ Billions)	Cost	Risk
Current Policy (83% R-S)	$70.2	$112.8
Alternative Policy	$70.4	$113.7

August 31, 2033		
Strategy ($ Billions)	Cost	Risk
Current Policy (83% R-S)	$108.3	$196.1
Alternative Policy	$110.9	$199.0

August 31, 2053		
Strategy ($ Billions)	Cost	Risk
Current Policy (83% R-S)	$160.7	$297.4
Alternative Policy	$166.5	$301.4

Key Takeaways

- Short time horizons show largely horizontal economic cost movement – i.e., added risk does not result in a significant expected reward/economic cost reduction
- Longer time horizons show more vertical economic cost movement – i.e., added risk does result in a more significant expected reward/economic cost reduction

* Projections assume constant 7.00% discount rate for pension liabilities for all investment policies studied
Note: Excludes 50% of surplus in excess of 130% of Actuarial liability, and includes twice the shortfall below 30% of Actuarial liability, on a market value basis

Summary and Conclusions

Summary of Results

Portfolios	Portfolio Metrics (30-year CMAs)			Financial Results					
	Expected Nominal Return[1]	Expected Nominal Volatility	Sharpe Ratio	30-year Ending Funded Ratio (MVA / AL)		30-year Present Value of Contributions		30-year Economic Cost	
				Expected[2]	Downside[3]	Expected[2]	Downside[4]	Expected[2]	Downside[4]
Current Policy (83% R-S)	7.59%	12.52%	0.29	124%	0%	$180.7	$220.6	$160.7	$297.4
Alternative Policy	7.46%	12.77%	0.28	116%	0%	$181.0	$220.7	$166.5	$301.4
Current Frontier									
0% Return-Seeking	4.99%	8.22%	0.13	40%	15%	$179.4	$220.6	$237.8	$261.8
10% Return-Seeking	5.40%	7.60%	0.20	49%	18%	$179.4	$220.6	$228.2	$257.4
20% Return-Seeking	5.78%	7.32%	0.26	59%	18%	$179.4	$220.6	$218.3	$258.8
30% Return-Seeking	6.14%	7.42%	0.30	70%	16%	$179.4	$220.6	$208.9	$262.0
40% Return-Seeking	6.47%	7.88%	0.33	81%	13%	$179.4	$220.6	$198.7	$266.5
50% Return-Seeking	6.77%	8.65%	0.33	91%	10%	$179.5	$220.6	$188.8	$273.5
60% Return-Seeking	7.05%	9.65%	0.33	101%	6%	$179.7	$220.6	$179.4	$282.0
70% Return-Seeking	7.30%	10.83%	0.31	111%	1%	$180.1	$220.6	$170.8	$288.5
80% Return-Seeking	7.53%	12.12%	0.30	121%	0%	$180.6	$220.6	$162.5	$295.4
90% Return-Seeking	7.73%	13.50%	0.28	129%	0%	$181.1	$220.7	$156.9	$301.8
100% Return-Seeking	7.91%	14.94%	0.27	137%	0%	$181.4	$221.2	$151.6	$307.6

[1] Expected returns are using Aon's Q2 2024 30-Year Capital Market Assumptions as of 3/31/2024. CMAs contain projections about future returns on asset classes. Our CMA projections are designed to reflect the typical cost of implementing an investment program. Expected returns are calculated using weighted allocations of the underlying CMAs. Expected returns are geometric (long-term compounded; rounded to the nearest decimal) assuming portfolio weights are rebalanced annually. Expected returns presented are models and do not represent the returns of an actual client account. Your actual returns will be reduced by your advisory fees and other expenses you may incur as a client. Analysis includes $81MM in expenses, assumed to be inclusive of investment consulting fees, paid from trust assets. Aon's advisory fees are described in Part 2A of Aon's Form ADV. Not a guarantee of future results. See appendix for capital market assumptions disclosure pages.

[2] Expected = 50th percentile outcome or central expectation across all 5,000 simulations

[3] Downside = 5th percentile outcome across all 5,000 simulations

[4] Downside = 95th percentile outcome across all 5,000 simulations

Conclusions

Portfolio Analysis

- The considered asset allocation change has a modest impact on forward looking expected returns
- The Current Policy has an expected return of **7.59%**[1] while the Alternative Policy has an expected return of **7.46%**[1]
  - Both portfolios exceed the actuarial assumed rate of return (7.00%)
- The Alternative portfolio shifts more toward public equity, slightly reduces private equity and risk parity, and reduces the fixed income duration by moving into TIPS

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- TRS's Current and Alternative policies have sufficient liquidity in the modeled Base Case, Recession, and Dark Skies scenarios
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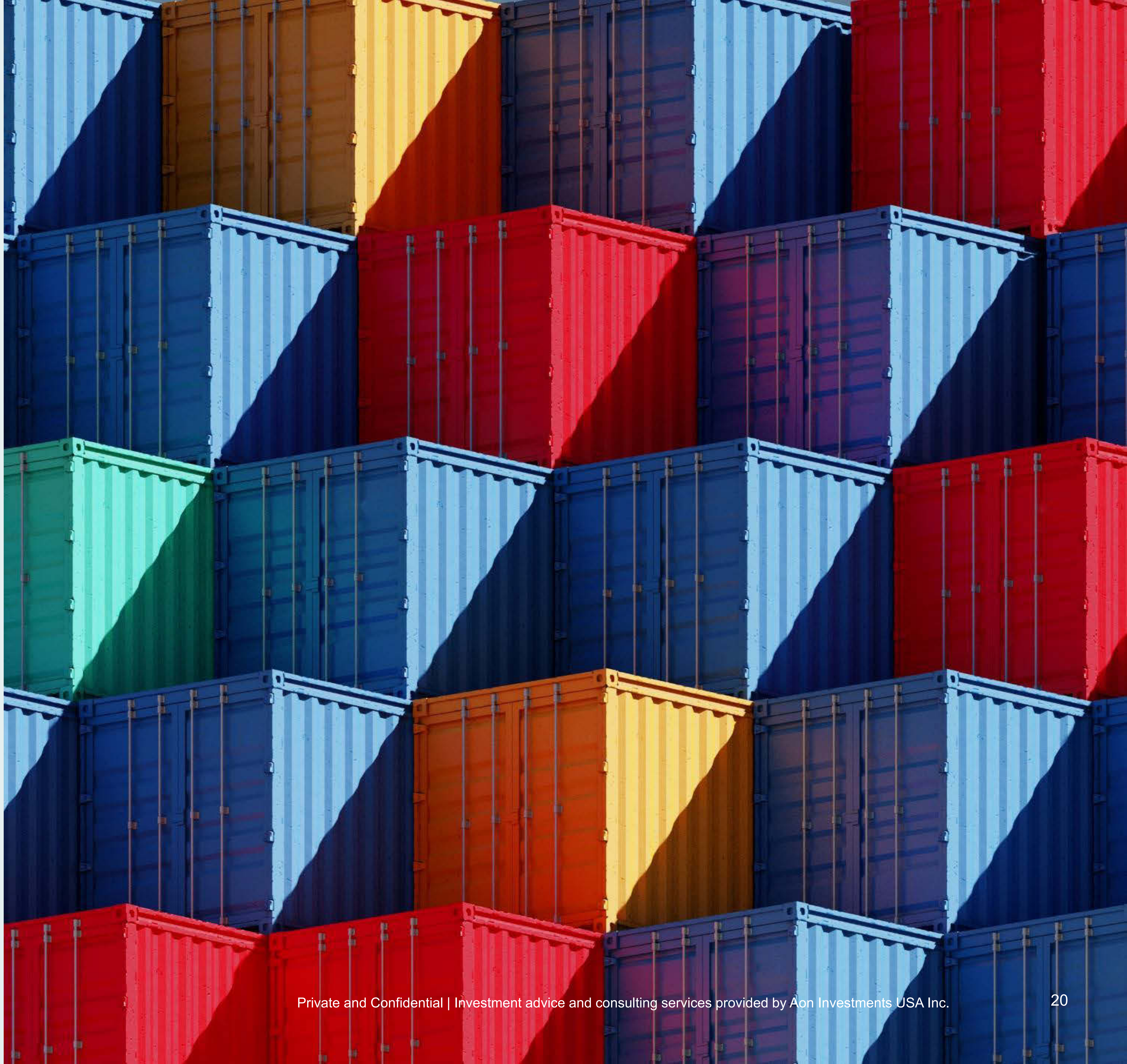
Appendix



Asset-Liability Management Overview

Executive Summary

What is an asset-liability study?

What?

A comprehensive toolkit for making decisions on a **fund's asset allocation and investment risk that align with the liabilities** those funds support

Why?

Aon believes optimal decisions regarding pension plan management are made when they are based on a **clear understanding of the assets and liabilities** and how they interact

When?

Aon suggests conducting asset-liability studies every **3-5 years** depending on client specifics, or more frequently should circumstances dictate

How?

Identify future trends in the financial health of the fund based on economic uncertainties that may not be evident from an actuarial valuation

Asset-Liability Management Overview

Future projection approaches: Deterministic vs. stochastic forecasting

Deterministic Forecasting

Places certainty in the path of future outcomes

- Assumes a single future path, often with the assumption that actual experience will equal all actuarial assumptions resulting in no unexpected (gain)/loss

Stochastic Forecasting

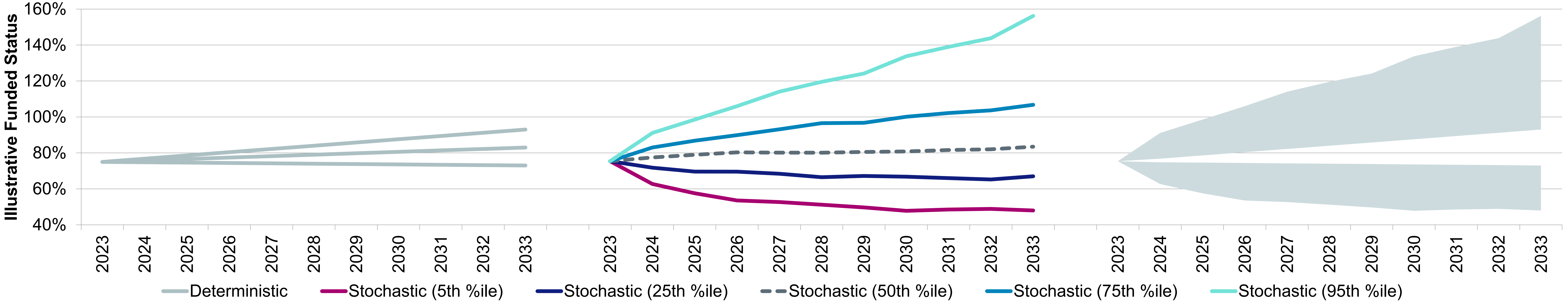
Embraces uncertainty by modeling a range of potential future outcomes

- Aon's approach utilizes up to 5,000 projection trials, representing a wide range of economic scenarios, and then ranks results of key variables into percentile distributions

Benefits of Stochastic Modeling

Encompasses a much broader view than deterministic forecasting alone (i.e., the shaded area below), especially in extreme cases which may potentially go unnoticed to stakeholders

- Shows impact of market expectations differing from actuarial assumptions
- Illustrates interplay of economic uncertainty with funding policies



Portfolio Analysis (Additional Details)

Spectrum of Our Model Portfolios

Reflects our best ideas for a typical pension plan

Aon's Model Portfolios reflect Aon's best ideas for a typical total return defined benefit plan across a range of circumstances noted below

Intended as a starting point for asset allocation analysis and decision-making and to be customized based on client-specific needs and circumstances

	Liquid	Less Liquid	More Illiquid	Unconstrained
Complexity	Simple			Complex
Costs	Low Cost			Higher Cost
Resources	Light Resources			Deep Resources
Governance	Modest Governance			Strong Governance
Liquidity	More Liquid			Less Liquid

As a general statement, moving from left-to-right on the above spectrum increases both investment portfolio return potential and risk-adjusted return potential, based on our capital markets modelling

- It also increases the reliance on "alpha" (manager skill) and reduces the emphasis on market "beta" (market risk premiums); alpha is not guaranteed

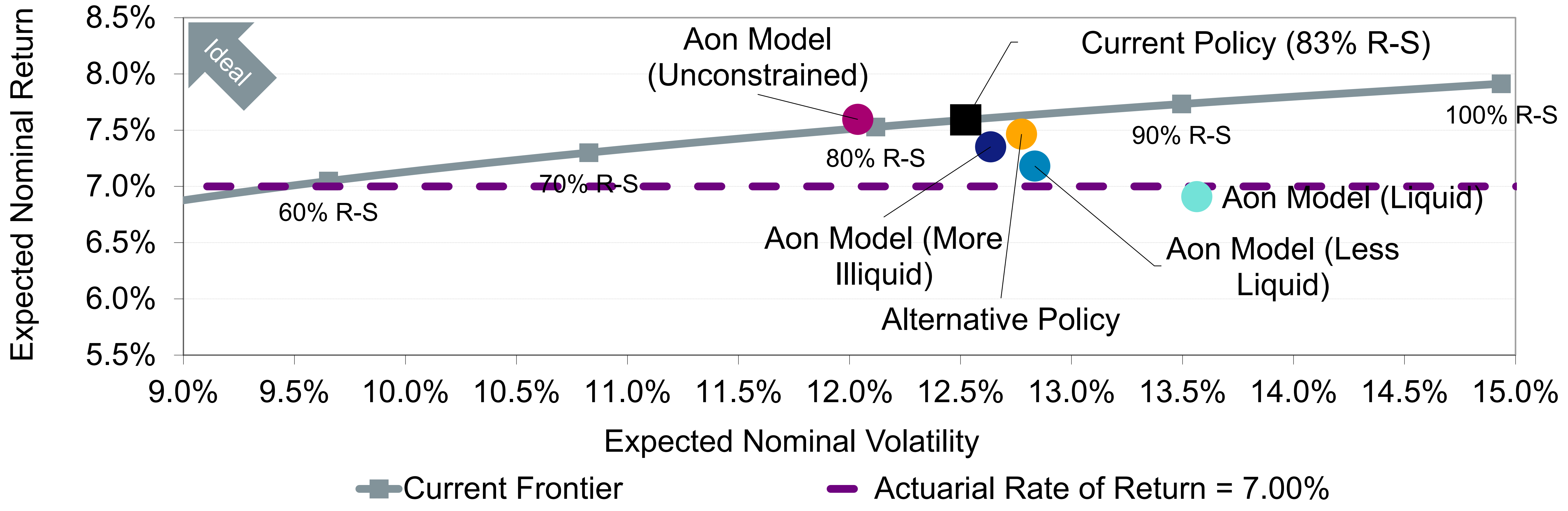
Spectrum of Our Model Portfolios

Assumes 80% return-seeking portfolio; model portfolios scaled to desired risk tolerance

Aon Model Portfolio	**Liquid**	**Less Liquid**	**More Illiquid**	**Unconstrained**
Guidance on Choosing the Right Model Portfolio	Appropriate for pension plans intending to access markets in a simple, low cost manner	Public pension plans with modest governance structure and some appetite for illiquidity	Typical public pension plan	Public pension plans with strong governance structure and large appetite for illiquidity
Asset Allocation				
Total Return-Seeking Assets	**80.0%**	**80.0%**	**80.0%**	**80.0%**
Public Equity	60.0%	50.0%	45.0%	35.0%
Private Equity	--	5.0%	10.0%	15.0%
Liquid Alternatives	--	5.0%	7.5%	7.5%
Liquid Return-Seeking Fixed Income	7.5%	7.5%	5.0%	5.0%
Illiquid Fixed Income	--	--	2.5%	5.0%
Open-end Real Assets	12.5%	7.5%	5.0%	5.0%
Closed-end Real Assets	--	5.0%	5.0%	7.5%
Opportunity	0.0%	0-5%	0-10%	0-10%
Total Risk-Reducing Assets	**20.0%**	**20.0%**	**20.0%**	**20.0%**
Core/Core-Plus Fixed Income	20.0%	20.0%	20.0%	20.0%
Total Assets	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Portfolio Analysis

Risk/reward spectrum



Key Observations:

- Current portfolio has an expected return of **7.59%** while the Alternative portfolio has an expected return of **7.46%**
  - Both portfolios exceed the actuarial assumed rate of return (7.00%)
- The Alternative portfolio shifts more toward public equity, slightly reduces private equity and risk parity, and reduces the fixed income duration by moving into TIPS

	Portfolio Metrics			Return-Seeking (R-S) Assets											Risk-Reducing/Safety Assets					Financing
	Exp. Nominal Return[1]	Exp. Nominal Volatility	Sharpe Ratio	U.S. Equity	Dev. Int'l Equity	Emerg. Markets Equity	Private Equity	Risk Parity	Liquid Alts	Liquid R-S Fixed Income	Illiquid R-S Fixed Income	Core Real Estate	Non-Core Real Estate	Infra-structure	TIPS	Cash	Stable Value Hedge Funds	Core / Core Plus Bonds	Long Duration Gov't Bonds	Leverage
Current Policy (83% R-S)	7.59%	12.52%	0.29	18%	13%	9%	14%	8%	0%	0%	0%	6%	9%	6%	0%	2%	5%	0%	16%	-6%
Alternative Policy	7.46%	12.77%	0.28	24%	16%	5%	12%	5%	0%	0%	0%	6%	9%	6%	6%	2%	5%	0%	10%	-6%
Aon Model (Liquid)	6.91%	13.56%	0.22	43%	16%	7%	0%	0%	0%	8%	0%	14%	0%	0%	0%	2%	0%	16%	0%	-6%
Aon Model (Less Liquid)	7.18%	12.83%	0.26	36%	13%	6%	6%	0%	6%	8%	0%	8%	3%	3%	0%	2%	0%	16%	0%	-6%
Aon Model (More Illiquid)	7.35%	12.64%	0.27	32%	12%	5%	11%	0%	8%	6%	3%	6%	3%	3%	0%	2%	0%	16%	0%	-6%
Aon Model (Unconstrained)	7.60%	12.04%	0.31	25%	9%	4%	17%	0%	8%	6%	6%	6%	4%	4%	0%	2%	0%	16%	0%	-6%

[1] Expected returns are using Aon's Q2 2024 30-Year Capital Market Assumptions as of 3/31/2024. CMAs contain projections about future returns on asset classes. Our CMA projections are designed to reflect the typical cost of implementing an investment program. Expected returns are calculated using weighted allocations of the underlying CMAs. Expected returns are geometric (long-term compounded); rounded to the nearest decimal) assuming portfolio weights are rebalanced annually. Expected returns presented are models and do not represent the returns of an actual client account. Your actual returns will be reduced by your advisory fees and other expenses you may incur as a client. Analysis includes $81MM in expenses, assumed to be inclusive of investment consulting fees, paid from trust assets. Aon's advisory fees are described in Part 2A of Aon's Form ADV. Not a guarantee of future results. See appendix for capital market assumptions disclosure pages.

Liquidity Analysis

Liquidity Analysis
Overview

TRS' liquidity analysis was performed under the modeled Current and Alternative target allocations to demonstrate the impact of different allocations to illiquid assets

Intended as a stress-testing model, incorporating the profile of the liabilities as well as expected future contributions

Uses different scenarios for economic environments and other relevant events

Shows how the portfolio's liquidity profile could evolve with a given investment strategy

We categorized investments by liquidity into five buckets

Liquid (Risk-Reducing Assets): Less than 3 months needed for return of capital (e.g., publicly traded securities)

Liquid (Return-Seeking Assets): Less than 3 months needed for return of capital (e.g., publicly traded securities)

Quasi-Liquid: Typical lock-up of 3–12 months; Conservatively, we assumed a 1-year lock-up in most economic environments, 2 years in a Recession scenario, and 3 years in a Dark Skies scenario (e.g., many hedge funds, open-end real assets)

Illiquid: Potential lock-up of 5–10 years, depending on economic environment (e.g., closed-end real assets)

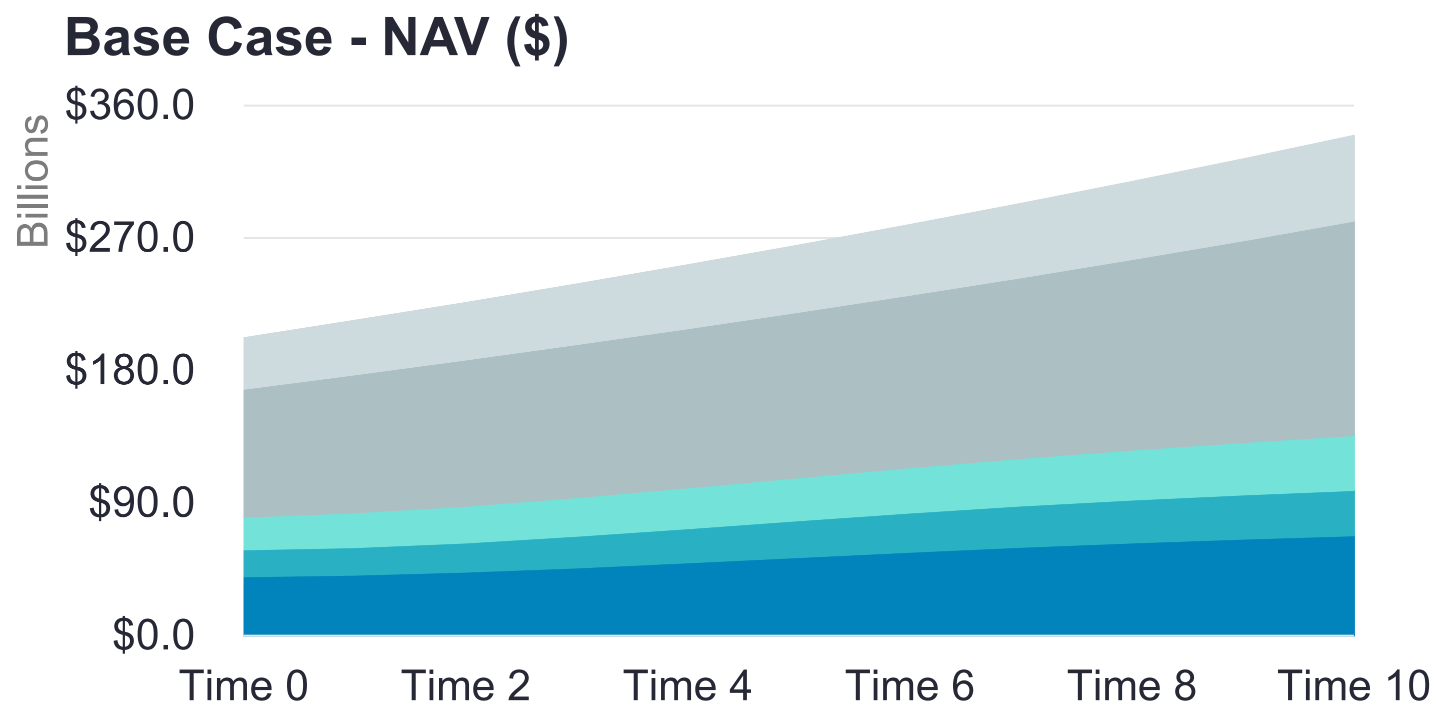
Illiquid: Potential lock-up of 10+ years (e.g., typical private equity)

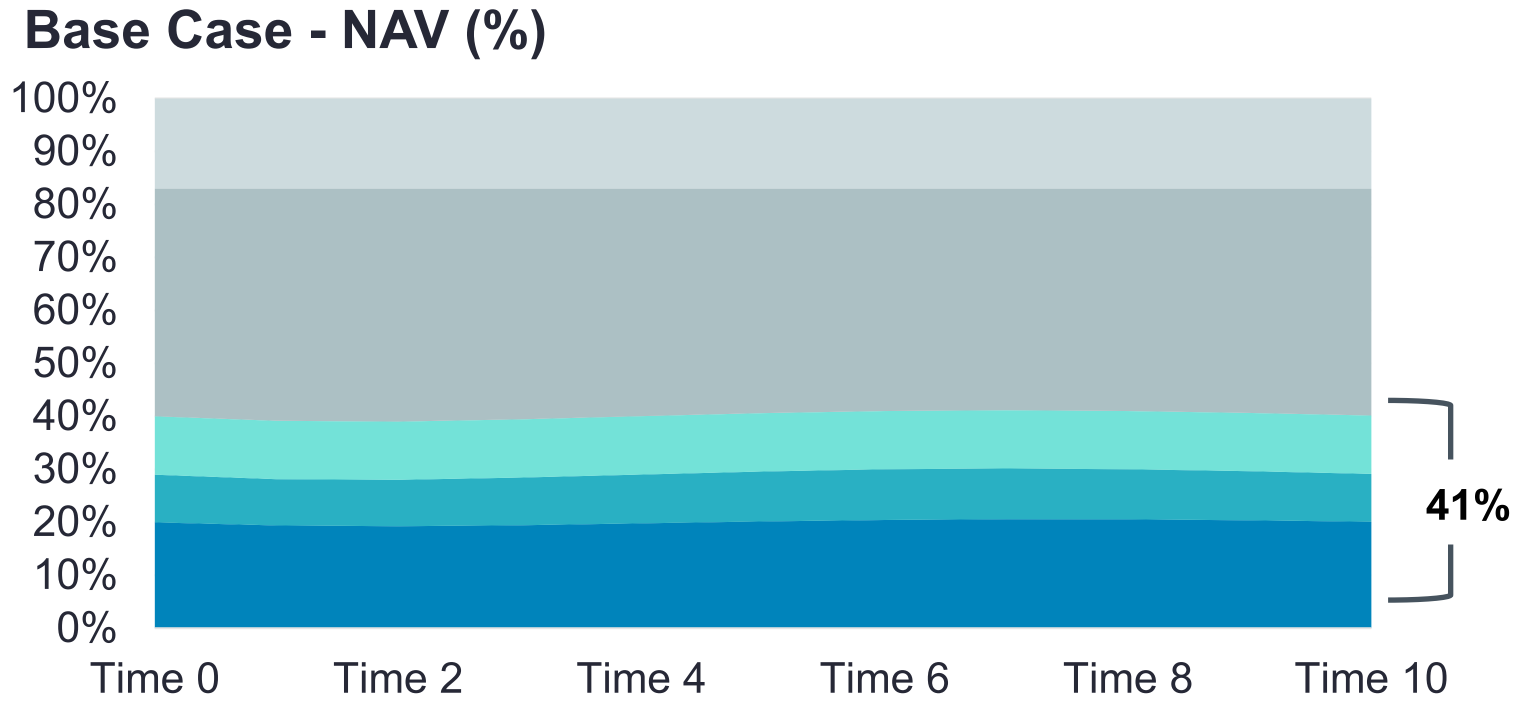
This is intended to be a conservative approximation of the actual liquidity properties of the assets

Liquidity Analysis – Results

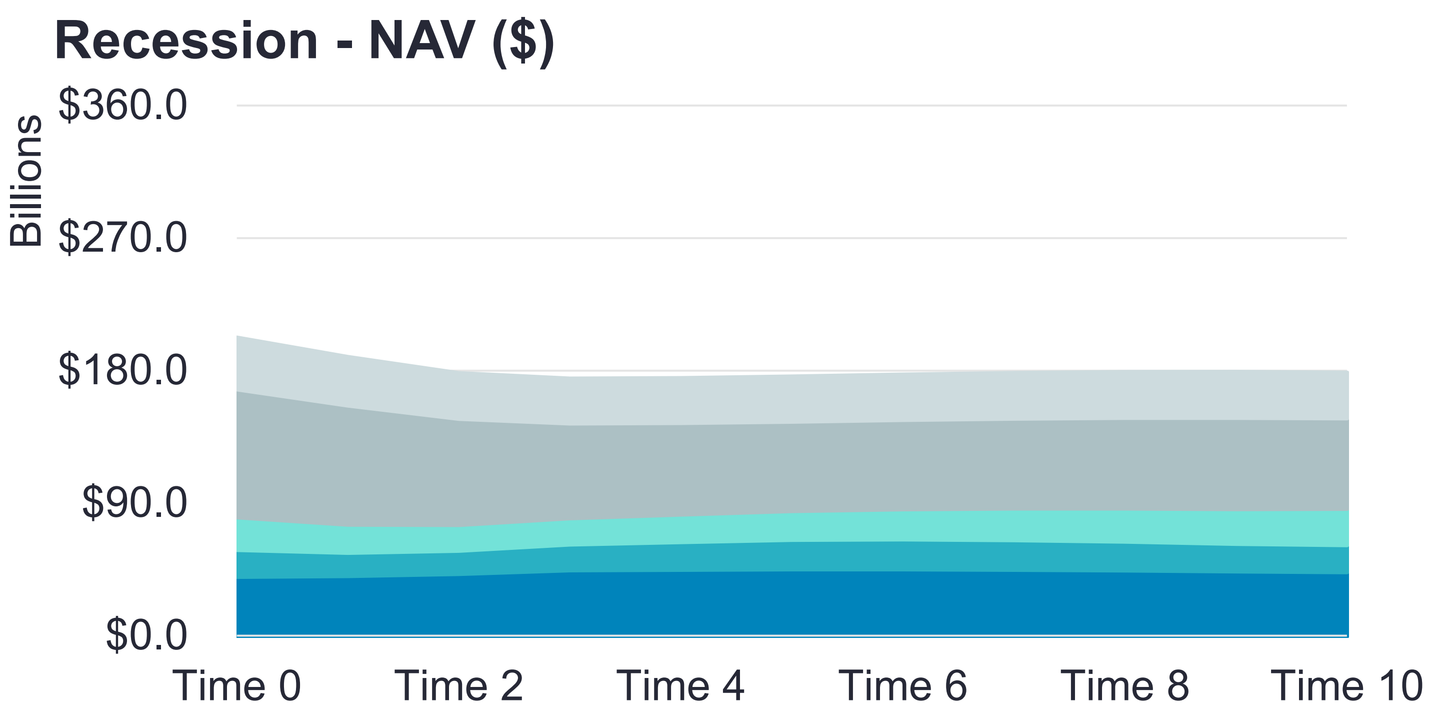
Current Policy (40% target illiquid assets)

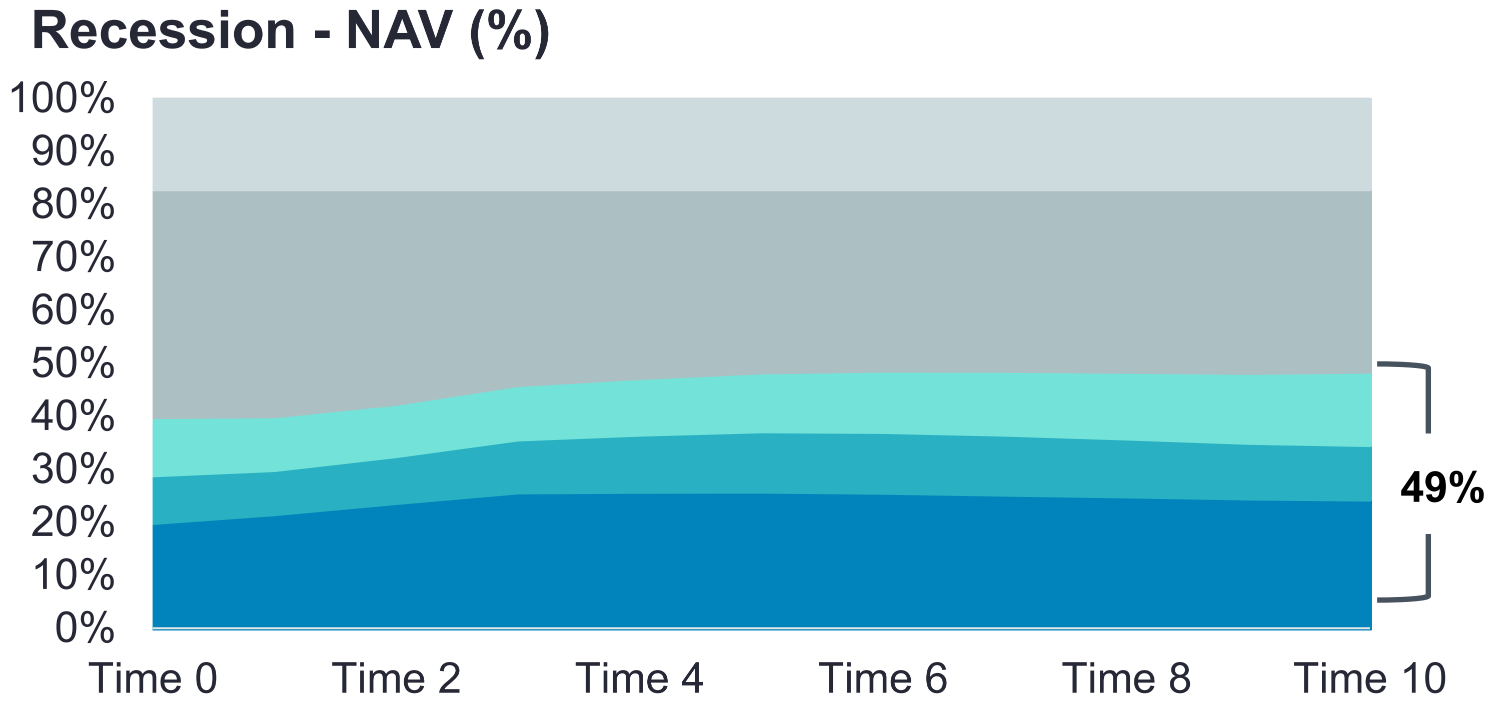
Base Case



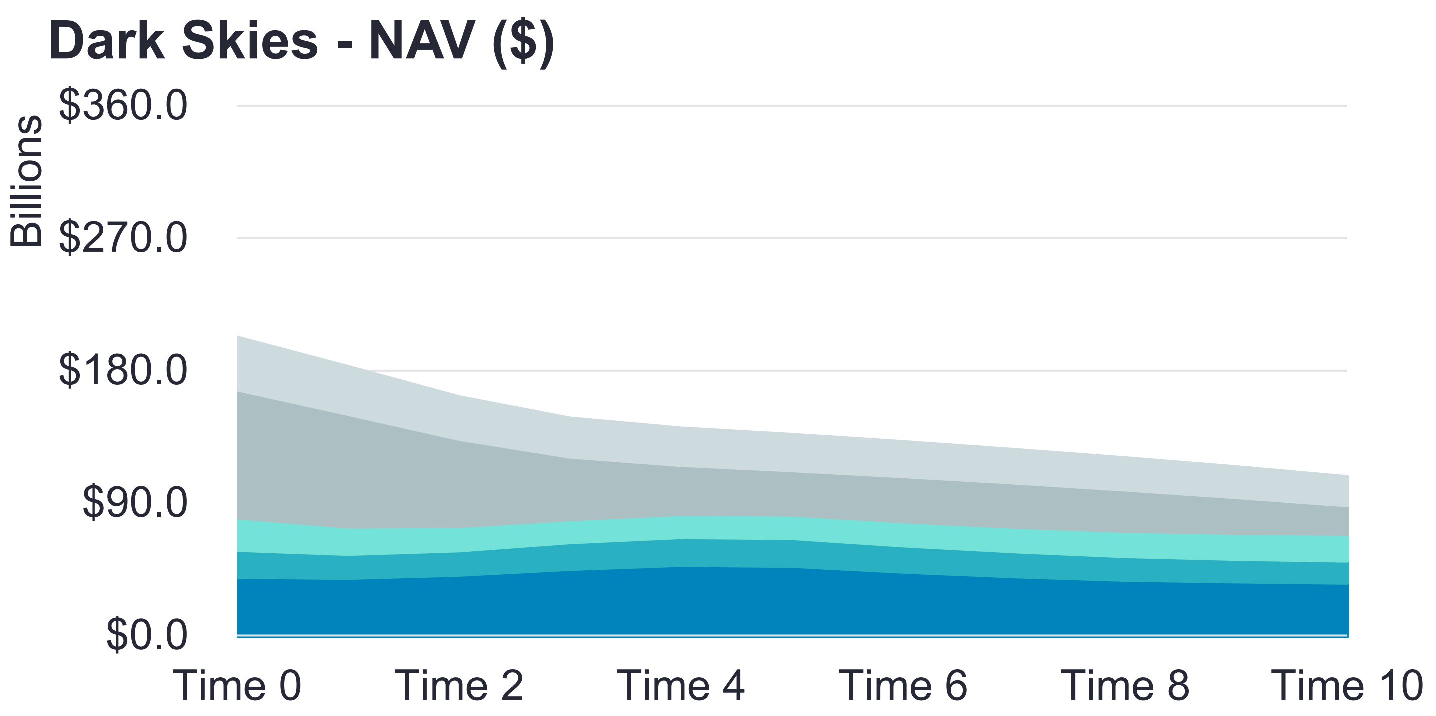


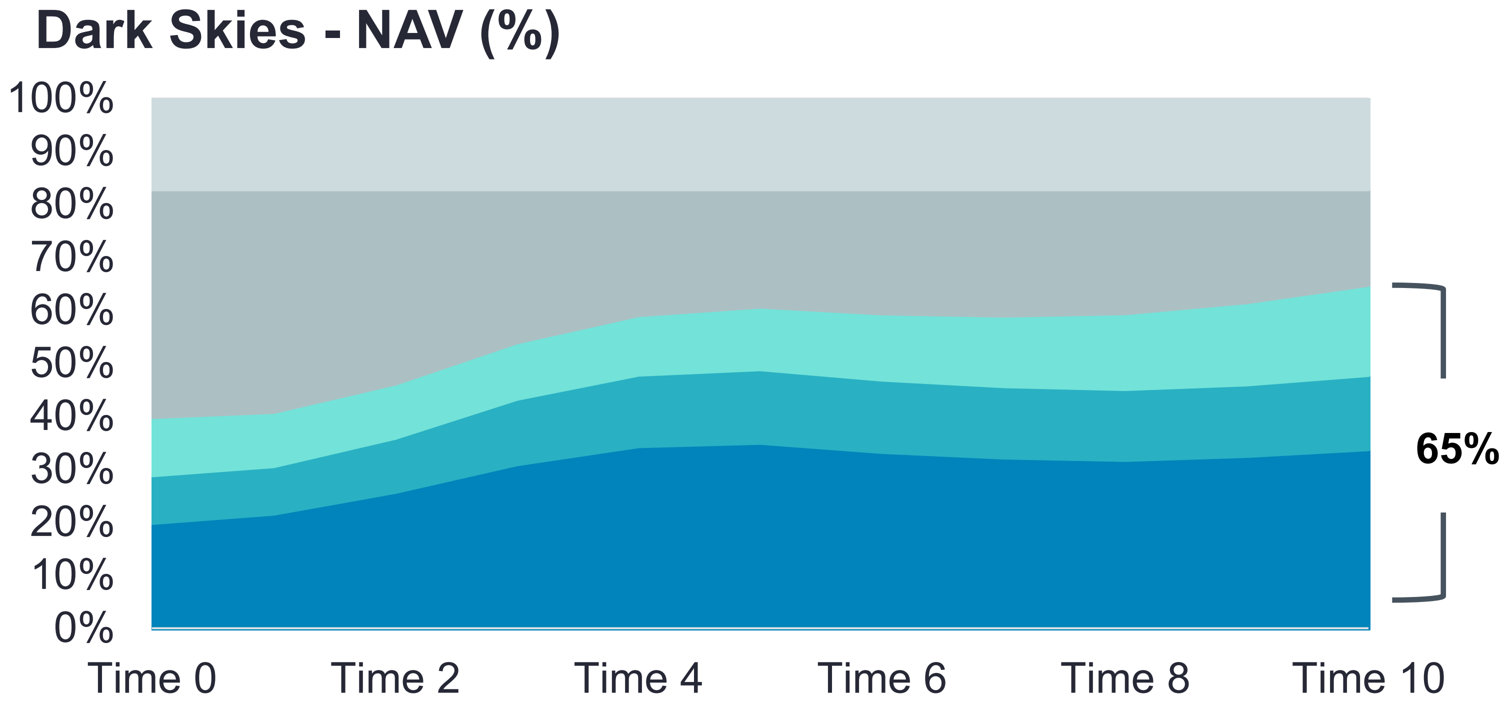
Recession





Dark Skies



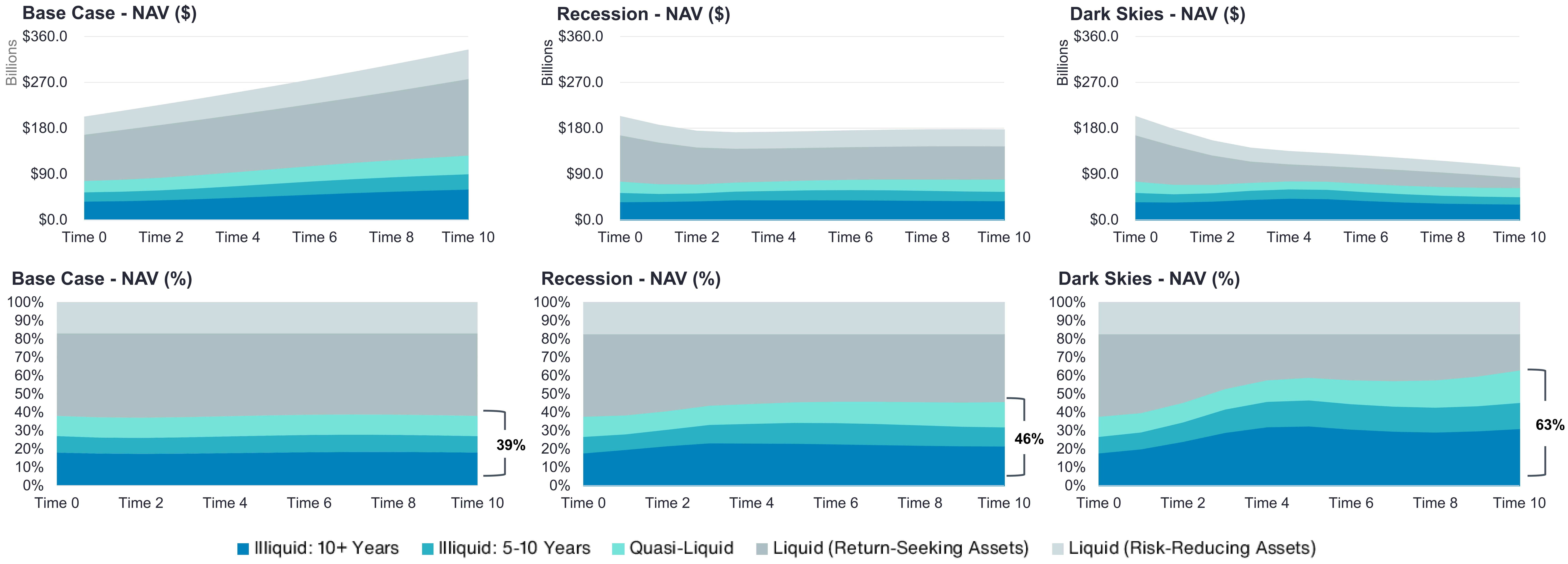


■ Illiquid: 10+ Years ■ Illiquid: 5-10 Years ■ Quasi-Liquid ■ Liquid (Return-Seeking Assets) ■ Liquid (Risk-Reducing Assets)

Note: Time 0 represents a starting point of March 31, 2024

Liquidity Analysis – Results
Alternative Policy (38% target illiquid assets)

Base Case
Recession
Dark Skies



Note: Time 0 represents a starting point of March 31, 2024

Liquidity Analysis – Summary of Results

Sufficient liquidity in economic scenarios modeling

Highest Percent of Total Quasi-Liquid + Illiquid Assets (10-Year Period)	Asset Allocation	
	Current Policy	Alternative Policy
Base Case	41%	39%
Recession	49%	46%
Dark Skies	65%	63%

Liquidity Analysis
Conclusions

TRS has sufficient liquidity in the modeled Base Case, Recession, and Dark Sky scenarios

The modeled scenarios show no problems paying benefits to participants

In a Dark Skies economic scenario, assets are projected to decline increasing the proportion of illiquid assets

Potential remedies if the Dark Skies scenario occurs include:

- Accepting this risk
- Paring back commitments, selling on the secondary market, and/or redeeming quasi-liquid assets a few years into a deep bear market
- Adjusting the funding policy

Note: This analysis is highly sensitive to the assumed contributions. If TRS receives less contributions than assumed, especially in a Dark Skies environment, then illiquid and quasi-liquid investments would drift even further from target and the potential for liquidity issues increases

Actuarial Assumptions and Methods

Actuarial Assumptions and Methods
Data used & actuarial assumptions

Actuarial projections provided by the plan actuary as of August 31, 2023

Actuarial assumptions:

- Valuation Rate of Interest = 7.00%
- Inflation = 2.30%
- Payroll Growth = 2.90%
- Actuarial Value of Assets: the actuarial value of assets is equal to the market value of assets less a five-year phase-in of the excess/(shortfall) between expected investment return and actual income
  - The actual calculation is based on the difference between actual market value and the expected actuarial value of assets each year, and recognizes the cumulative excess return (or shortfall) over a minimum rate of 20% per year.
  - Each year a base is set up to reflect this difference. If the current year's base is of opposite sign to the deferred bases then it is offset dollar for dollar against the deferred bases. Any remaining bases are then recognized over the remaining period for the base (5 less the number of years between the bases year and the valuation year).
- All other assumptions as documented in the Actuarial Valuation Report as of August 31, 2023 unless noted otherwise

Plan contributions – both employee and employer – are statutory in nature and not subject to changes in funded ratio

- Contributions and payroll information was supplied by the plan actuary

Actual asset performance for the period August 31, 2023 – March 31, 2024 was incorporated into the modeling, reflecting $202.0B in assets as of March 31, 2023

Glossary of Terms

Glossary of Terms

AVA	Actuarial value of assets (i.e., incorporates smoothing of gains and losses)
Asset Growth Rate or “Hurdle Rate”	The required rate of growth of the assets (through both contributions and investment returns) to keep pace with the growth of the liability
Current Frontier	Uses the Plan’s mix of asset classes within the return-seeking allocation, then dials the return-seeking allocation up and down from 0% to 100% to illustrate forecasted returns at various return-seeking / safety asset mixes
Economic Cost	Present value of forecasted future contributions + present value of funding shortfall/(surplus) at the end of the projection period
Liability Growth Rate	The projected growth of the liability over the coming year as measured by the sum of the normal cost (new benefit accruals) and discount/interest cost (one less year of discounting at the time value of money)
MVA	Market value of assets (i.e., un-smoothed/economic reality)
Return-Seeking Assets (“R-S”)	All non “safety” assets
Risk-Reducing/Safety Assets	Assets where the primary function is risk control/downside mitigation.
Target Asset Allocation	The allocation of assets between return-seeking assets and safety assets

About This Material

About This Material

This material includes a summary of calculations and consulting related to the finances of the Teacher Retirement System of Texas (TRS). The following variables have been addressed:

- Contributions, Economic Cost, Funded Ratio, Liquidity, Net Outflow, Hurdle Rate

This analysis is intended to assist the Investment Committee with a review of the associated issues and options, and its use may not be appropriate for other purposes. This analysis has been prepared solely for the benefit of the Investment Committee. Any further dissemination of this report is not allowed without the written consent of Aon Investments USA Inc.

Our calculations were generally based on the methodologies identified in the actuary's valuation report for TRS. We believe the methodology used in these calculations conforms to the applicable standards identified in the report.

Models are used to develop alternative scenarios based on the underlying valuation model and project financial results under those scenarios. The models were developed by experts outside and within Aon. Where outside models were used, the models were reviewed by experts within Aon. The models were selected as appropriate for these projections by the undersigned.

Experience different than anticipated could have a material impact on the ultimate costs of the benefits. In addition, changes in plan provisions or applicable laws could have a significant impact on cost. Actual experience may differ from our modeling assumptions.

Our calculations were based on data provided by the plan actuary. The actuarial assumptions and methods and plan provisions reflected in these projections are the same as those used for the 2023 fiscal year actuarial valuation for TRS as noted in the actuarial reports, except where noted in this report. Unless specifically noted, our calculations do not reflect any other changes or events after August 31, 2023. Reflecting events after August 31, 2023 would impact the results of the projection.

In conducting these projections, we have relied on plan design, demographic and financial information provided by other parties, including the plan's actuary and plan sponsor. While we cannot verify the accuracy of all of the information, the supplied information was reviewed for consistency and reasonableness. As a result of this review, we have no reason to doubt the substantial accuracy or completeness of the information and believe that it has produced appropriate results.

These projections have been conducted in accordance with generally accepted actuarial principles and practices, including applicable Actuarial Standards of Practice as issued by the Actuarial Standards Board. The undersigned actuary is familiar with the near-term and long-term aspects of pension valuations and meet the Qualification Standards of the American Academy of Actuaries necessary to render the actuarial opinions contained herein. All sections of this report are considered an integral part of the actuarial opinions.

To our knowledge, no colleague of Aon Investments USA Inc. providing services to TRS has any direct financial interest or indirect material interest in TRS. Thus, we believe there is no relationship existing that might affect our capacity to prepare and certify this report for TRS.

Aon Investments USA Inc.
Phil Kivarkis FSA, CFA

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Aon Investments USA Inc.
200 E. Randolph Street
Chicago, IL 60601
ATTN: Aon Investments Compliance Officer

Investment Policy Proposals

Katy Hoffman, Chief of Staff

July 2024

TEACHER RETIREMENT SYSTEM OF TEXAS
INVESTMENT MANAGEMENT DIVISION

Introduction

- The table below summarizes proposed modifications to the Investment Policy Statement (IPS)
  - Modifications are primarily driven by the Strategic Asset Allocation (SAA) recommendation (modifications #1-10)

Modification #	Proposed Modifications
1	Incorporate new asset class target weights
2	Add two new asset classes – "All Country" public equity and "Government Bonds – Real"
3	Update public equity benchmarks to include small capitalization stocks and exclude China and Hong Kong
4	Update asset class ranges including maintaining Private Equity maximum
5	Change Stable Value Hedge Fund benchmark
6	Customize Private Equity benchmark
7	Establish a 6-month transition plan to implement new asset class weights
8	Establish maximum tracking error for Government Bonds – Real
9	Allocate global equity Hedge Funds to the All Country asset class
10	Expand CIO authority to increase internal shorting capacity
11	Incorporate recommendation from Aon's review of TRS Investment Practices and Performance Review

TRS
TEACHER RETIREMENT SYSTEM OF TEXAS
INVESTMENT
MANAGEMENT DIVISION

Modification 1 – 4

Implement the 2024 Strategy Asset Allocation study proposals

- Proposed Asset Allocation table
- Clean version on next page

3 – Update Benchmarks

4 – Update Ranges

1 – New Targets

2 – New All Country

2 – New Govt. Bonds - Real

Asset Class	Benchmark	Minimum Range[1,2,3]	Maximum Range[1,2]	Target[2,9]
Global Equity:				
All Country	MSCI All Country World Investible Market ex China and Hong Kong[4]	34%	44%	39%
USA	MSCI USA Investible Market[~~3~~4]	~~13~~ -5%	~~23~~ 5%	~~18~~ 0%
Non-US Developed	MSCI EAFE and Canada Investible Market ex Hong Kong[~~3~~4]	~~8~~ 0%	~~18~~ 10%	~~13~~ 5%
Emerging Markets	~~50% MSCI EM/50%~~ MSCI EM Investible Market ex China[~~3~~4]	-4%	~~14~~ 6%	~~9~~ 1%
Private Equity	Customized State Street Private Equity Index – lagged one quarter[~~4~~5]	~~9~~ 7%	19%	~~14~~ 12%
Total Global Equity	***Target-weighted Blend***	***~~47~~ 50%***	***~~61~~ 64%***	***~~54~~ 57%***
Stable Value:				
Government Bonds – Nominal[5]	Bloomberg ~~Barclays~~ Long Treasury Index	0%	~~21~~ 15%	~~16~~ 10%
Government Bonds – Real	Bloomberg US Treasury Inflation-Linked Index	0%	11%	6%
Absolute Return (Including Credit Sensitive Investments)[6, 8]	SOFR + 4%	0%	20%	0%
Stable Value Hedge Funds[8]	~~HFRI Fund of Funds Conservative~~SOFR + 2.5%	0%	10%	5%
Total Stable Value	***Target-weighted Blend***	***14%***	***28%***	***21%***
Real Return:				
Real Estate	NCREIF ODCE – lagged one quarter	10%	20%	15%
Energy, Natural Resources and Infrastructure	40% Cambridge Associates Natural Resources/40% Cambridge Associates Infrastructure/20% quarterly Consumer Price Index– lagged one quarter	1%	11%	6%
Commodities	Goldman Sachs Commodity Index	0%	5%	0%
Total Real Return	***Target-weighted Blend***	***14%***	***28%***	***21%***
Risk Parity:				
Risk Parity	HFR Risk Parity Vol 12 Institutional Index	0%	~~13~~ 10%	~~8~~ 5%
INVESTMENT EXPOSURE			***115%***	***104%***
Asset Allocation Leverage:				
Cash	FTSE 3 Month Treasury Bill	0%	7%	2%
Asset Allocation Leverage[7, 8]	SOFR + 26.161 bp			-6%
Net Asset Allocation Leverage				***-4%***
TOTAL FUND	***Target-weighted Blend***			***100%***

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TEACHER RETIREMENT SYSTEM OF TEXAS
INVESTMENT MANAGEMENT DIVISION

Modification 1 – 4

Implement the 2024 Strategy Asset Allocation study proposals

- Proposed Asset Allocation table

3 – Update Benchmarks

4 – Update Ranges

1 – New Targets

2 – New All Country

2 – New Govt. Bonds - Real

Asset Class	Benchmark	Minimum Range[1,2,3]	Maximum Range[1,2]	Target[2, 9]
Global Equity:				
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Non-US Developed	MSCI EAFE and Canada Investible Market ex Hong Kong[4]	0%	10%	5%
Emerging Markets	MSCI EM Investible Market ex China[4]	-4%	6%	1%
Private Equity	Customized State Street Private Equity Index – lagged one quarter[5]	7%	19%	12%
Total Global Equity	***Target-weighted Blend***	***50%***	***64%***	***57%***
Stable Value:				
Government Bonds – Nominal	Bloomberg US Long Treasury Index	0%	15%	10%
Government Bonds – Real	Bloomberg US Treasury Inflation-Linked Index	0%	11%	6%
Absolute Return (Including Credit Sensitive Investments)[6, 8]	SOFR + 4%	0%	20%	0%
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Total Stable Value	***Target-weighted Blend***	***14%***	***28%***	***21%***
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Total Real Return	***Target-weighted Blend***	***14%***	***28%***	***21%***
Risk Parity:				
Risk Parity	HFR Risk Parity Vol 12 Institutional Index	0%	10%	5%
INVESTMENT EXPOSURE			***115%***	***104%***
Asset Allocation Leverage:				
Cash	FTSE 3 Month Treasury Bill	0%	7%	2%
Asset Allocation Leverage[7, 8]	SOFR + 26.161 bp			-6%
Net Asset Allocation Leverage				**-4%**
TOTAL FUND	***Target-weighted Blend***			***100%***

TRS
TEACHER RETIREMENT SYSTEM OF TEXAS
INVESTMENT MANAGEMENT DIVISION

Modification 4

Update asset class ranges

Proposal

- Update asset class policy maximum and minimum range to reflect new target weights (generally +/- 5%)
  - Add restriction that USA and Emerging Markets can only be negative if offset with allocations within All Country
- Maintain Private Equity current maximum allocation at 19%

Rationale

- Current private equity allocation is ~17% and expect to reach target allocation within the next 5 years

Background Information

- All Country asset class is comprised of approximately 64% US, 28% Non-US Developed and 8% Emerging Market stocks

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INVESTMENT
MANAGEMENT DIVISION

Modification 5

Change Stable Value Hedge Funds benchmark

Proposal

- Change the benchmark for Stable Value Hedge Funds (SVHF) to SOFR+250 bp
  - SOFR stands for Secured Overnight Financing Rate and is the industry standard for the return of riskless cash

Rationale

- The current benchmark, HFRI Fund of Funds Conservative, has material market correlation and suffers from a dwindling number of benchmark constituents. The number of constituents have fallen from over 100 to under 25, many of which have very small assets under management
- The objectives of SVHF are to produce absolute return uncorrelated with the markets. Cash is a riskless absolute return asset and is the closest opportunity cost for the portfolio

Background Information

- SVHF has been benchmarked to HFRI Fund of Funds Conservative since the inception of the portfolio in October 2011
- Prior to 2011, Hedge Funds were benchmarked to LIBOR+200 bp

Modification 5 - Continued

Change Stable Value Hedge Fund benchmark

- Proposed benchmark more closely mirrors the market exposure of our portfolio

Market Exposure of SVHF and Benchmarks		
	Correlation to MSCI ACWI	Beta to MSCI ACWI
SVHF	0.2	0.0
SOFR + 250	0.0	0.0
HFRI FoF Conservative	0.7	0.2

Based on monthly data from 10/1/2011 to 4/30/2024

SOFR replaced LIBOR in April 2018

- The current benchmark is much more sensitive to market movements than our portfolio, meaning that relative returns can often be determined by what direction equity markets have moved

- Benchmark performance has been similar over relevant time periods

Historical Performance of Benchmark Alternatives				
	1 Year	5 Year	10 Year	Since SVHF
SVHF	12.6%	8.0%	6.4%	5.8%
SOFR + 250	8.0%	4.5%	3.9%	3.6%
HFRI FoF Conservative	7.5%	4.9%	3.6%	3.9%

Annualized returns based on monthly data through 4/30/2024

Stable Value Hedge Fund portfolio inception is 10/1/2011

SOFR replaced LIBOR in April 2018

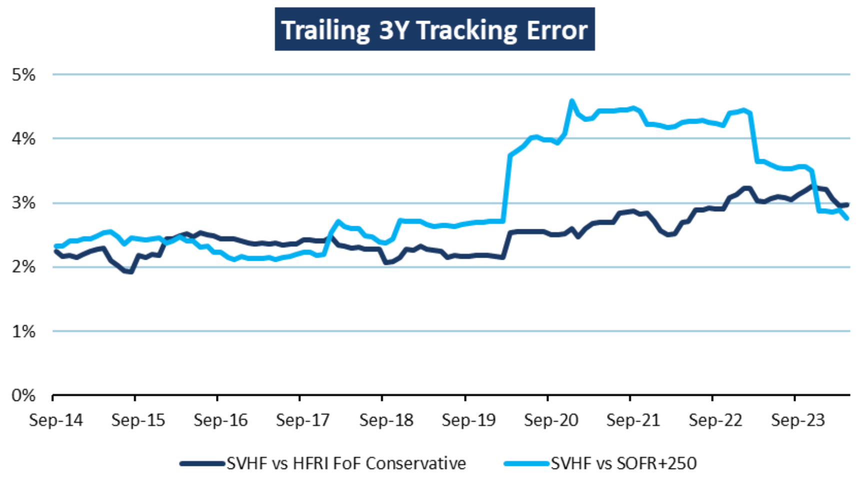
- Larger deviations in the benchmarks occur in equity drawdowns when the riskless benchmark maintains its value and the market sensitive HFRI benchmark declines

Source: TRS IMD

Modification 5 - Continued

Change Stable Value Hedge Fund benchmark

- Tracking Error of SVHF to the current and proposed benchmarks have historically been in line, except for the period during the COVID-19 pandemic, where SVHF performance was more volatile relative to cash



- SVHF has a neutral tracking error target of 400 bp. We do not recommend altering that target in this proposal

Source: TRS IMD

Modification 6

Customize the Private Equity benchmark

Proposal

- Modify the benchmark for Private Equity (PE) to match the vintage year exposures of the PE portfolio and remove funds $1 billion or less in size

Rationale

- The current benchmark, State Street Private Equity Index (SSPEI), has two key factors which impact performance but are largely outside of the TRS PE group's control
  - SSPEI has a different vintage year mix than the TRS portfolio given our fixed target allocation and expected target reduction
  - TRS has limited ability to allocate to smaller funds given our size and resources

Background Information

- SSPEI includes approximately 4,000 funds in its benchmark and is built using data from State Street's custodial and administrative servicing relationships
  - There are 2700 funds with assets under $1 billion and represents 21% of the market based on capitalization
- PE has been benchmarked against the SSPEI since October 2009

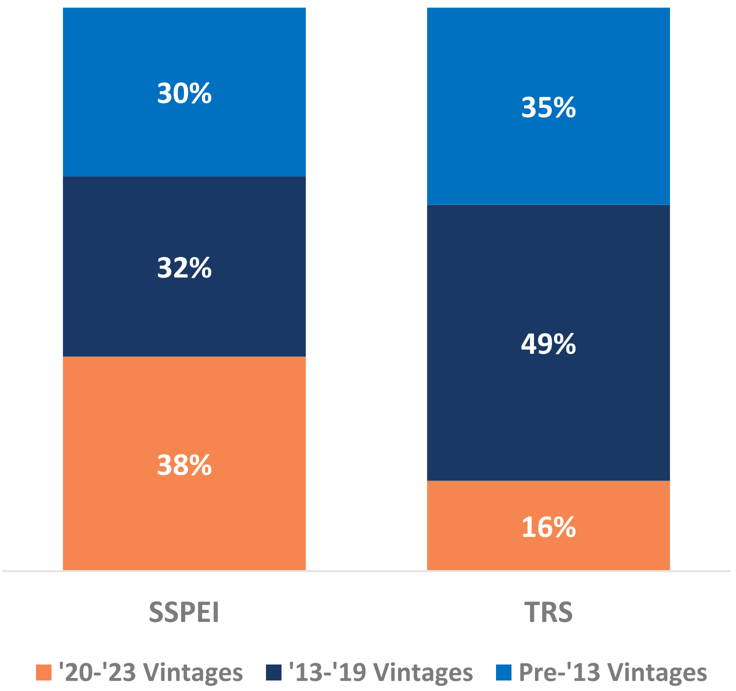
Source: State Street

Modification 6 - Continued

Customize the Private Equity benchmark

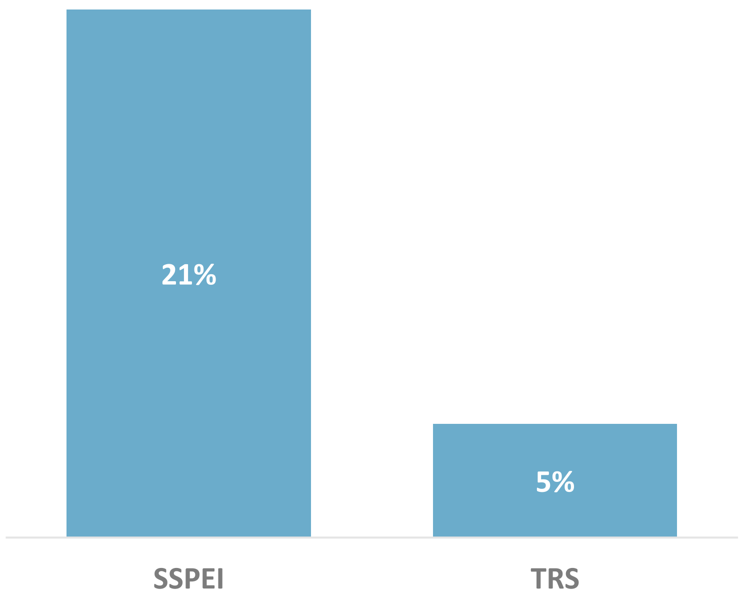
- TRS's slower growth in annual commitments relative to the benchmark is expected to lead to a growing vintage year mismatch. The effect will be further amplified if TRS reduces the PE target allocation

Commitments by Vintage Year



- TRS scale and resources limits PE's ability to match the benchmark's exposure of funds $1bn or less in size

Commitments to Funds $1bn or Less as a Percentage of Total Investments

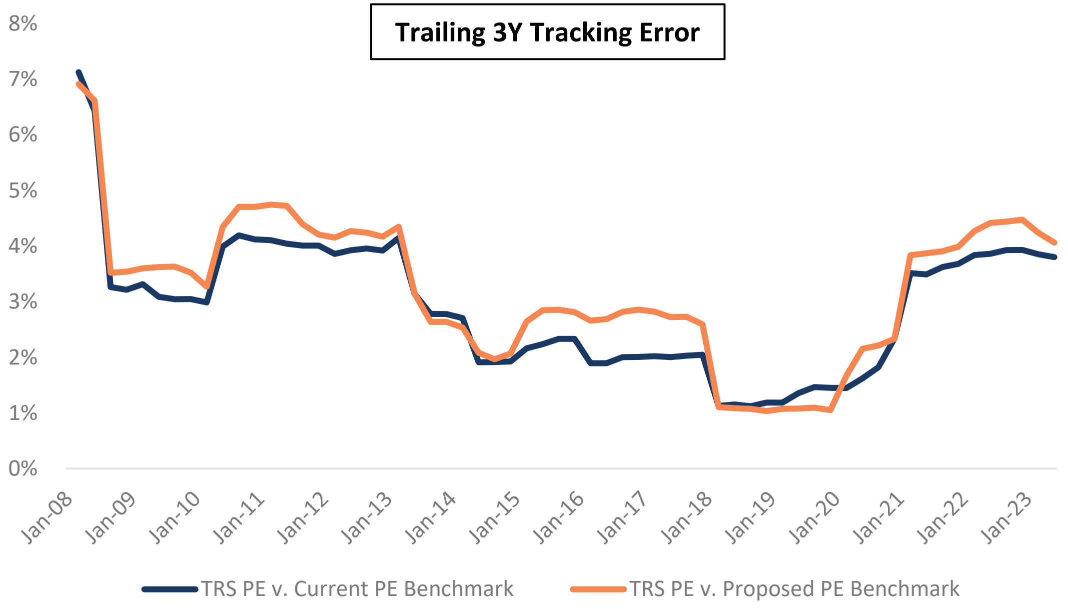


Source: State Street, TRS IMD

Modification 6 – Continued

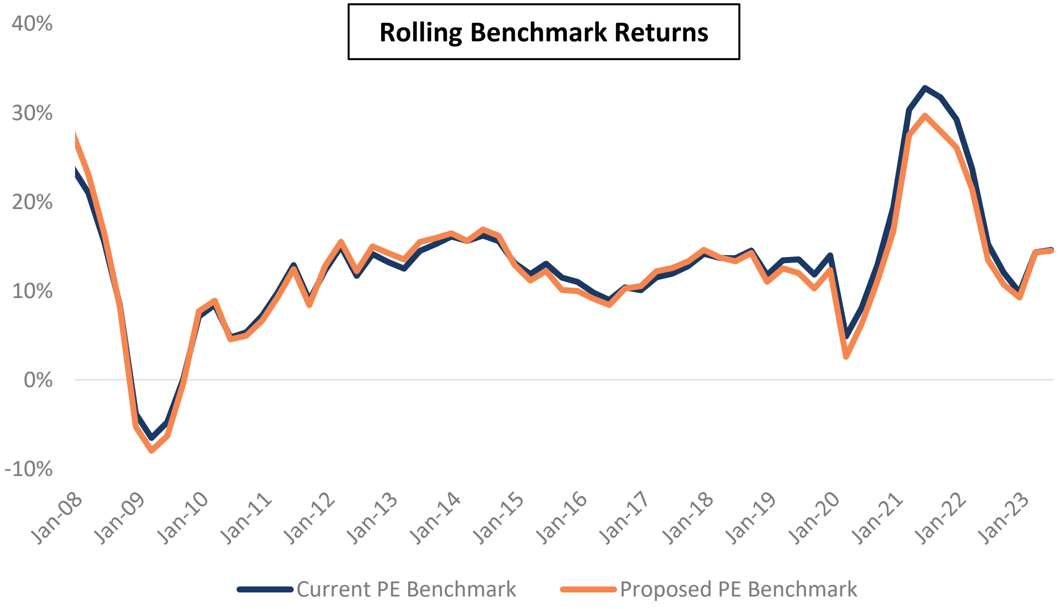
Customize the Private Equity benchmark

- The current and proposed benchmark returns are highly correlated with only a modest difference in tracking error over time



Tracking Error Comparison			
	vs. Current	vs. Proposed	Variance
Average 3Y TE	2.91%	3.22%	31bps
Median 3Y TE	3.01%	3.21%	19bps

- Current benchmark has outperformed proposed benchmark until most recent year



Historical Performance of Benchmark Alternatives				
	1 Year	5 Year	10 Year	15 Year
TRS PE	8.1%	13.9%	12.8%	14.0%
Custom SSPEI (Proposed)	7.8%	13.5%	12.1%	13.3%
SSPEI (Current)	7.1%	14.6%	13.0%	13.7%

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Source: TRS IMD
Note: Tracking Error comparison based on blended 1- and 3-year rolling returns as of 6/30/23 and historical performance returns as of 12/31/23

Modification 7

Establish transition plan

Proposal

- Establish a 6-month transition period to achieve new target weights and move to public equity benchmarks

Rationale

- New SAA requires trades that impact approximately 20% of the Trust assets
- US Presidential election expected to increase volatility in the market

Background Information

- Benchmark target weights will be set by CIO two business days prior to each month during the transition. Prior notice to Investment Management Committee Chair and Chief Compliance Officer is required
    - This process matches our most recent change to the Emerging Market benchmark

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Modification 8

Establish tracking error maximum for Government Bonds - Real

Proposal

- Establish Government Bonds – Real tracking error maximum at 300 bp

Rationale

- Government Bonds – Real tracking error maximum identical to existing level for Government Bonds – Nominal

Background Information

- Government Bonds are managed passively internally while external Public SPNs actively manage these portfolios
- Total Public Fund tracking error neutral target of 100 bp and maximum of 300 bp

Modification 9

Allocate global equity hedge funds to the All Country asset class

Proposal

- Clarify intent that hedge funds in the Global Equity broad asset class will be allocated to the All Country

Rationale

- Currently, Directional Hedge Funds (DHF) reside in each of the regional public equity asset classes
- Consolidating within one asset class will simplify management and require only one overlay portfolio to achieve full portfolio risk

Background Information

- In the 2019 SAA review, DHF were integrated within the public equity portfolio
- Since integration, DHF + overlay has generated over $600mm in relative value add above benchmark since inception (October 2019)
- Board limits total hedge fund exposure to 15%

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Modification 10

Expand CIO authority to increase internal shorting capacity

Proposal

- Expand CIO authority to increase internal shorting capacity from 25% to 50% of internal equity portfolios

Rationale

- CIO currently has this ability with our External Manager portfolio
- IMD plans to increase allocation to our successful internal quantitative strategies which short securities to achieve new SAA target weights
  - Managing asset internally provides fee savings relative to paying external managers

Background Information

- IMD has over 9 years of experience shorting securities from an investment and operational perspective
- Over the last three years, the majority of internal quantitative ~350 bp outperformance has come from shorting stocks
- IPS public equity tracking error neutral will remain consistent at 300 bp

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Modification 11

Incorporate recommendation from Aon's review of TRS Investment Practices and Performance Review

Proposal

- Add language to clarify existing requirement for IIC review of new internally actively managed investment strategies

Rationale

- Recommendation from Aon based on their legislatively required review of TRS Investment Practices and Performance Review

Background Information

- The Sunset Commission recommended the IIC review new internal active strategies and provide prior Board notification of these consideration items. These changes were made to IPS in 2020
  - This change formalized existing practice that had been in place since 2012
  - IIC Guidelines and Procedures provide further details and requirements

APPENDIX

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