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# Commission Meeting Agenda

Thursday, December 12, 2024 at 9:30 a.m.

RSIC Presentation Center and Streaming Online at [www.rsic.sc.gov](http://www.rsic.sc.gov)

- I. Call to Order and Consent Agenda
  - A. Adoption of Proposed Agenda
  - B. Approval of September 2024 Minutes
- II. Chair's Report
- III. Committee Reports
- IV. CEO's Report
- V. CIO's Report
  - A. Quarterly Investment Performance Update
- VI. Strategic Asset Allocation
  - A. ALM Study – Review (Verus)
- VII. Delegated Investment Report
- VIII. Executive Session to discuss investment matters, including specific private debt investments, and certain portions of the Consolidated Annual Investment Plan and Statement of Investment Objectives and Policies, pursuant to S.C. Code Sections 9-16-80 and 9-16-320; to discuss personnel matters pursuant to S.C. Code Ann. Section 30-4-70(a)(1); and receive advice from legal counsel pursuant to S.C. Code Section 30-4-70(a)(2).
- IX. Potential Action Resulting from Executive Session
- X. Adjournment

#### NOTICE OF PUBLIC MEETING

*This notice is given to meet the requirements of the S.C. Freedom of Information Act and the Americans with Disabilities Act. Furthermore, this facility is accessible to individuals with disabilities, and special accommodations will be provided if requested in advance.*

**South Carolina Retirement System Investment Commission  
Meeting Minutes**

**September 12, 2024 9:30 a.m.**

**Capitol Center**

**1201 Main Street, 15<sup>th</sup> Floor**

**Columbia, South Carolina 29201**

**Meeting Location: 1201 Main Street, 15<sup>th</sup> Floor, Ste. 1510 & Streaming Online at  
[www.rsic.sc.gov](http://www.rsic.sc.gov)**

**Commissioners Present:**

Mr. William Hancock, Chair

Ms. Melissa Schumpert, Vice-Chair

Mr. William J. Condon, Jr.

Mr. Kenneth F. Deon (via telephone)

Mr. Edward Giobbe

Dr. Holley H. Ulbrich

Mr. Reynolds Williams (absent)

Ms. Peggy Boykin, PEBA Executive Director (absent)

**I. Call to Order and Consent Agenda**

Chair William H. Hancock called the meeting of the South Carolina Retirement System Investment Commission (“Commission” or “RSIC”) to order at 9:32 a.m. Ms. Melissa Schumpert made a motion to adopt the agenda as presented. Dr. Holley H. Ulbrich seconded the motion, which was unanimously approved.

Mr. Edward Giobbe made a motion to approve the minutes of the Commission’s June 13, 2024, meeting. Ms. Schumpert seconded the motion, which was approved unanimously.

A link to the entire meeting is below:

[2024 09 12 Commission Meeting - YouTube](#)

**II. Chair’s Report**

Chair Hancock requested that Mr. Michael R. Hitchcock, Chief Executive Officer (“CEO”), address the status of the chair and vice-chair elections. Mr. Hitchcock reminded the Commissioners that the Commission’s Governance Policy requires that elections for chair and vice-chair be held every two years. The elections are to be held in the June timeframe with the terms commencing on July 1<sup>st</sup>. Mr. Hitchcock explained that the previous election had been delayed and was held in September of 2022, and the current terms for chair and vice-chair will expire as of September 30, 2024. He reminded the Commissioners that they had agreed in June of 2024 to hold the election in September of 2024 but treat the terms as commencing on July 1, 2024, in order to get back on the prescribed two-year cycle. Because a number of Commissioners are nearing the end of their appointed terms, Mr. Hitchcock stated that the Commission reached a consensus to keep the existing chair and vice-chair, Chair Hancock and Ms. Schumpert, in place for the next two-year term.

Dr. Ulbrich made a motion to elect Chair Hancock as chair of the Commission and Ms. Schumpert as vice-chair of the Commission for the term that commenced on July 1, 2024, and ending on June 30, 2026. Mr. Giobbe seconded the motion, which was approved unanimously.

Chair Hancock then requested Mr. Hitchcock to address the status of the Commissioners serving on the Commission's committees. Mr. Hitchcock stated that there was a unanimous consensus amongst the Commissioners to keep the committee assignments the same. He suggested that the Commission make a motion to reaffirm the existing committee assignments for the next two years.

Dr. Ulbrich made a motion to ratify the Chair's proposed slate of committee appointments as follows: (i) Audit and Enterprise Risk Management Committee ("AERMC"): Ms. Peggy Boykin, Mr. Kenneth Deon, and Mr. Bill Condon, Jr.; and (ii) Human Resources and Compensation Committee ("HRCC"): Ms. Schumpert, Chair Hancock and Dr. Ulbrich. Mr. Giobbe seconded the motion, which was approved unanimously. The Chair then concluded his report.

### **III. Committee Reports**

Chair Hancock noted that the HRCC had met since the last Commission meeting and asked Ms. Schumpert for a report. Ms. Schumpert stated that the HRCC met on Wednesday, August 28<sup>th</sup> and that a report was made available to the Commissioners for review prior to the meeting. She also stated that there was an HRCC matter to be discussed during executive session. Mr. Kenneth Deon noted that the AERMC had not met since the last Commission meeting, and he had nothing to report.

### **IV. CEO's Report**

Chair Hancock then recognized Mr. Hitchcock for the CEO's report. Mr. Hitchcock stated that there was a list of proposed meeting dates for the next year that generally track the Commission's strategic calendar. He noted that there was a deviation in relation to the April of 2025 meeting due to conflicts. Mr. Hitchcock stated that the dates for the Commissions' 2025 meetings would be approved at the upcoming December meeting.

Mr. Hitchcock then presented RSIC's proposed annual budget recommendation for fiscal year ("FY") 2025-2026, which totals \$16,503,000. He explained that the request does not include an increase from the prior year's request. However, Mr. Hitchcock stated that request would include re-allocating \$600,000 from other operating expenses into personal services and employer contribution. He explained that RSIC would be allocating \$400,000 to personal services and \$200,000 to employer contributions. Mr. Hitchcock then turned to the organizational chart and highlighted Ms. Sally Fulkert's new role as the Chief Human Resources Officer. After a brief discussion with the Commissioners, Mr. Hitchcock provided a total budget breakdown, a recent appropriations history, and the budget request summary. Mr. Hitchcock also noted a request to maintain RSIC's current provisos.

Mr. Giobbe made a motion to authorize the CEO to submit a proposed FY 2026 detail

budget substantially similar to the draft budget presented for inclusion in the Governor's annual budget. Dr. Ulbrich seconded the motion, which was approved unanimously.

A link to the CEO's Report is below:

<https://www.youtube.com/watch?v=W978JizsU7w&t=39>

## **V. CIO's Report**

Chair Hancock introduced Mr. Geoffrey Berg, Chief Investment Officer ("CIO"), for the investment performance review for the prior fiscal year. Mr. Berg stated that he would give a brief presentation, followed by comments from Verus Advisory ("Verus"). Mr. Berg reported that for the year ending June 30, 2024, the Plan outperformed the Policy Benchmark by 1.28 percent, with a total Plan return of 10.49 percent. He pointed out that the net benefit payments were positive on a one-year basis in the amount of \$33 million. He compared that to five years ago, when net benefit payments were approximately negative \$1.08 billion, or 3.5 percent of the Plan's assets at that time. He noted that this represented a tremendous improvement in the liquidity profile of the system as a whole. After a brief discussion with the Commissioners, Mr. Berg went on to discuss the Portfolio Performance Framework. He stated that for the fiscal year, the Reference Portfolio outperformed the Policy Benchmark, Implementation Benchmark, and Plan Return, but noted that over a three-year period, the Plan return had outperformed all of the above. Next, Mr. Berg reviewed asset class performance, before summarizing compliance matters. He reported that (a) the private equity portfolio, which in the quarter ended March 31 had moved back into range, ended the fiscal year just over the 13 percent upper end of the range, and (b) the amount of total private markets continued to exceed the 28 percent notification threshold. After a brief discussion with the Commissioners, Mr. Berg concluded his report. Mr. Berg then introduced Mr. Mark Brubaker from Verus to provide additional commentary regarding the Plan's fiscal year performance.

A link to the CIO's Report is below:

<https://www.youtube.com/watch?v=W978JizsU7w&t=1067s>

## **VI. Five Year Strategic Asset Allocation Review Discussion**

After Mr. Brubaker concluded his remarks on the FYU performance, he turned to the topic of the five-year strategic asset allocation review. In order to help prepare the Commission for the upcoming asset allocation review discussion, he provided the Commissioners with a brief educational presentation on asset liability studies. After a discussion with the Commissioners, he concluded his remarks.

A link to the discussion is below:

<https://www.youtube.com/watch?v=W978JizsU7w&t=1748s>

## VII. Delegated Investment Report

Chair Hancock then recognized Mr. Berg for the delegated investment report. The following delegated investments were closed by Staff following the June 13, 2024, Commission meeting.

Delegated Investments (June 13, 2024 to September 11, 2024)			
Asset Class	Investment	Investment Amount	RSIC Commitment Date
Private Credit	FP Credit III	\$40 M	June 25, 2024
Private Equity	Avesi Partners Fund II	\$50 M	June 26, 2024
Private Equity	Kingswood Capital Opportunities III	\$40 M	June 27, 2024
Private Equity	Mill Point Capital Partners III	\$75 M	June 28, 2024
Real Assets	Sculptor Real Estate V	Up to \$100 M	August 23, 2024

## VIII. Executive Session

Dr. Ulbrich made a motion to recede into executive session to discuss investment matters pursuant to S.C. Code Sections 9-16-80 and 9-16-320, including particular matters related to the Public Equity and Portable Alpha Portfolios, and certain portions of the Consolidated Annual Investment Plan and Statement of Investment Objectives and Policies; to discuss personnel matters pursuant to S.C. Code Ann. Section 30-4-70(a)(1); and to receive advice from legal counsel pursuant to S.C. Code Ann. Section 30-4-70(a)(2). Ms. Schumpert seconded the motion, which was approved unanimously. The Commission receded into executive session at 10:59 a.m.

## IX. Potential Action Resulting from Executive Session

Upon returning to open session, Ms. Schumpert made a motion that, based on the outcome of the performance review conducted in executive session, the Commission authorizes the compensation increase for Mr. Hitchcock as discussed in executive session and directs that RSIC's Human Resources Department and other necessary parties to take all necessary actions to implement this decision as approved by the Commission and directs that the salary increase will be disclosed to the public and in the official minutes after the increase has been communicated to Mr. Hitchcock. Dr. Ulbrich seconded the motion, which was approved unanimously. Mr. Hitchcock's annual salary effective as of September 17, 2024, is \$502,400.

## X. Adjournment

There being no further business, the Commissioners adjourned by acclamation at 3:33 p.m.

[Staff Note: In compliance with S.C. Code Section 30-4-80, public notice of and the agenda for this meeting were delivered to the press and to parties who requested notice and were posted at the entrance, in the lobbies, and near the 15<sup>th</sup> Floor Presentation Center at 1201 Main Street, Columbia, S.C., by 10:25 a.m., on September 10, 2024.]

# RSIC Performance Analysis

Data as of 09-30-2024

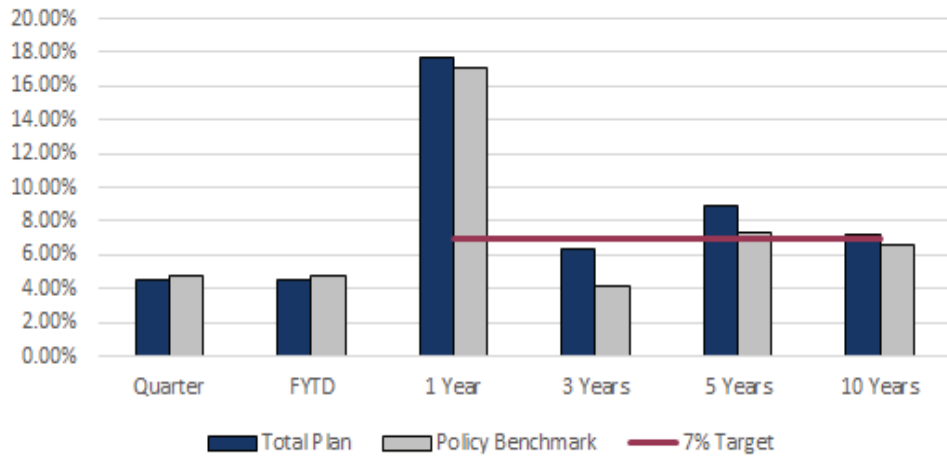


## Key Takeaways

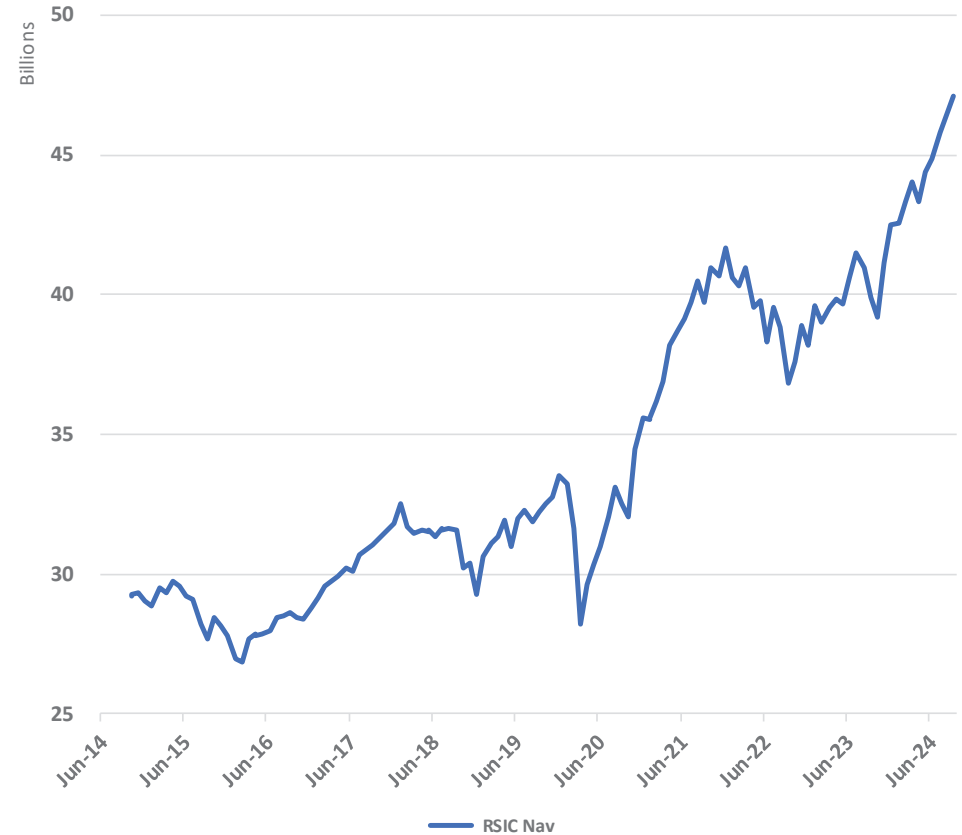
1. Generated ~\$3 billion of additional value to the Plan over the past three years relative to the Policy Benchmark
2. Reduction to active risk given limited dispersion today
3. Ample liquidity take advantage of future opportunities

# Performance - Plan & Policy Benchmark<sup>2</sup>

### Net of Fee Returns by Time Period<sup>2</sup>



### Plan Growth 10-years



Rolling period performance as of September 30, 2024<sup>1</sup>

Executive Summary	Market Value (millions)	Annualized					
		Quarter	FYTD	1 Year	3 Years	5 Years	10 Years
Total Plan	\$47,091	4.53%	4.53%	17.69%	6.36%	8.97%	7.24%
Policy Benchmark		4.73%	4.73%	17.03%	4.10%	7.26%	6.56%
Excess Return (%)		-0.20%	-0.20%	0.66%	2.26%	1.70%	0.68%
Excess Return (\$ millions)		-\$81	-\$81	\$231	\$2,931	\$3,592	\$2,924
Net Benefit Payments (\$ millions)		\$168	\$168	\$183	-\$538	-\$1,706	-\$6,871



# Asset Class Performance<sup>1,3,4,5</sup>

As of September 30, 2024

Trailing Performance as of 09/30/2024	Portfolio Weight	Quarter	FYTD	1 Year	Annualized	
					3 Years	5 Years
<b>Public Equity</b>	<b>44.6%</b>	<b>6.90%</b>	<b>6.90%</b>	<b>31.40%</b>	<b>7.88%</b>	<b>12.21%</b>
<i>Benchmark</i>		<i>6.84%</i>	<i>6.84%</i>	<i>30.96%</i>	<i>7.44%</i>	<i>11.85%</i>
<b>Bonds</b>	<b>25.0%</b>	<b>4.19%</b>	<b>4.19%</b>	<b>10.86%</b>	<b>-0.97%</b>	<b>0.45%</b>
<i>Benchmark</i>		<i>5.20%</i>	<i>5.20%</i>	<i>11.57%</i>	<i>-1.39%</i>	<i>-0.25%</i>
<b>Private Equity</b>	<b>12.7%</b>	<b>0.91%</b>	<b>0.91%</b>	<b>6.43%</b>	<b>7.67%</b>	<b>12.71%</b>
<i>Benchmark</i>		<i>0.79%</i>	<i>0.79%</i>	<i>4.37%</i>	<i>3.74%</i>	<i>12.16%</i>
<b>Private Debt</b>	<b>7.2%</b>	<b>2.73%</b>	<b>2.73%</b>	<b>12.07%</b>	<b>9.30%</b>	<b>8.40%</b>
<i>Benchmark</i>		<i>2.29%</i>	<i>2.29%</i>	<i>12.61%</i>	<i>7.65%</i>	<i>7.03%</i>
<b>Real Assets</b>	<b>10.5%</b>	<b>0.89%</b>	<b>0.89%</b>	<b>-0.49%</b>	<b>5.36%</b>	<b>6.32%</b>
<i>Benchmark</i>		<i>0.03%</i>	<i>0.03%</i>	<i>-8.03%</i>	<i>-1.04%</i>	<i>1.27%</i>
<b>Portable Alpha Hedge Funds</b>	<b>10.2%</b>	<b>0.53%</b>	<b>0.53%</b>	<b>1.64%</b>	<b>4.06%</b>	<b>5.81%</b>
<b>Total Plan</b>	<b>100.0%</b>	<b>4.53%</b>	<b>4.53%</b>	<b>17.69%</b>	<b>6.36%</b>	<b>8.97%</b>
<i>RSIC Policy Benchmark</i>		<i>4.73%</i>	<i>4.73%</i>	<i>17.03%</i>	<i>4.10%</i>	<i>7.26%</i>

\*Portable Alpha Hedge Funds are expressed as gross exposure but, as collateral supporting the Overlay program, net to zero when calculating total Plan market value. Performance is expressed net of SOFR as an estimate for Overlay financing costs.

## Key Highlights:

### Rising Rates/Higher Inflation

**Benefited:** Private Debt, Infrastructure, Equity (Private/Public)  
**Detracted:** Bonds, Real Estate

### Public/Private Equity Return Compression

# Portfolio Performance Framework

As of September 30, 2024

Reference Portfolio		Policy Benchmark		Implementation Benchmark		Plan Return	
FYTD	6.35%	FYTD	4.73%	FYTD	4.74%	FYTD	4.53%
1-Year	24.90%	1-Year	17.03%	1-Year	17.30%	1-Year	17.69%
3-Years	4.87%	3-Years	4.10%	3-Years	4.62%	3-Years	6.36%
5-Years	8.54%	5-Years	7.26%	5-Years	8.09%	5-Years	8.97%

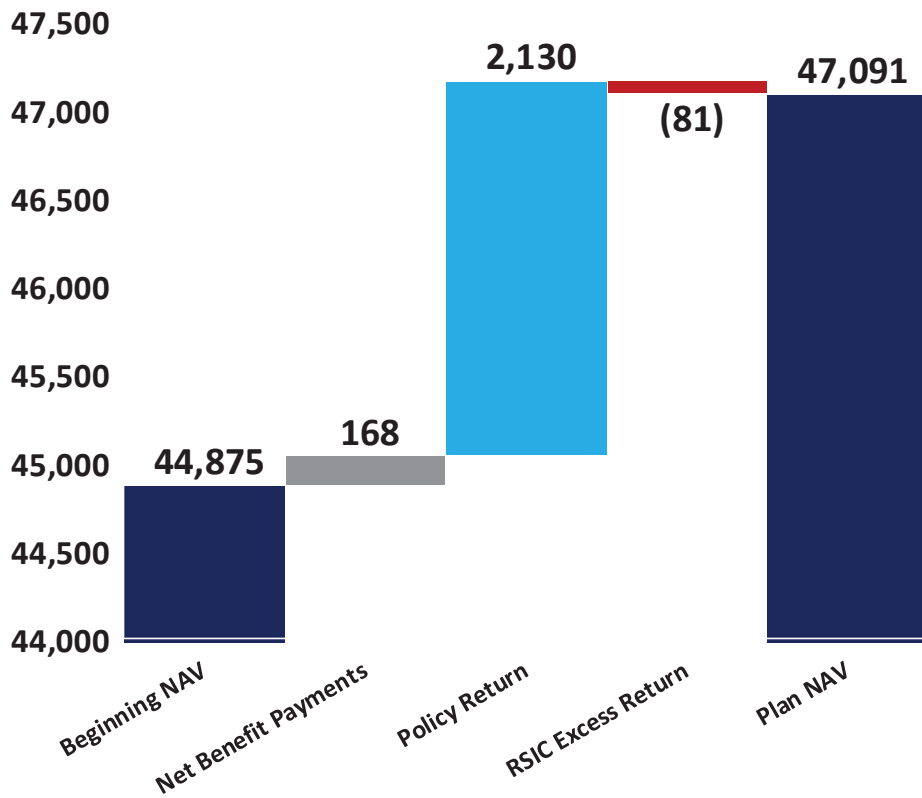
**Key Highlights:**  
**Limited Diversification Benefit**  
**Value-Add from RSIC Staff Decisions**

Value from Diversification		Quality of Portfolio Structure		Quality of Manager Selection	
FYTD	-1.62%	FYTD	0.00%	FYTD	-0.20%
1-Year	-7.87%	1-Year	0.27%	1-Year	0.39%
3-Years	-0.77%	3-Years	0.52%	3-Years	1.74%
5-Years	-1.28%	5-Years	0.83%	5-Years	0.87%

Actual vs Reference		Actual vs Policy	
FYTD	-1.82%	FYTD	-0.20%
1-Year	-7.21%	1-Year	0.66%
3-Years	1.49%	3-Years	2.26%
5-Years	0.42%	5-Years	1.70%

# FYTD Performance Attribution

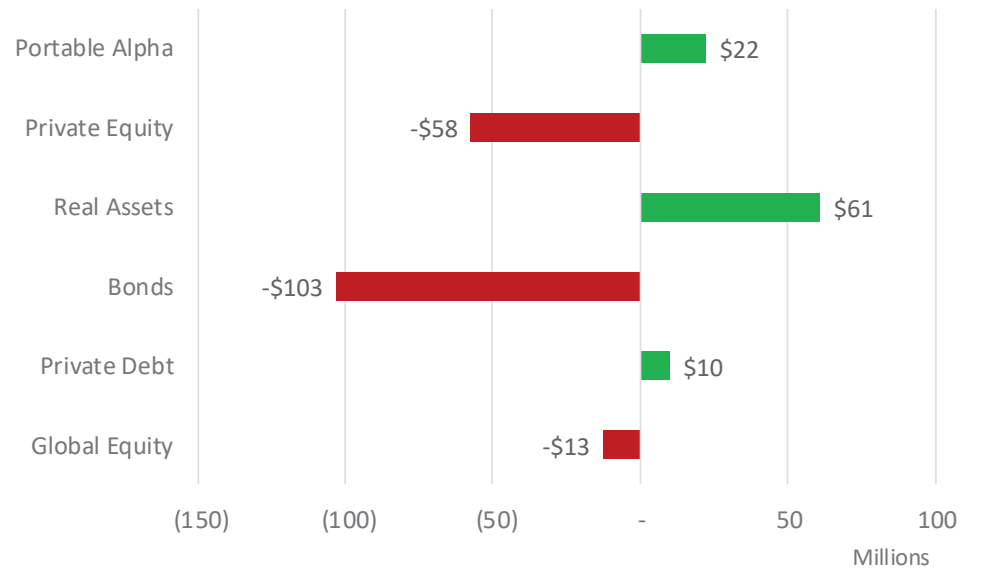
**FYTD - RSIC Value Added (\$)**  
As of 09/30/24



**Key Highlights:**

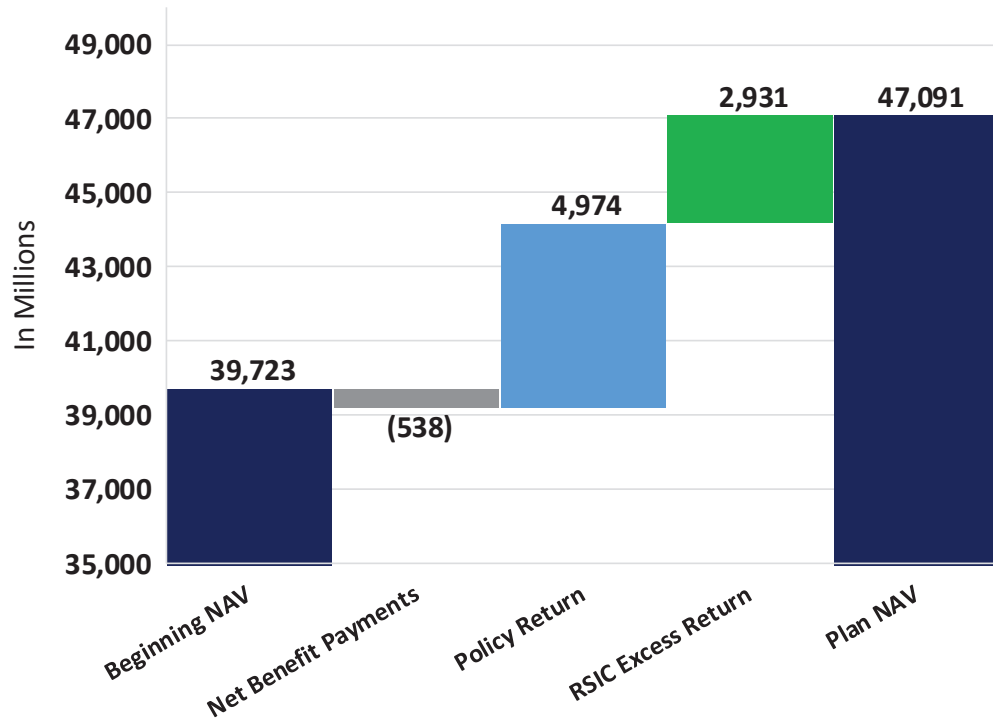
**Strong Public Markets Performance as Fed Begins Rate Cutting Cycle**  
**Modest Detraction from Cash and Private Equity Overweight**

FYTD RSIC Excess Return by asset class (\$)



# 3-Year Performance Attribution

3Y - RSIC Value Added  
As of 09/30/24

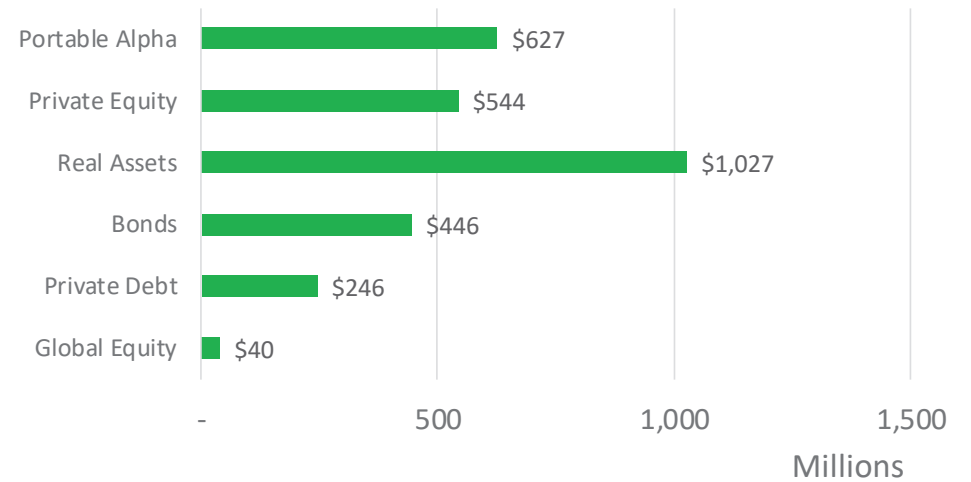


## Key Highlights:

Excess Returns Generated Across All Asset Classes

Diversification Within Asset Classes Proved Beneficial

3Y RSIC Excess Return by asset class (\$)



# Plan Level Risk Monitoring



# Total Portfolio Risk Assessment – Expected vs. Realized

Expected Total Risk: Measures the volatility of the portfolio (liquid proxies for illiquid)	<i>Expected Total Risk</i>	Reference 13.5%	Policy 12.9%	Actual 13.6%
		↓	↓	↓
Realized Risk: Reflects the actual volatility of returns	<i>Realized Risk</i>	Reference 13.5%	Policy 9.6%	Actual 8.4%

## Key Takeaways

1. Generated ~\$3 billion of additional value to the Plan over the past three years relative to the Policy Benchmark
2. Reduction to active risk given limited dispersion today
3. Ample liquidity take advantage of future opportunities

# Appendix





## Asset Allocation and SIOP Compliance<sup>5</sup>

As of September 30, 2024

Exposure Report as of 09/30/2024	Net Exposure	Policy Targets	Over / Under	Allowable Ranges	SIOP Compliance
Public Equity	44.6%	46.0%	-1.4%	30% - 60%	Yes
Bonds	25.0%	26.0%	-1.0%	10% - 35%	Yes
Private Equity	12.7%	9.0%	3.7%	5% - 13%	Yes
Private Debt	7.2%	7.0%	0.2%	3% - 11%	Yes
Real Assets	10.5%	12.0%	-1.5%	6% - 18%	Yes
Portable Alpha Hedge Funds	10.2%	n/a	10.2%	0% - 15%	Yes
Total Plan	100.0%	100.0%	0.0%	n/a	Yes
Total Private Markets	30.1%	28.0%	2.1%	0% - 30%	No

# Asset Class Performance<sup>1,3,4,5</sup>

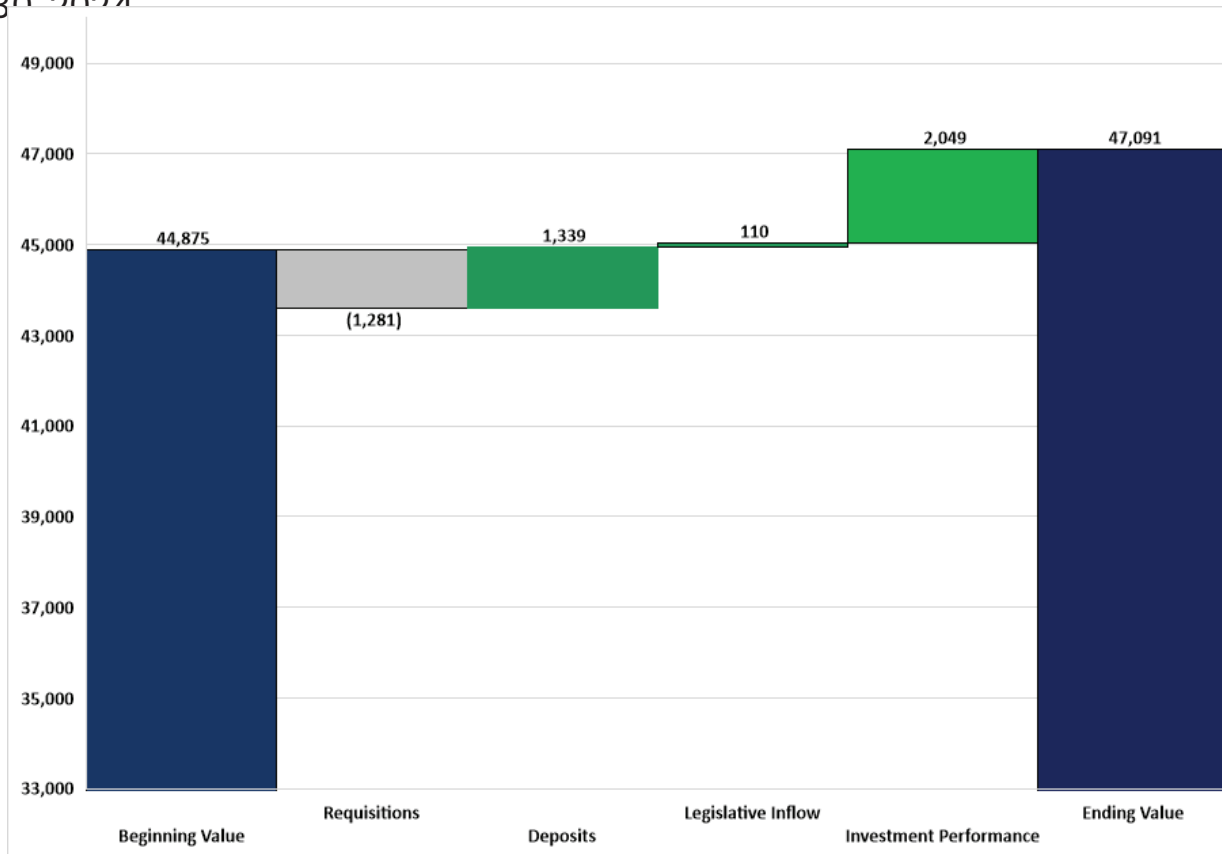
As of September 30, 2024

Trailing Performance as of 09/30/2024	Portfolio Weight	Quarter	FYTD	1 Year	Annualized	
					3 Years	5 Years
<b>Public Equity</b>	<b>44.6%</b>	<b>6.90%</b>	<b>6.90%</b>	<b>31.40%</b>	<b>7.88%</b>	<b>12.21%</b>
<i>Benchmark</i>		<i>6.84%</i>	<i>6.84%</i>	<i>30.96%</i>	<i>7.44%</i>	<i>11.85%</i>
<b>Bonds</b>	<b>25.0%</b>	<b>4.19%</b>	<b>4.19%</b>	<b>10.86%</b>	<b>-0.97%</b>	<b>0.45%</b>
<i>Benchmark</i>		<i>5.20%</i>	<i>5.20%</i>	<i>11.57%</i>	<i>-1.39%</i>	<i>-0.25%</i>
IG Fixed	17.6%	5.30%	5.30%	12.07%	-2.64%	-0.47%
IG Floating (Hedged)	2.1%	4.94%	4.94%	15.09%	5.00%	n/a
EMD	0.1%	5.21%	5.21%	22.38%	-17.24%	-9.93%
Mixed Credit	0.3%	1.99%	1.99%	11.29%	6.66%	7.57%
Cash and Short Duration (Ne	4.8%	1.30%	1.30%	5.33%	3.55%	2.38%
<b>Private Equity</b>	<b>12.7%</b>	<b>0.91%</b>	<b>0.91%</b>	<b>6.43%</b>	<b>7.67%</b>	<b>12.71%</b>
<i>Benchmark</i>		<i>0.79%</i>	<i>0.79%</i>	<i>4.37%</i>	<i>3.74%</i>	<i>12.16%</i>
<b>Private Debt</b>	<b>7.2%</b>	<b>2.73%</b>	<b>2.73%</b>	<b>12.07%</b>	<b>9.30%</b>	<b>8.40%</b>
<i>Benchmark</i>		<i>2.29%</i>	<i>2.29%</i>	<i>12.61%</i>	<i>7.65%</i>	<i>7.03%</i>
<b>Real Assets</b>	<b>10.5%</b>	<b>0.89%</b>	<b>0.89%</b>	<b>-0.49%</b>	<b>5.36%</b>	<b>6.32%</b>
<i>Benchmark</i>		<i>0.03%</i>	<i>0.03%</i>	<i>-8.03%</i>	<i>-1.04%</i>	<i>1.27%</i>
Private Real Estate	7.2%	-1.06%	-1.06%	-6.34%	4.11%	5.39%
Public Real Estate	0.1%	18.88%	18.88%	38.57%	6.67%	7.93%
Private Infrastructure	3.0%	2.34%	2.34%	7.30%	8.13%	7.72%
Public Infrastructure	0.2%	12.75%	12.75%	22.54%	4.30%	5.63%
<b>Portable Alpha Hedge Funds</b>	<b>10.2%</b>	<b>0.53%</b>	<b>0.53%</b>	<b>1.64%</b>	<b>4.06%</b>	<b>5.81%</b>
<b>Total Plan</b>	<b>100.0%</b>	<b>4.53%</b>	<b>4.53%</b>	<b>17.69%</b>	<b>6.36%</b>	<b>8.97%</b>
<i>RSIC Policy Benchmark</i>		<i>4.73%</i>	<i>4.73%</i>	<i>17.03%</i>	<i>4.10%</i>	<i>7.26%</i>

\*Portable Alpha Hedge Funds are expressed as gross exposure but, as collateral supporting the Overlay program, net to zero when calculating total Plan market value. Performance is expressed net of SOFR as an estimate for Overlay financing costs.

# FYTD Benefits and Performance

As of September 30, 2024



Other flows include a \$110 million legislative inflow.

# Asset Allocation and SIOP Compliance<sup>5</sup>

Exposures as of September 30,  
2024

Exposure Report as of 09/30/2024	Net Exposure	Policy Targets	Over / Under	Allowable Ranges	SIOP Compliance
<b>Public Equity</b>	<b>44.6%</b>	<b>46.0%</b>	<b>-1.4%</b>	<b>30% - 60%</b>	<b>Yes</b>
<b>Bonds</b>	<b>25.0%</b>	<b>26.0%</b>	<b>-1.0%</b>	<b>10% - 35%</b>	<b>Yes</b>
Investment Grade - Fixed	17.6%	26.0%	-8.4%	10% - 35%	Yes
Investment Grade - Floating	2.1%	n/a	2.1%	0% - 5%	Yes
EMD	0.1%	n/a	0.1%	0% - 6%	Yes
Mixed Credit	0.3%	n/a	0.3%	0% - 8%	Yes
Cash and Short Duration (Net)	4.8%	n/a	4.8%	0% - 7%	Yes
<b>Private Equity</b>	<b>12.7%</b>	<b>9.0%</b>	<b>3.7%</b>	<b>5% - 13%</b>	<b>Yes</b>
<b>Private Debt</b>	<b>7.2%</b>	<b>7.0%</b>	<b>0.2%</b>	<b>3% - 11%</b>	<b>Yes</b>
<b>Real Assets</b>	<b>10.5%</b>	<b>12.0%</b>	<b>-1.5%</b>	<b>6% - 18%</b>	<b>Yes</b>
Private Real Estate	7.2%	9.0%	-1.8%	n/a	Yes
Public Real Estate	0.1%	n/a	0.1%	n/a	Yes
Private Infrastructure	3.0%	3.0%	0.0%	n/a	Yes
Public Infrastructure	0.2%	n/a	0.2%	n/a	Yes
<b>Portable Alpha Hedge Funds</b>	<b>10.2%</b>	<b>n/a</b>	<b>10.2%</b>	<b>0% - 15%</b>	<b>Yes</b>
<b>Total Plan</b>	<b>100.0%</b>	<b>100.0%</b>	<b>0.0%</b>	<b>n/a</b>	<b>Yes</b>
<b>Total Private Markets</b>	<b>30.1%</b>	<b>28.0%</b>	<b>2.1%</b>	<b>0% - 30%</b>	<b>No</b>

# Portfolio Performance Framework

As of September 30, 2024

Reference Portfolio		Policy Benchmark		Plan Return	
FYTD	6.35%	FYTD	4.73%	FYTD	4.53%
1-Year	24.90%	1-Year	17.03%	1-Year	17.69%
3-Years	4.87%	3-Years	4.10%	3-Years	6.36%
5-Years	8.54%	5-Years	7.26%	5-Years	8.97%

## Key Highlights:

Limited Diversification Benefit

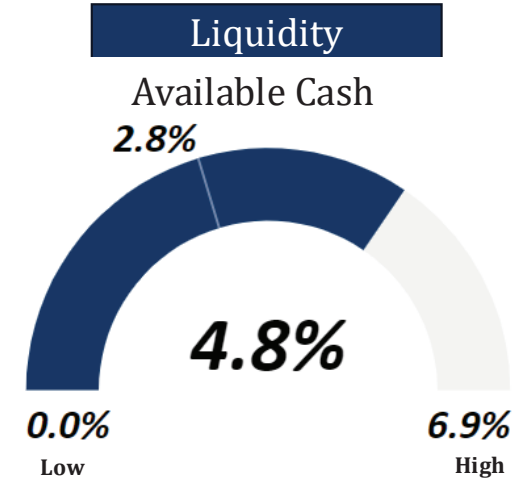
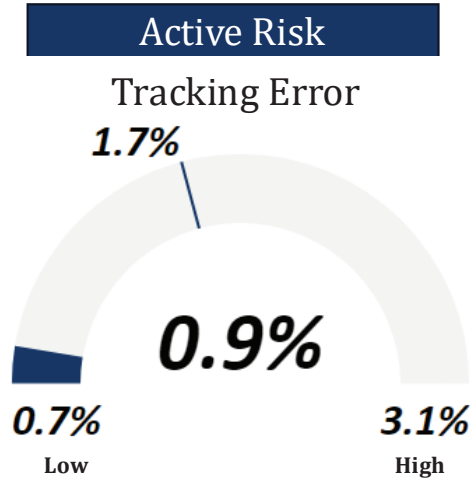
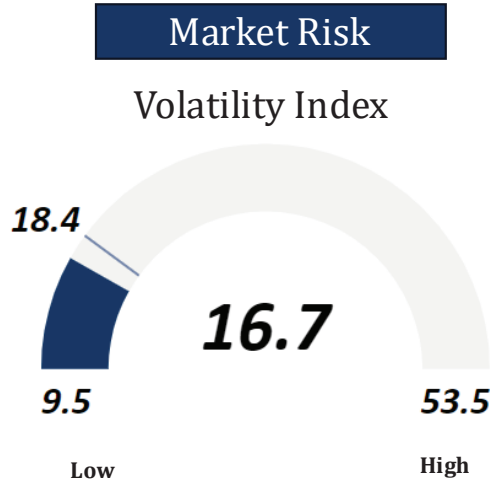
Value-Add from RSIC Staff Decisions

Value from Diversification	
FYTD	-1.62%
1-Year	-7.87%
3-Years	-0.77%
5-Years	-1.28%

RSIC Staff Impact	
FYTD	-0.20%
1-Year	0.66%
3-Years	2.26%
5-Years	1.70%

Actual vs Reference	
FYTD	-1.82%
1-Year	-7.21%
3-Years	1.49%
5-Years	0.42%

# Plan Level Risk Monitoring



# Footnotes and Disclosures

## Footnotes

1. The Policy Benchmark is calculated quarterly using a blend of asset class policy benchmarks and the policy weights for the respective asset classes. Prior to 12/31/2020 the Policy Benchmark was calculated monthly. Asset class benchmarks represent current policy benchmarks blended with past policy benchmarks which may have changed over time. Some asset class policy benchmarks revise over time and these revisions are reflected in subsequent policy benchmark calculations. See Benchmark Disclosure page for current definitions.
2. Benefit payments are the net of Plan contributions and disbursements.
3. "Bonds" asset class includes Cash and Short Duration market value which is the aggregate cash held at the custodian, Russell Investments, and strategic partnerships, short duration within the portfolio, and hedge funds used in collateral pool for Portable Alpha program, net of the notional exposure in the overlay.
4. Asset class returns include Overlay returns as a blend of physical and synthetic returns. Synthetic returns are provided by Russell Investments gross of financing costs. To accommodate for financing costs, SOFR is added to the synthetic returns and removed from the collateral return. Asset class returns calculated using Caissa, a third-party multi-asset class analytics system.
5. Asset class weights include Overlay exposures which are net notional exposures provided by Russell Investments. RSIC rebalances quarterly and reported exposures reflect any trades made at quarter end that have not settled yet.

## Disclosures

- Plan Returns are provided by BNY Mellon. All returns are time-weighted, total return calculations. Net of fee performance is calculated and presented after the deduction of fees and expenses. Periods greater than one year are annualized. Past performance is no guarantee of future results. Asset class returns are based on values obtained from BNY Mellon and adjusted for overlay exposures provided by Russell Investments. Policy benchmark is the blend of asset class policy benchmarks using policy weights. Asset class benchmarks and policy weights are reviewed annually by the Commission's consultant and adopted by the Commission and have changed over time. The policy benchmark return history represents a blend of these past policies. Total Plan trailing periods reflect a performance correction that affected the time period 03/31/2015 through 06/30/2022.
- Overlay allocation detail is provided by Russell Investments.
- This report was compiled by the staff of the South Carolina Retirement System Investment Commission and has not been reviewed, approved or verified by the external investment managers. No information contained herein should be used to calculate returns or compare multiple funds, including private equity funds.
- Effective October 1, 2005, the State Retirement System Preservation and Investment Reform Act ("Act 153") established the Commission and devolved fiduciary responsibility for investment and management of the assets of the South Carolina Retirement Systems upon RSIC.
- Net benefit payments include a one-time \$45 million payment that occurred in October 2023 to cover securities lending collateral losses incurred during the Global Financial Crisis of 2008.
- Allocation / exposure percentages might not add up to totals due to rounding.

# Benchmarks

## Benchmarks

- **Core Fixed Income:** Bloomberg US Aggregate Bond Index
- **Global Public Equity Blend:** MSCI All Country World Index IMI
- **Private Equity Blend:** Burgiss All PE Benchmark
- **Private Debt :** S&P/LSTA Leveraged Loan Index + 150 basis points on a 3-month lag
- **Private Real Estate Blend:** NCREIF-Open Ended Diversified Core (ODCE) Index *Net of Fees*

**Benchmarks Displayed in this report represent current policy benchmarks as of the SIOP effective 7/1/2020. Asset class benchmarks and policy weights are reviewed annually by the Commission's consultant and adopted by the Commission and have changed over time. The policy benchmark return history represents a blend of these past policies.**



# South Carolina Retirement System Investment Commission

Investment Performance Review  
Period Ending: September 30, 2024



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[VERUSINVESTMENTS.COM](https://www.verusinvestments.com)

SEATTLE 206.622.3700

CHICAGO 312.815.5228

PITTSBURGH 412.784.6678

LOS ANGELES 310.297.1777

SAN FRANCISCO 415.362.3484

Total Retirement System  
Asset Allocation vs. Policy

South Carolina Retirement System Investment Commission  
Period Ending: September 30, 2024

Allocation vs. Targets and Policy  
Quarter Ending September 30, 2024

	MV at 09/30/2024	Overlay Exposures	Net Position	% of Total System	% of Total System (Net)	Policy Targets	Allowable Ranges	SIOP Compliance?
<b>Total System</b>	<b>47,091,231,480</b>	<b>-</b>	<b>47,091,231,480</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>		
<b>Public Equity</b>	<b>21,096,787,855</b>	<b>(93,106,522)</b>	<b>21,003,681,333</b>	<b>44.8%</b>	<b>44.6%</b>	<b>46%</b>	<b>30% - 60%</b>	<b>Yes</b>
Public Equity	21,096,787,855	(93,106,522)	21,003,681,333	44.8%	44.6%	46%	30% - 60%	Yes
<b>Bonds</b>	<b>6,889,464,482</b>	<b>4,883,592,208</b>	<b>11,773,056,690</b>	<b>14.6%</b>	<b>25.0%</b>	<b>26%</b>	<b>15% - 35%</b>	<b>Yes</b>
Investment Grade - Fixed	131,174,358	8,193,994,162	8,325,168,519	0.3%	17.7%	0%	10% - 35%	Yes
Investment Grade - Floating	1,010,560,499	-	1,010,560,499	2.1%	2.1%	0%	0% - 5%	Yes
Emerging Market Debt	34,553,212	-	34,553,212	0.1%	0.1%	0%	0% - 6%	Yes
Mixed Credit	152,271,189	-	152,271,189	0.3%	0.3%	0%	0% - 8%	Yes
Cash and Short Duration	5,560,905,224	(3,310,401,954)	2,250,503,270	11.8%	4.8%	0%	0% - 7%	Yes
<b>Private Equity</b>	<b>5,978,846,928</b>	<b>-</b>	<b>5,978,846,928</b>	<b>12.7%</b>	<b>12.7%</b>	<b>9%</b>	<b>5% - 13%</b>	<b>Yes</b>
<b>Private Debt</b>	<b>3,393,469,011</b>	<b>-</b>	<b>3,393,469,011</b>	<b>7.2%</b>	<b>7.2%</b>	<b>7%</b>	<b>3% - 11%</b>	<b>Yes</b>
<b>Real Assets</b>	<b>4,942,177,518</b>	<b>-</b>	<b>4,942,177,518</b>	<b>10.5%</b>	<b>10.5%</b>	<b>12%</b>	<b>6% - 18%</b>	<b>Yes</b>
Real Estate	3,438,336,153	-	3,438,336,153	7.3%	7.3%	9%	5% - 13%	Yes
Infrastructure	1,503,841,365	-	1,503,841,365	3.2%	3.2%	3%	0% - 5%	Yes
<b>Portable Alpha Hedge Funds</b>	<b>4,790,485,686</b>	<b>(4,790,485,686)</b>	<b>-</b>	<b>10.2%</b>	<b>0.0%</b>	<b>0%</b>	<b>0% - 15%</b>	<b>Yes</b>

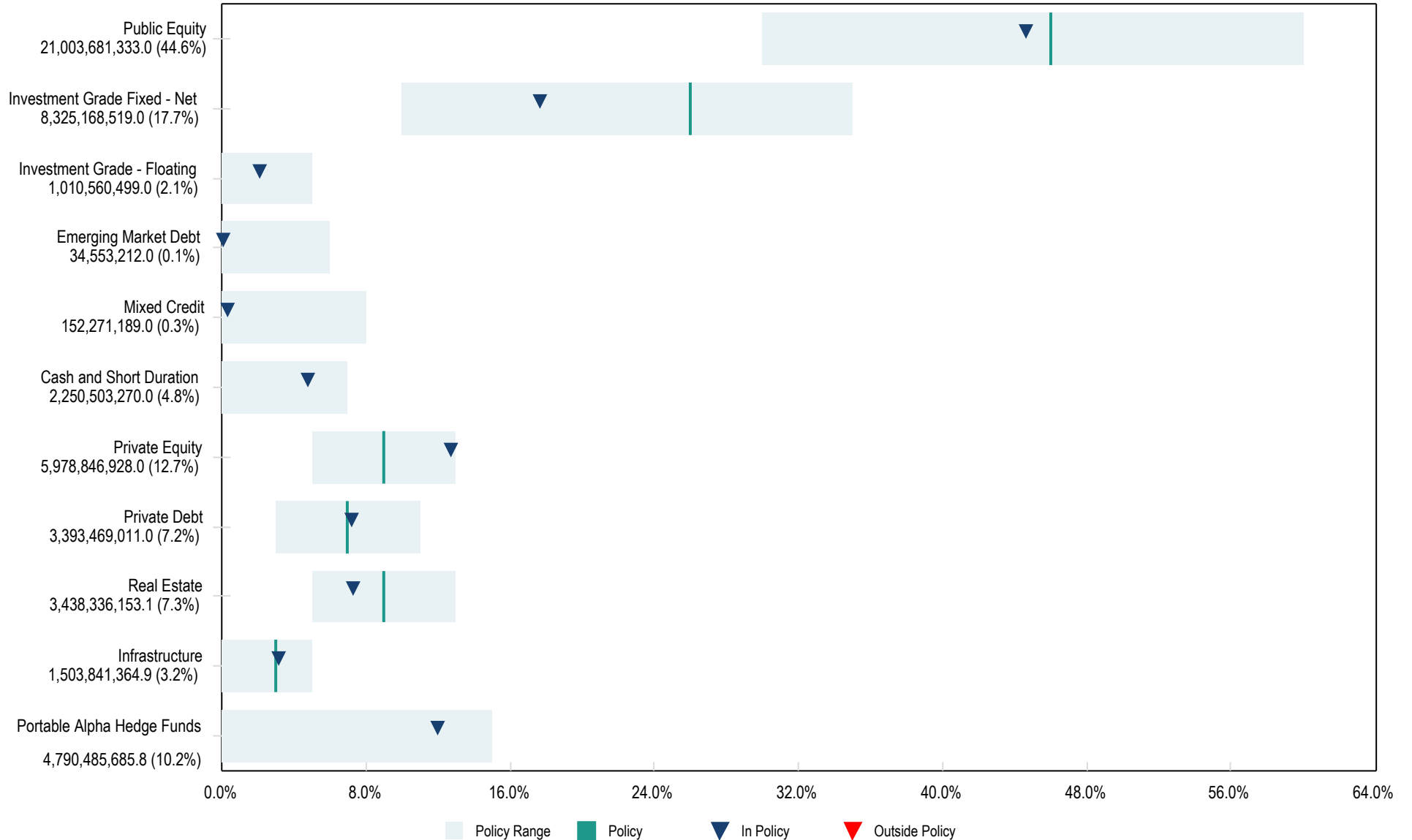
Includes cash in the Russell Overlay separate account

Percentages may not sum to 100% due to rounding

# Total Retirement System Asset Allocation Compliance

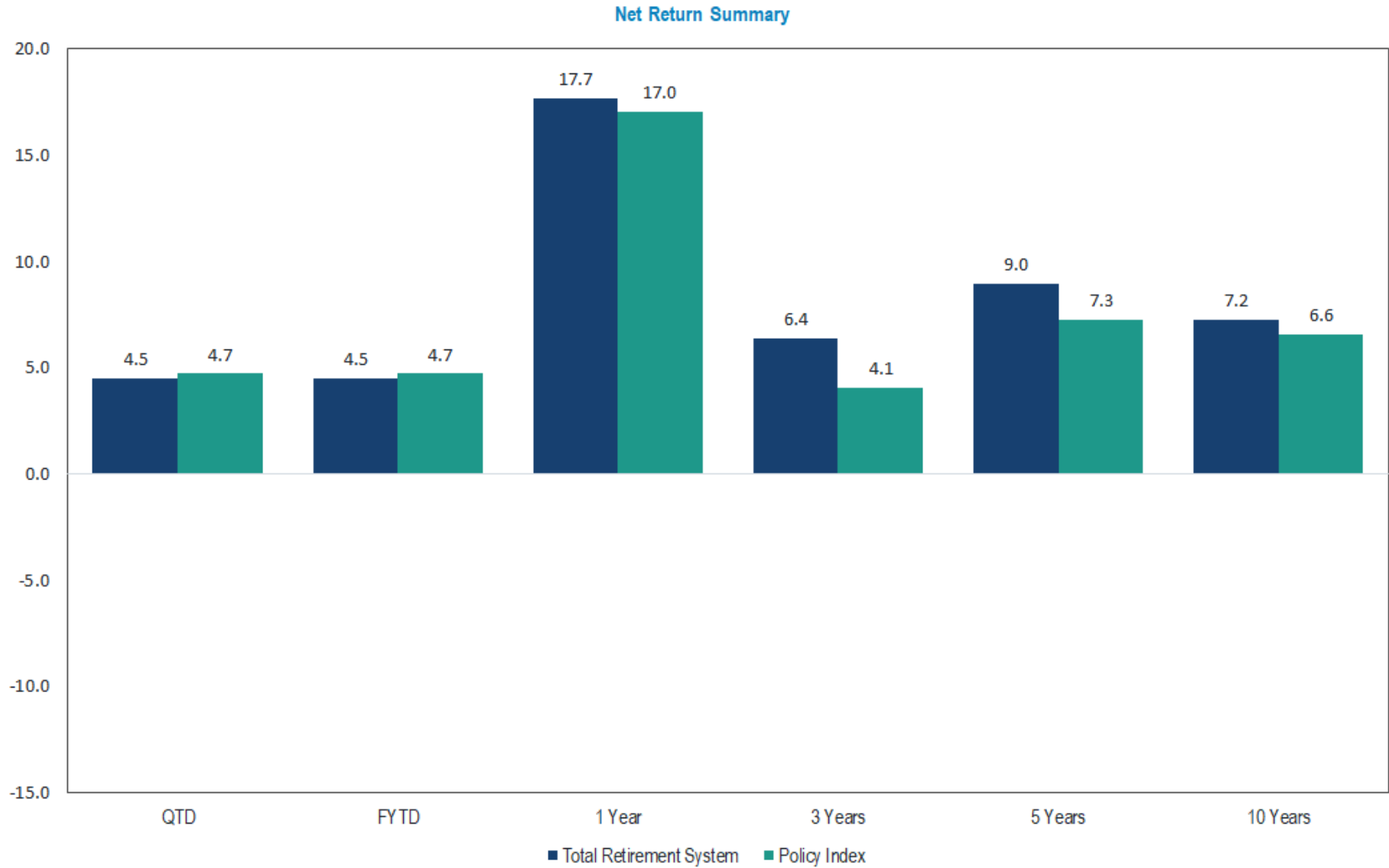
# South Carolina Retirement System Investment Commission Period Ending: September 30, 2024

Actual vs. Policy Ranges:  
(Including Overlay)



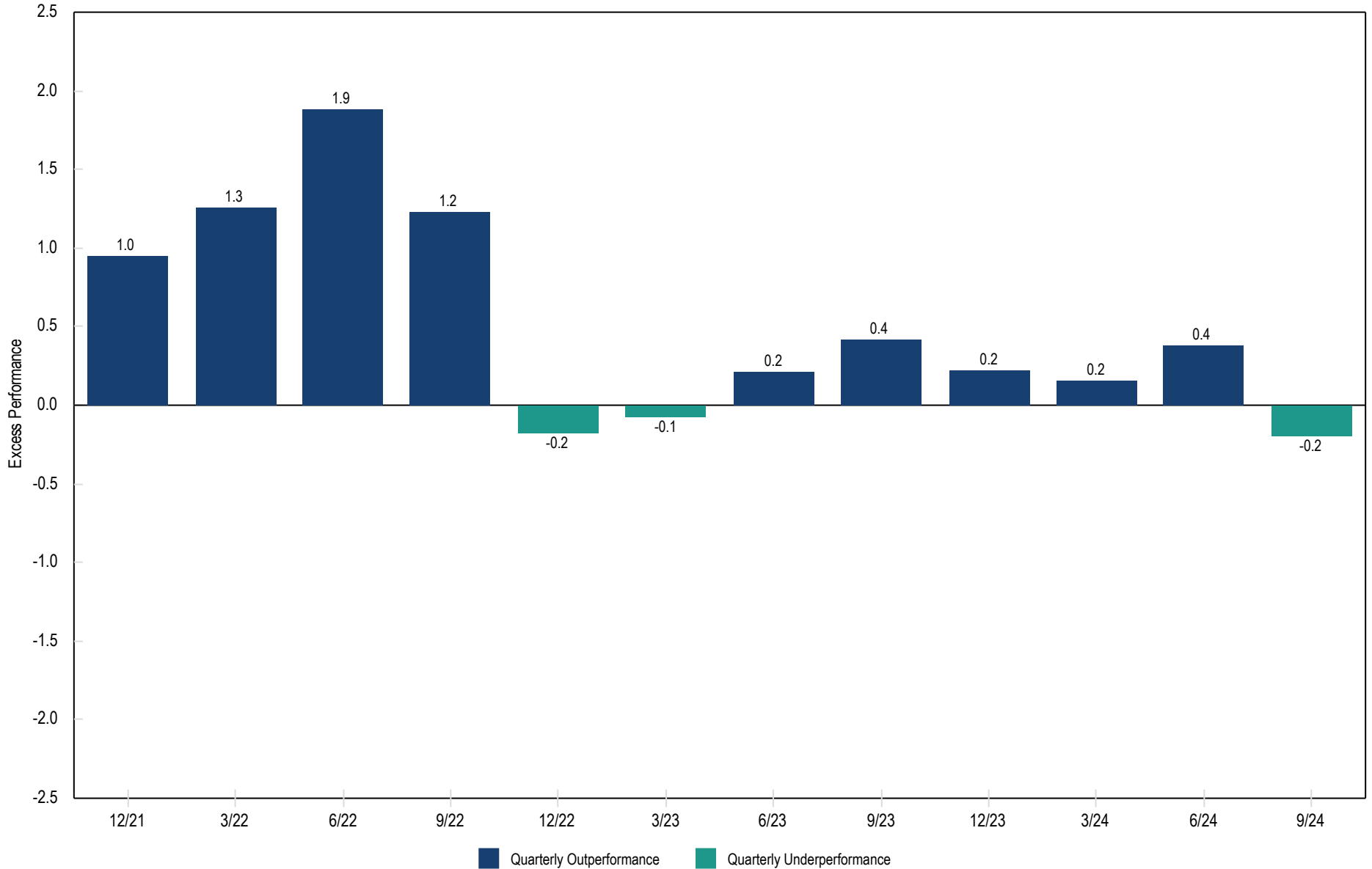
Total Retirement System  
Net Return Summary

South Carolina Retirement System Investment Commission  
Period Ending: September 30, 2024



Returns for periods greater than one year are annualized.

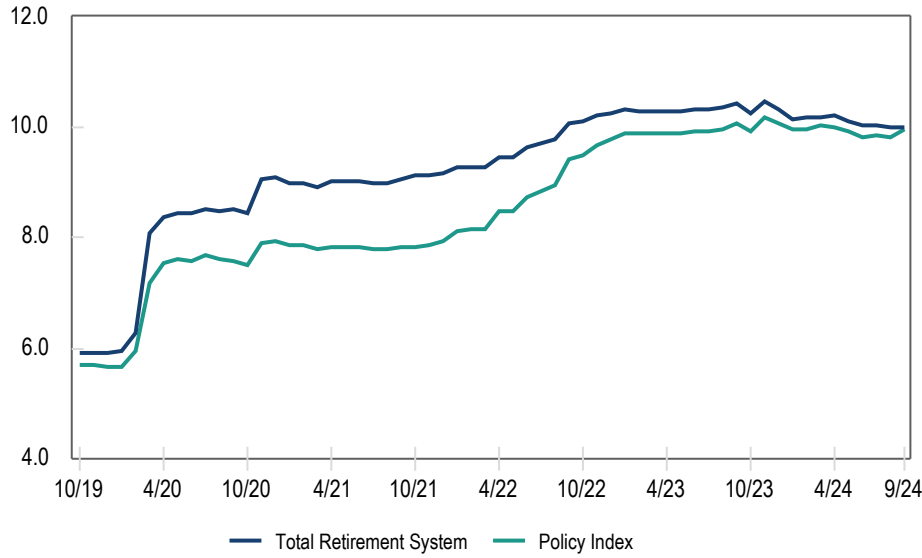
Quarterly Excess Performance vs. Policy Benchmark



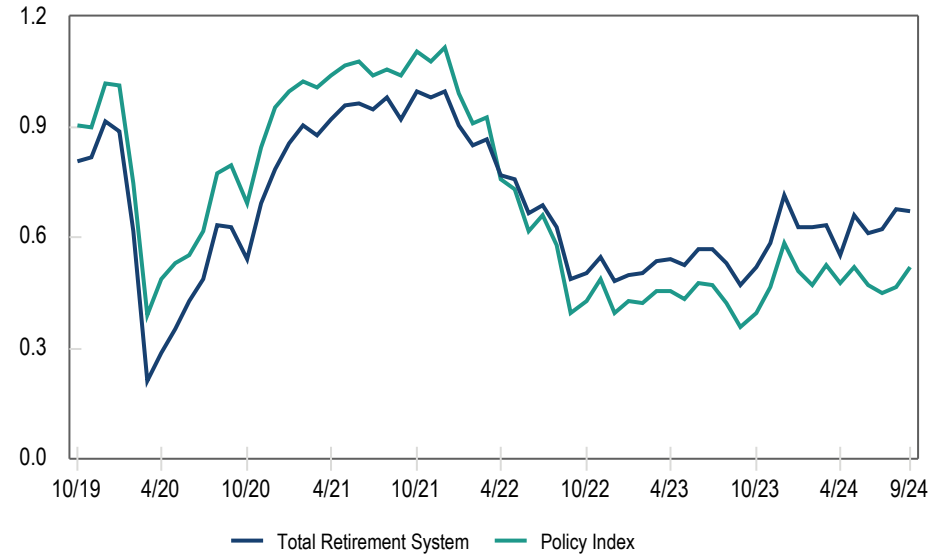
# Total Retirement System Risk Analysis - 5 Years (Net of Fees)

# South Carolina Retirement System Investment Commission Period Ending: September 30, 2024

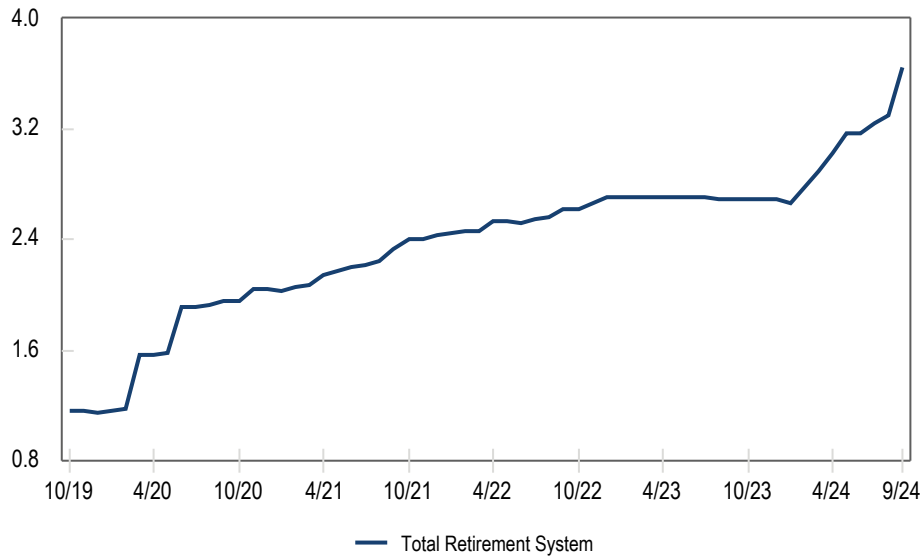
### Rolling 5 Year Std. Deviation



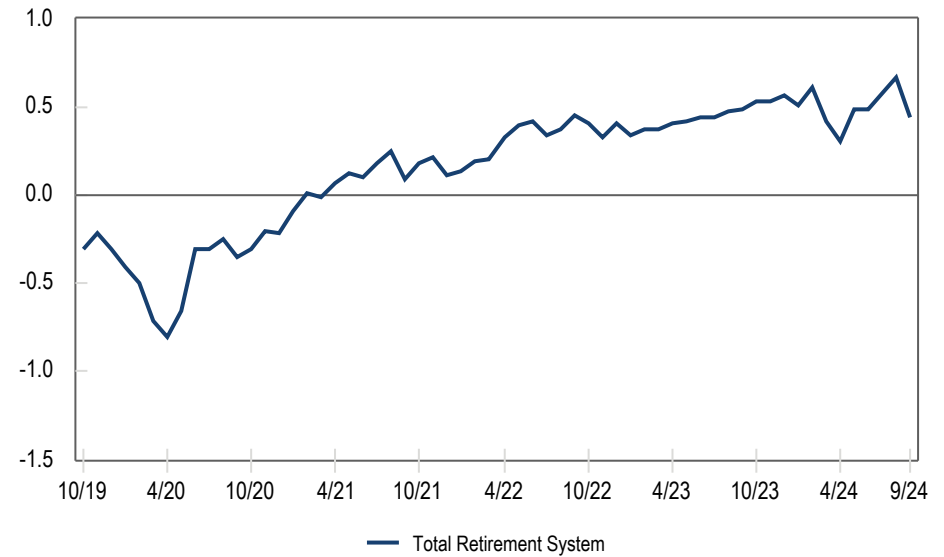
### Rolling 5 Year Sharpe Ratio



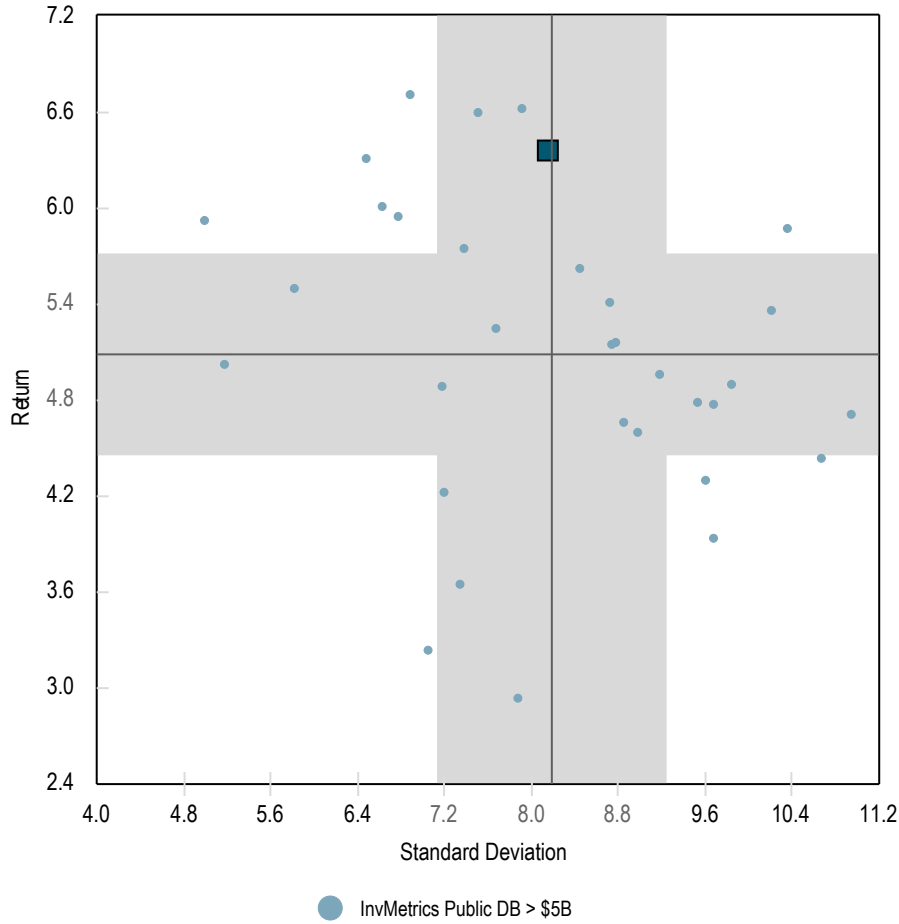
### Rolling 5 Year Tracking Error



### Rolling 5 Year Information Ratio

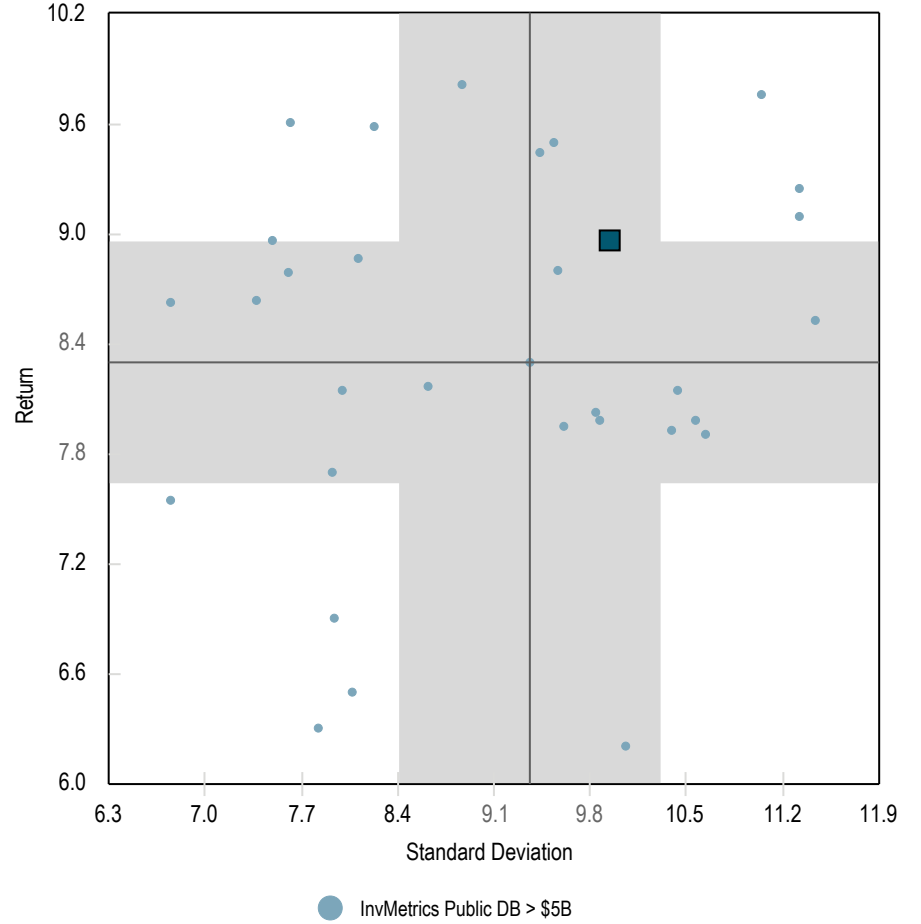


3 Years Return vs. Standard Deviation



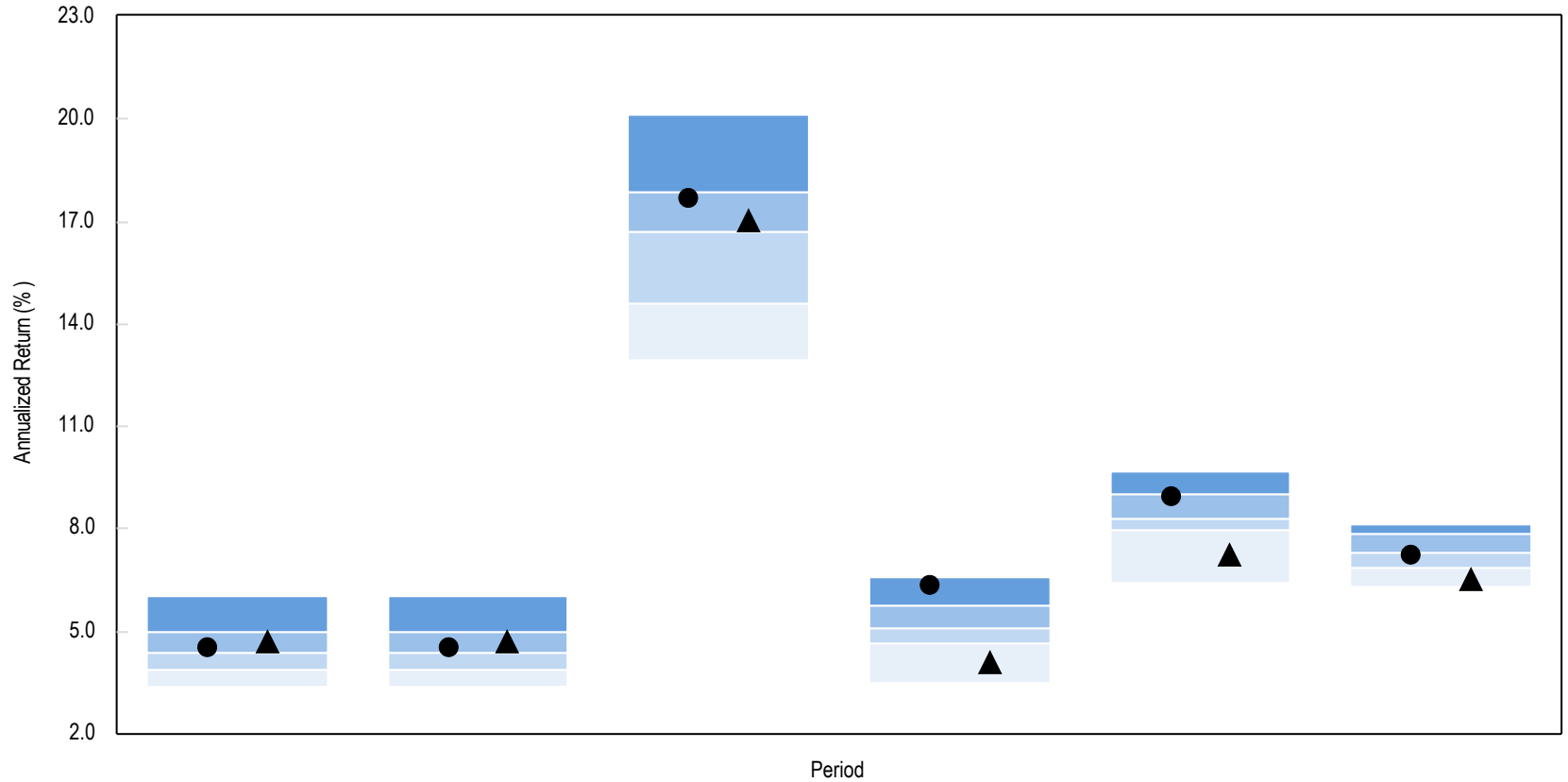
	Return	Standard Deviation
■ Total Retirement System	6.36	8.16
— Median	5.09	8.18
Population	32	32

5 Years Return vs. Standard Deviation



	Return	Standard Deviation
■ Total Retirement System	8.97	9.94
— Median	8.30	9.36
Population	31	31

Total Fund Cumulative Performance vs. InvMetrics Public DB > \$5B

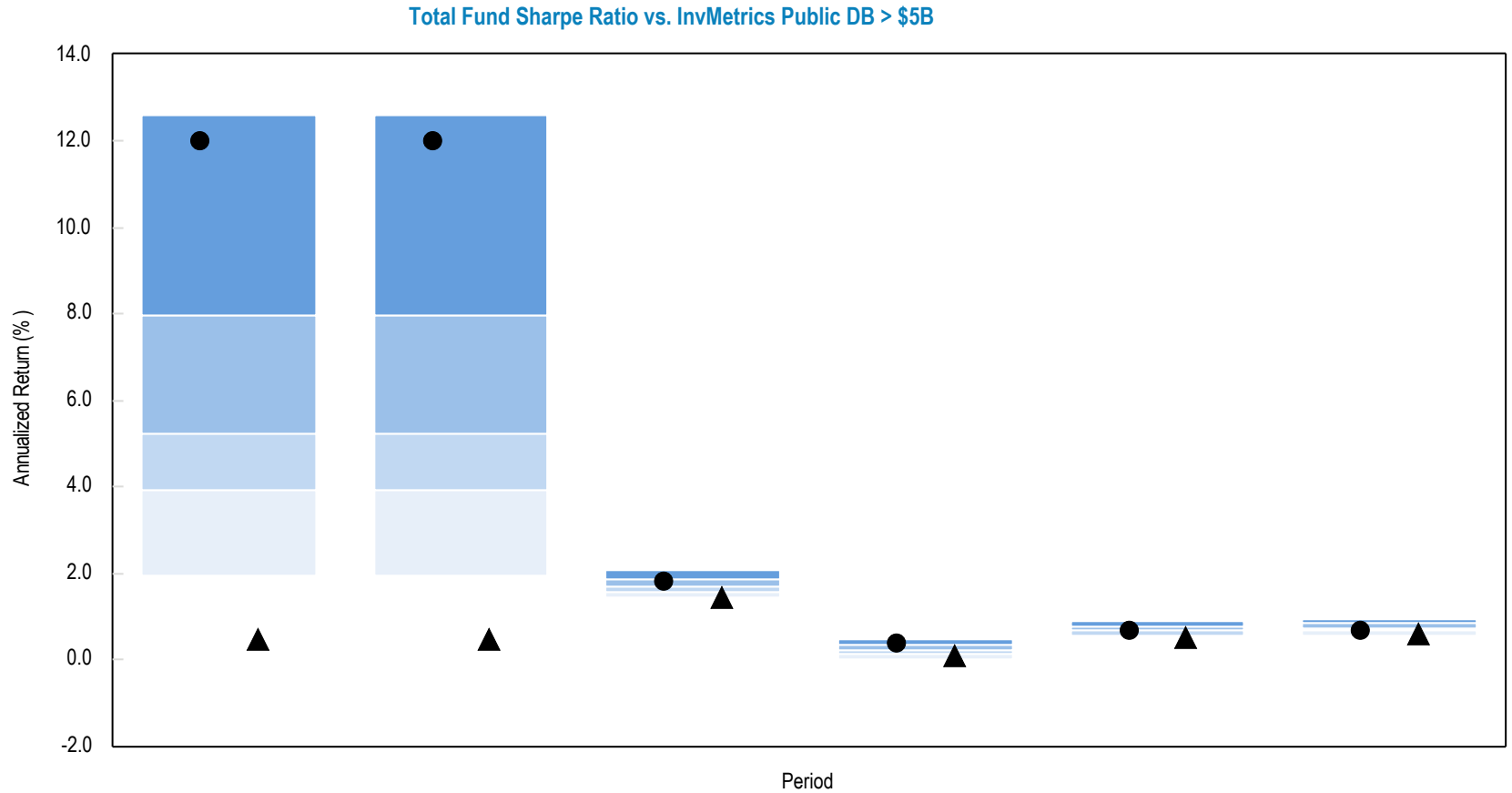


	QTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
● Total Retirement System	4.53 (40)	4.53 (40)	17.69 (29)	6.36 (10)	8.97 (27)	7.24 (61)
▲ Policy Index	4.73 (32)	4.73 (32)	17.04 (48)	4.09 (89)	7.26 (89)	6.56 (84)
5th Percentile	6.05	6.05	20.12	6.61	9.69	8.12
1st Quartile	4.96	4.96	17.85	5.78	9.04	7.88
Median	4.38	4.38	16.71	5.09	8.30	7.33
3rd Quartile	3.89	3.89	14.58	4.64	7.94	6.87
95th Percentile	3.39	3.39	12.97	3.46	6.41	6.29
Population	33	33	33	32	31	30



Total Retirement System  
Peer Universe Comparison: Sharpe Ratio

South Carolina Retirement System Investment Commission  
Period Ending: September 30, 2024



	QTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
● Total Retirement System	12.03 (6)	12.03 (6)	1.82 (33)	0.38 (21)	0.68 (51)	0.70 (65)
▲ Policy Index	0.50 (100)	0.50 (100)	1.43 (96)	0.11 (90)	0.52 (97)	0.63 (88)
5th Percentile	12.61	12.61	2.07	0.47	0.89	0.96
1st Quartile	7.98	7.98	1.87	0.34	0.79	0.85
Median	5.23	5.23	1.71	0.23	0.68	0.75
3rd Quartile	3.95	3.95	1.58	0.17	0.59	0.68
95th Percentile	1.97	1.97	1.46	0.03	0.53	0.58
Population	33	33	33	32	31	30

Total Retirement System  
Asset Class Performance Summary (Net of Fees)

South Carolina Retirement System Investment Commission  
Period Ending: September 30, 2024

	Market Value	% of Portfolio	QTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	Inception	Inception Date
<b>Total Retirement System</b>	<b>47,091,231,480</b>	<b>100.0</b>	<b>4.5</b>	<b>4.5</b>	<b>17.7</b>	<b>6.4</b>	<b>9.0</b>	<b>7.2</b>	<b>6.2</b>	<b>Oct-05</b>
<i>Policy Index</i>			4.7	4.7	17.0	4.1	7.3	6.6	5.5	
<b>Public Equity</b>	<b>21,096,787,855</b>	<b>44.8</b>	<b>6.9</b>	<b>6.9</b>	<b>31.3</b>	<b>7.8</b>	<b>11.5</b>	<b>8.8</b>	<b>6.8</b>	<b>Oct-05</b>
<i>Public Equity Blended Benchmark</i>			6.8	6.8	31.0	7.4	11.9	9.2	7.6	
<b>Total Bonds</b>	<b>5,861,872,646</b>	<b>12.4</b>	<b>1.7</b>	<b>1.7</b>	<b>7.5</b>	<b>2.3</b>	<b>2.9</b>	<b>2.8</b>	<b>3.4</b>	<b>Oct-05</b>
<i>Bonds Blended Benchmark</i>			5.2	5.2	11.6	-1.4	0.3	1.8	3.2	
<b>Investment Grade - Fixed</b>	<b>131,174,358</b>	<b>0.3</b>	<b>3.5</b>	<b>3.5</b>	<b>9.0</b>	<b>-0.9</b>	<b>1.5</b>	<b>-</b>	<b>2.7</b>	<b>Jul-15</b>
<b>Investment Grade - Floating</b>	<b>1,010,560,499</b>	<b>2.1</b>	<b>2.8</b>	<b>2.8</b>	<b>12.7</b>	<b>5.0</b>	<b>-</b>	<b>-</b>	<b>6.6</b>	<b>Jul-20</b>
<b>Mixed Credit</b>	<b>152,271,189</b>	<b>0.3</b>	<b>2.0</b>	<b>2.0</b>	<b>11.3</b>	<b>6.7</b>	<b>7.6</b>	<b>5.4</b>	<b>6.5</b>	<b>May-08</b>
<i>50% S&amp;P LSTA Lev. Loan/50% Blmbg. High Yield</i>			3.7	3.7	12.7	4.9	5.3	5.1	5.8	
<b>Emerging Market Debt</b>	<b>34,553,212</b>	<b>0.1</b>	<b>5.2</b>	<b>5.2</b>	<b>22.4</b>	<b>-17.2</b>	<b>-9.9</b>	<b>-3.5</b>	<b>0.0</b>	<b>Jul-09</b>
<i>50% JPM EMBI Gbl Div (USD)/50% JPM GBI EM Gbl Div</i>			7.6	7.6	16.0	0.1	0.8	2.0	4.0	
<b>Cash - Short Duration</b>	<b>4,533,313,388</b>	<b>9.6</b>	<b>1.4</b>	<b>1.4</b>	<b>5.3</b>	<b>3.0</b>	<b>2.4</b>	<b>1.8</b>	<b>1.9</b>	<b>Oct-05</b>
<i>90 Day U.S. Treasury Bill</i>			1.4	1.4	5.5	3.5	2.3	1.6	1.5	
<i>Short Duration</i>	<i>173,317,802</i>	<i>0.4</i>	<i>1.8</i>	<i>1.8</i>	<i>6.2</i>	<i>3.3</i>	<i>3.0</i>	<i>2.5</i>	<i>2.3</i>	<i>Mar-10</i>
<i>Bloomberg U.S. Gov/Credit 1-3 Year Index</i>			3.0	3.0	7.2	1.5	1.7	1.6	1.5	
<b>Private Equity</b>	<b>5,978,846,928</b>	<b>12.7</b>	<b>0.9</b>	<b>0.9</b>	<b>6.4</b>	<b>7.7</b>	<b>12.7</b>	<b>11.3</b>	<b>9.2</b>	<b>Apr-07</b>
<i>Private Equity Blended Benchmark</i>			0.8	0.8	4.6	3.7	14.7	13.9	12.2	
<b>Private Debt</b>	<b>3,393,469,011</b>	<b>7.2</b>	<b>2.8</b>	<b>2.8</b>	<b>12.1</b>	<b>9.3</b>	<b>8.4</b>	<b>6.4</b>	<b>7.3</b>	<b>Jun-08</b>
<i>S&amp;P LSTA Lev. Loan + 150 bps 3-mo lag</i>			2.3	2.3	12.8	7.7	7.1	6.1	5.8	
<b>Real Assets</b>	<b>4,942,177,518</b>	<b>10.5</b>	<b>1.0</b>	<b>1.0</b>	<b>-0.4</b>	<b>5.4</b>	<b>6.3</b>	<b>8.5</b>	<b>7.0</b>	<b>Jul-08</b>
<i>Real Assets Blended Benchmark</i>			0.0	0.0	-8.0	-1.0	1.3	3.5	2.6	
<b>Private Real Estate</b>	<b>3,380,692,354</b>	<b>7.2</b>	<b>-1.1</b>	<b>-1.1</b>	<b>-6.3</b>	<b>4.1</b>	<b>5.4</b>	<b>8.2</b>	<b>6.6</b>	<b>Jul-08</b>
<i>Private Real Estate Blended Benchmark</i>			0.0	0.0	-8.0	-1.0	2.2	5.7	4.3	
<b>Public Real Estate</b>	<b>57,643,799</b>	<b>0.1</b>	<b>17.0</b>	<b>17.0</b>	<b>36.4</b>	<b>5.9</b>	<b>7.4</b>	<b>-</b>	<b>7.4</b>	<b>Jul-16</b>
<i>FTSE NAREIT Equity REIT</i>			16.1	16.1	34.7	5.1	5.5	7.8	5.8	
<b>Private Infrastructure</b>	<b>1,401,367,723</b>	<b>3.0</b>	<b>2.6</b>	<b>2.6</b>	<b>7.7</b>	<b>8.1</b>	<b>7.7</b>	<b>-</b>	<b>7.3</b>	<b>Jul-18</b>
<i>Dow Jones Brookfield Global Infrastructure</i>			14.4	14.4	27.8	6.1	5.2	5.2	6.6	
<b>Public Infrastructure</b>	<b>102,473,641</b>	<b>0.2</b>	<b>12.7</b>	<b>12.7</b>	<b>22.5</b>	<b>4.3</b>	<b>5.6</b>	<b>-</b>	<b>6.3</b>	<b>Jun-16</b>
<i>Dow Jones Brookfield Global Infrastructure</i>			14.4	14.4	27.8	6.1	5.2	5.2	6.8	
<b>Hedge Funds Portable Alpha</b>	<b>4,790,485,686</b>	<b>10.2</b>	<b>1.9</b>	<b>1.9</b>	<b>7.2</b>	<b>8.1</b>	<b>8.5</b>	<b>6.6</b>	<b>8.1</b>	<b>Jul-07</b>
<i>HFRI FOF Conservative Less LIBOR</i>			0.1	0.1	1.0	-0.4	2.4	1.6	0.7	
<b>Russell Overlay</b>	<b>1,027,591,836</b>	<b>2.2</b>								

Return calculations are rounded to the nearest tenth of percent and may differ slightly from BNYM reported returns.

Total Retirement System  
Risk Analysis - 5 Years (Net of Fees)

South Carolina Retirement System Investment Commission  
Period Ending: September 30, 2024

	Anlzd Return	Anlzd Standard Deviation	Information Ratio	Beta	Sharpe Ratio	Tracking Error
<b>Total Retirement System</b>	<b>9.0</b>	<b>9.9</b>	<b>0.4</b>	<b>0.9</b>	<b>0.7</b>	<b>3.6</b>
<i>Policy Index</i>	7.3	9.9	-	1.0	0.5	0.0
<b>Public Equity</b>	<b>11.5</b>	<b>18.0</b>	<b>-0.2</b>	<b>1.0</b>	<b>0.6</b>	<b>1.2</b>
<i>Public Equity Blended Benchmark</i>	11.9	17.5	-	1.0	0.6	0.0
<b>Total Bonds</b>	<b>2.9</b>	<b>4.2</b>	<b>0.4</b>	<b>0.3</b>	<b>0.2</b>	<b>5.9</b>
<i>Bonds Blended Benchmark</i>	0.3	6.2	-	1.0	-0.3	0.0
<b>Mixed Credit</b>	<b>7.6</b>	<b>7.8</b>	<b>0.3</b>	<b>0.7</b>	<b>0.7</b>	<b>6.3</b>
<i>50% S&amp;P LSTA Lev. Loan/50% Blmbg. High Yield</i>	5.3	7.8	-	1.0	0.4	0.0
<b>Emerging Market Debt</b>	<b>-9.9</b>	<b>23.3</b>	<b>-0.3</b>	<b>0.6</b>	<b>-0.4</b>	<b>22.9</b>
<i>50% JPM EMBI Gbl Div (USD)/50% JPM GBI EM Gbl Div</i>	0.8	11.1	-	1.0	-0.1	0.0
<b>Cash - Short Duration</b>	<b>2.4</b>	<b>0.9</b>	<b>0.1</b>	<b>0.7</b>	<b>0.1</b>	<b>0.8</b>
<i>90 Day U.S. Treasury Bill</i>	2.3	0.7	-	1.0	-	0.0
<i>Short Duration</i>	3.0	1.7	0.4	0.6	0.4	1.7
<i>90 Day U.S. Treasury Bill</i>	2.3	0.7	-	1.0	-	0.0
<b>Private Equity</b>	<b>12.7</b>	<b>7.3</b>	<b>-0.2</b>	<b>0.1</b>	<b>1.3</b>	<b>14.9</b>
<i>Private Equity Blended Benchmark</i>	14.7	13.8	-	1.0	0.9	0.0
<b>Private Debt</b>	<b>8.4</b>	<b>4.3</b>	<b>0.1</b>	<b>-0.1</b>	<b>1.3</b>	<b>8.7</b>
<i>S&amp;P LSTA Lev. Loan + 150 bps 3-mo lag</i>	7.1	7.0	-	1.0	0.7	0.0
<b>Real Assets</b>	<b>6.3</b>	<b>4.7</b>	<b>0.7</b>	<b>0.4</b>	<b>0.8</b>	<b>6.4</b>
<i>Real Assets Blended Benchmark</i>	1.3	8.0	-	1.0	-0.1	0.0
<b>Private Real Estate</b>	<b>5.4</b>	<b>4.9</b>	<b>0.5</b>	<b>0.4</b>	<b>0.6</b>	<b>5.9</b>
<i>Private Real Estate Blended Benchmark</i>	2.2	7.4	-	1.0	0.0	0.0
<b>Public Real Estate</b>	<b>7.4</b>	<b>20.6</b>	<b>0.8</b>	<b>1.0</b>	<b>0.3</b>	<b>2.7</b>
<i>FTSE NAREIT All Equity REITs</i>	5.1	20.8	-	1.0	0.2	0.0
<b>Private Infrastructure</b>	<b>7.7</b>	<b>3.4</b>	<b>0.0</b>	<b>0.0</b>	<b>1.5</b>	<b>17.0</b>
<i>Dow Jones Brookfield Global Infrastructure</i>	5.2	17.4	-	1.0	0.2	0.0
<b>Public Infrastructure</b>	<b>5.6</b>	<b>16.5</b>	<b>0.1</b>	<b>0.9</b>	<b>0.3</b>	<b>2.6</b>
<i>Dow Jones Brookfield Global Infrastructure</i>	5.2	17.4	-	1.0	0.2	0.0
<b>Hedge Funds Portable Alpha</b>	<b>8.5</b>	<b>4.1</b>	<b>2.0</b>	<b>0.7</b>	<b>1.4</b>	<b>2.9</b>
<i>HFRI FOF Conservative Less LIBOR</i>	2.4	4.3	-	1.0	0.0	0.0

Page excludes managers with less than 5 years of history.

## Benchmark Composition

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### **Public Equity Benchmark**

April 2022 - Present	MSCI AC World IMI Index (Net)
Oct 2005 - March 2022	Global Public Equity Blended Benchmark*

### **Bonds Blended Benchmark**

Oct 2005 - Present	Bloomberg U.S. Aggregate Index
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### **Real Assets Blended Benchmark**

July 2022 - Present	NCREIF ODCE Monthly (Net)
July 2008 - June 2022	Real Assets Blended Benchmark*

### **Private Equity Blended Benchmark**

Jan 1999 - Present	Burgis ALL PE Universe
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### **Private Real Estate Blended Benchmark**

July 2022 - Present	NCREIF ODCE Monthly (Net)
July 2008 - June 2022	Private Real Estate Blended Benchmark*
Jan 1978 - June 2008	NCREIF Fund Index-Open End Diversified Core Equity (VW) Net

\* no information on blend composition; periodic performance was provided

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Verus receives universe data from InvMetrics, eVestment Alliance, and Morningstar. We believe this data to be robust and appropriate for peer comparison. Nevertheless, these universes may not be comprehensive of all peer investors/managers but rather of the investors/managers that comprise that database. The resulting universe composition is not static and will change over time. Returns are annualized when they cover more than one year. Investment managers may revise their data after report distribution. Verus will make the appropriate correction to the client account but may or may not disclose the change to the client based on the materiality of the change.



**PERSPECTIVES  
THAT DRIVE  
ENTERPRISE  
SUCCESS**



DECEMBER 2024

Asset-Liability Study

**South Carolina Retirement System Investment Commission**

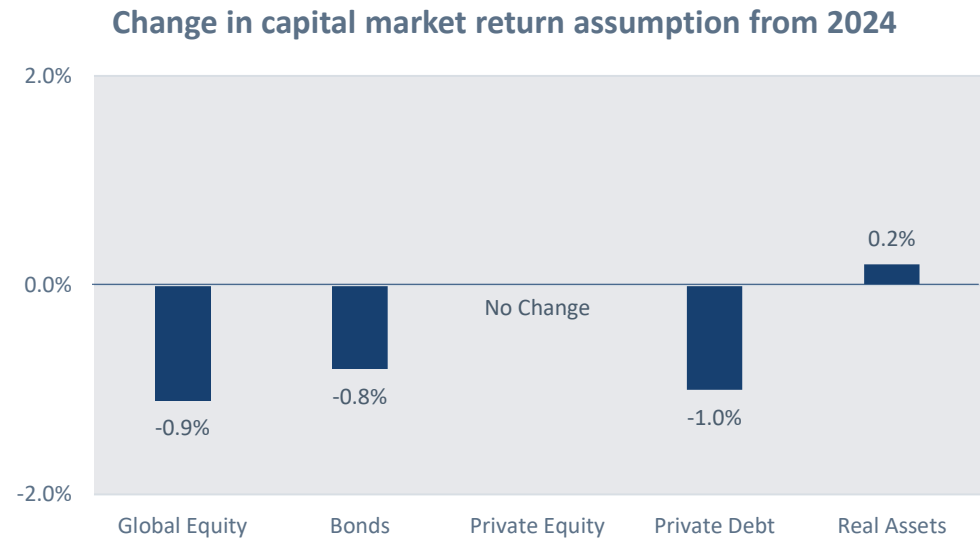
# Executive Summary

- Verus has conducted an asset-liability study for South Carolina RSIC.
  - Based on Verus' 2025 10-year capital market assumptions
  - Five allocations are included in this review:
    1. RSIC current target allocation
    2. Alternative 1 – asset allocation mix closely aligned to the current actual allocation
    3. Alternative 2 – higher risk and return mix with less fixed income and higher allocations to private investments
    4. Alternative 3 – lower risk and return mix with higher fixed income allocation and less private exposure
    5. 70/30 reference portfolio
- Verus recommends RSIC adopt alternative 1 which very closely resembles the current asset allocation position as the new target mix.
  - This portfolio provides continuation of the overall investment strategy which projected combining contributions and investment returns to achieve full funding over the next ~15 years.
  - Expected return of this portfolio mix is 6.8% over 10 years, with a longer-term return assumption of 7.1%
  - It is expected the impact of portable alpha and manager selection will provide additional return to support achieving a return above the 7% actuarial rate.

# Verus 2025 Capital Market Assumptions

- The table below shows the 2025 capital market assumption used for the 5 major asset class categories in the portfolio.
- Public equities, bonds, and private debt all have a meaningful decrease in return assumption since 2024.

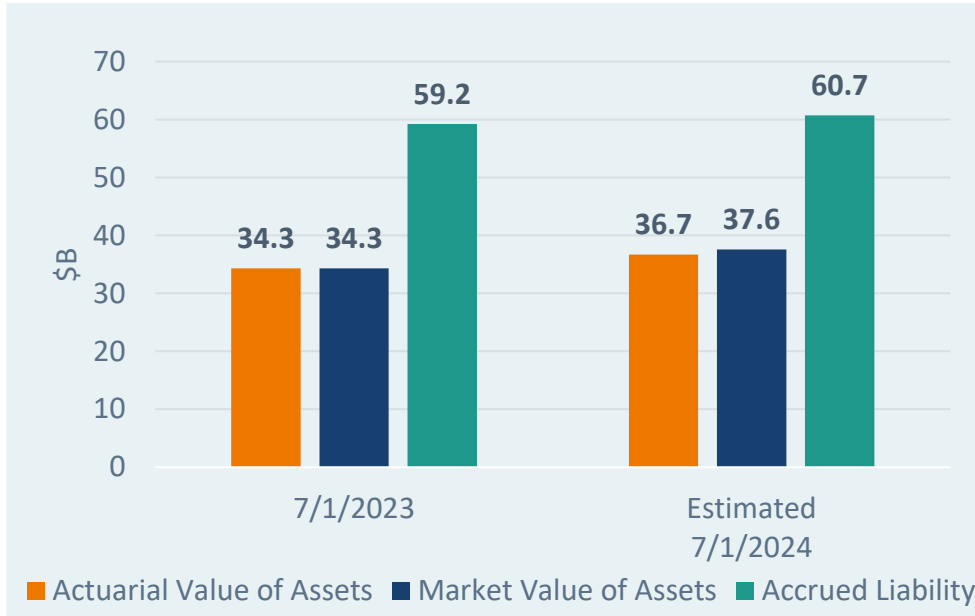
Asset Class	2025 10-Year Forward Expected Return
Public Global Equity	6.0%
Bonds	4.4%
Private Equity	9.0%
Private Debt	8.2%
Real Assets	8.3%





# Current state review

## SCRS ASSETS AND LIABILITIES (\$B)



7/1/2023 <sup>1</sup>	SCRS	Estimated 7/1/2024 <sup>2</sup>
58%	AVA Funded Ratio	60%
58%	MVA Funded Ratio	62%
7.00%	Discount Rate	7.00%

<sup>1</sup>Based on SCRS' 2023 valuation report.

<sup>2</sup>FYE 2024 liabilities reflect projection provided by GRS. FYE 2024 assets reflect actual fiscal 2024 total portfolio performance of 10.5% and expected cashflows.

<sup>3</sup>23 years at 7/1/24, decreasing by 1 annually until a 20-year amortization period is reached.

	Current Target Mix
Global Equity	46
Bonds	26
Private Equity	9
Private Debt	7
Real Assets	12
<b>Forecast 10 Year Return</b>	<b>6.7%</b>

- Excess returns improved the plan's funding levels during fiscal 2024
- The minimum annual statutory employer contribution is the greater of: 1) 18.56% of payroll or 2) the contribution rate that would be required to achieve full funding in 20 years<sup>1</sup>
- 10-year return forecast of the target allocation is 6.7%, relative to 7.0% actuarial return requirement. This does not include the impact from portable alpha or from other active management.
- Analysis reflects SCRS plan only, which makes up 85% of total system liability

# Alternative asset allocation mixes

	Current Target Mix	Alternative 1	Alternative 2	Alternative 3	70/30 Reference Portfolio
Global Equity	46	43	43	41	70
Bonds	26	25	20	35	30
Private Equity	9	12	15	7	0
Private Debt	7	8	10	7	0
Real Assets	12	12	12	10	0
<b>Forecast 10 Year Return</b>	<b>6.7</b>	<b>6.8</b>	<b>7.1</b>	<b>6.4</b>	<b>5.7</b>
<b>Forecast 30 Year Return</b>	<b>7.0</b>	<b>7.1</b>	<b>7.3</b>	<b>6.8</b>	<b>6.0</b>
Standard Deviation	11.9	12.1	12.7	10.7	12.3
25th percentile ret. - 1 year	-1.0	-0.9	-1.1	-0.5	-2.3
5th percentile ret. - 1 year	-11.0	-11.1	-11.8	-9.7	-12.7

Similar to the current actual allocation

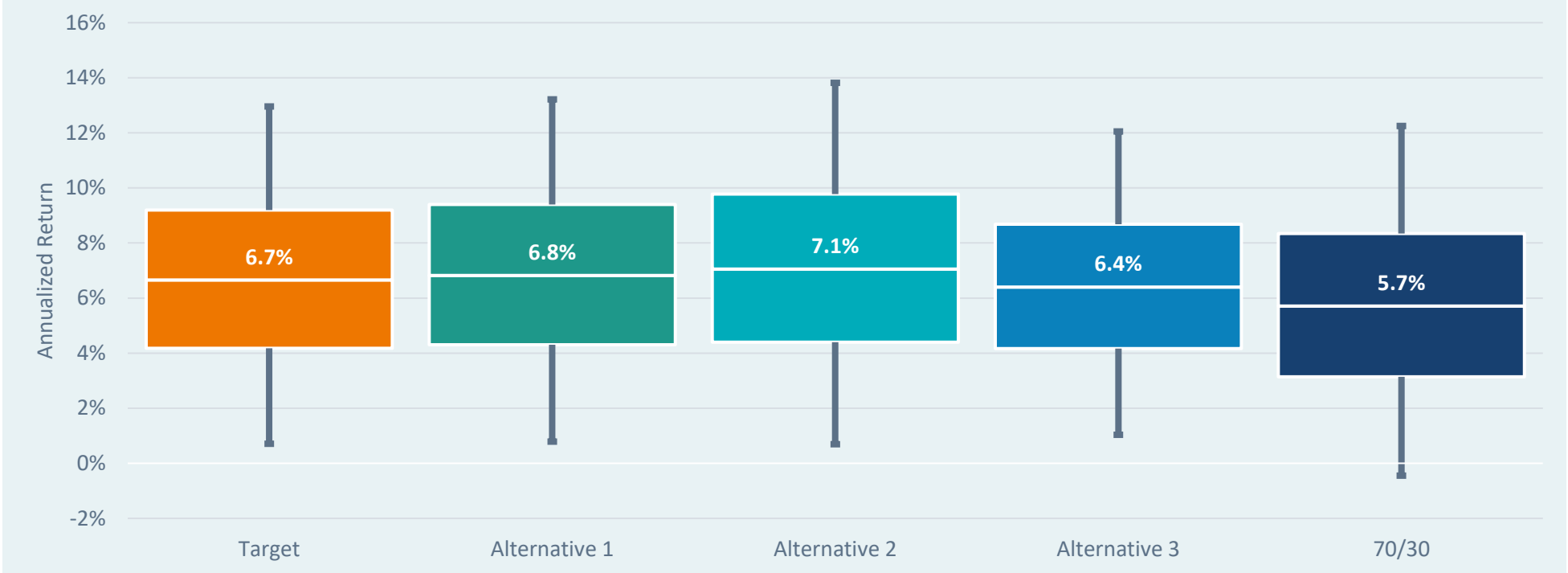
Higher risk/return portfolio

Lower risk/return portfolio

*Based on Verus' 2025 capital market assumptions. 25th and 5th percentile returns based on 10-year CMAs.*

# Distribution of expected returns

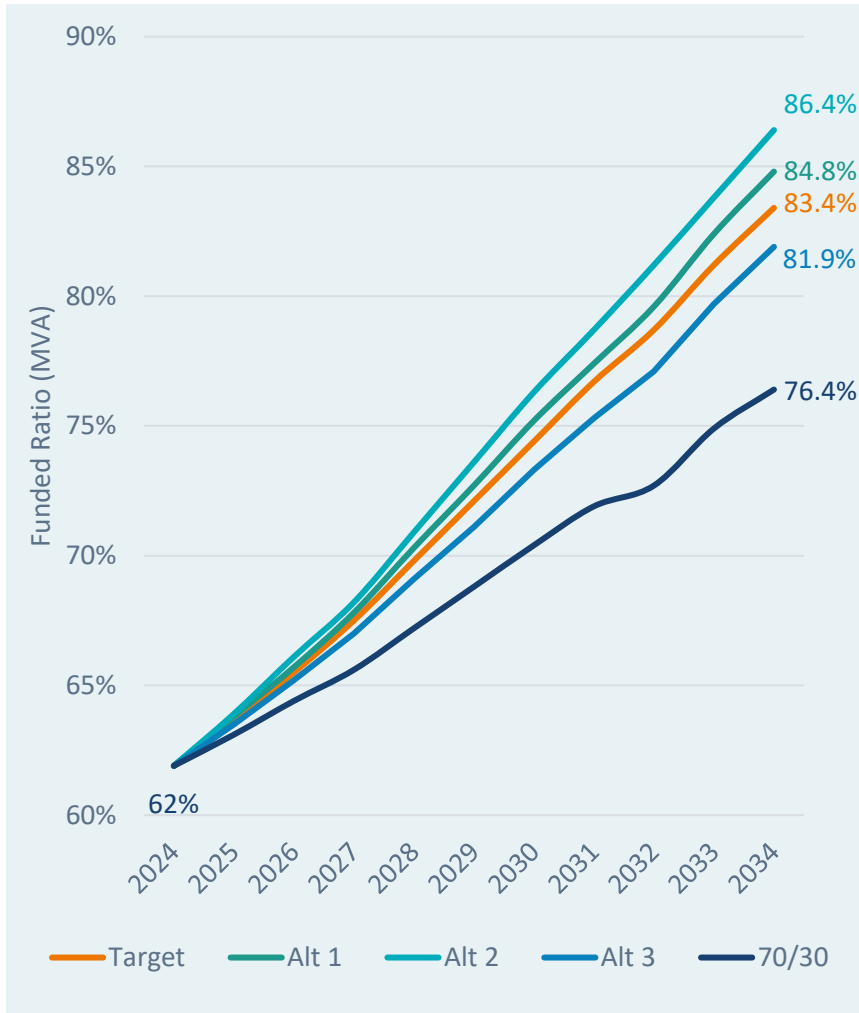
## 10-YEAR ANNUALIZED RETURN DISTRIBUTION



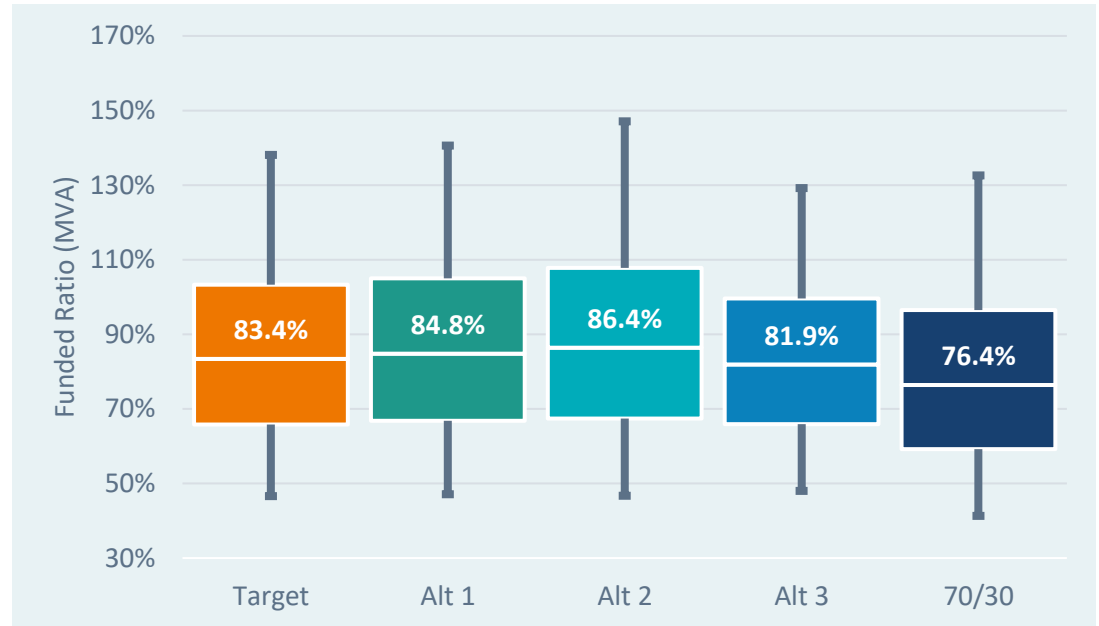
10-Year Annualized Return Percentile	Target	Alternative 1	Alternative 2	Alternative 3	70/30
95%	13.0%	13.2%	13.8%	12.1%	12.2%
75%	9.2%	9.4%	9.8%	8.7%	8.3%
<b>50%</b>	<b>6.7%</b>	<b>6.8%</b>	<b>7.1%</b>	<b>6.4%</b>	<b>5.7%</b>
25%	4.2%	4.3%	4.4%	4.2%	3.1%
5%	0.7%	0.8%	0.7%	1.0%	-0.4%

# Funded ratio (MVA) – Next 10 years

FUNDED RATIO (MVA) MEDIAN PROJECTION



JULY 1, 2034 FUNDED RATIO (MVA) DISTRIBUTION

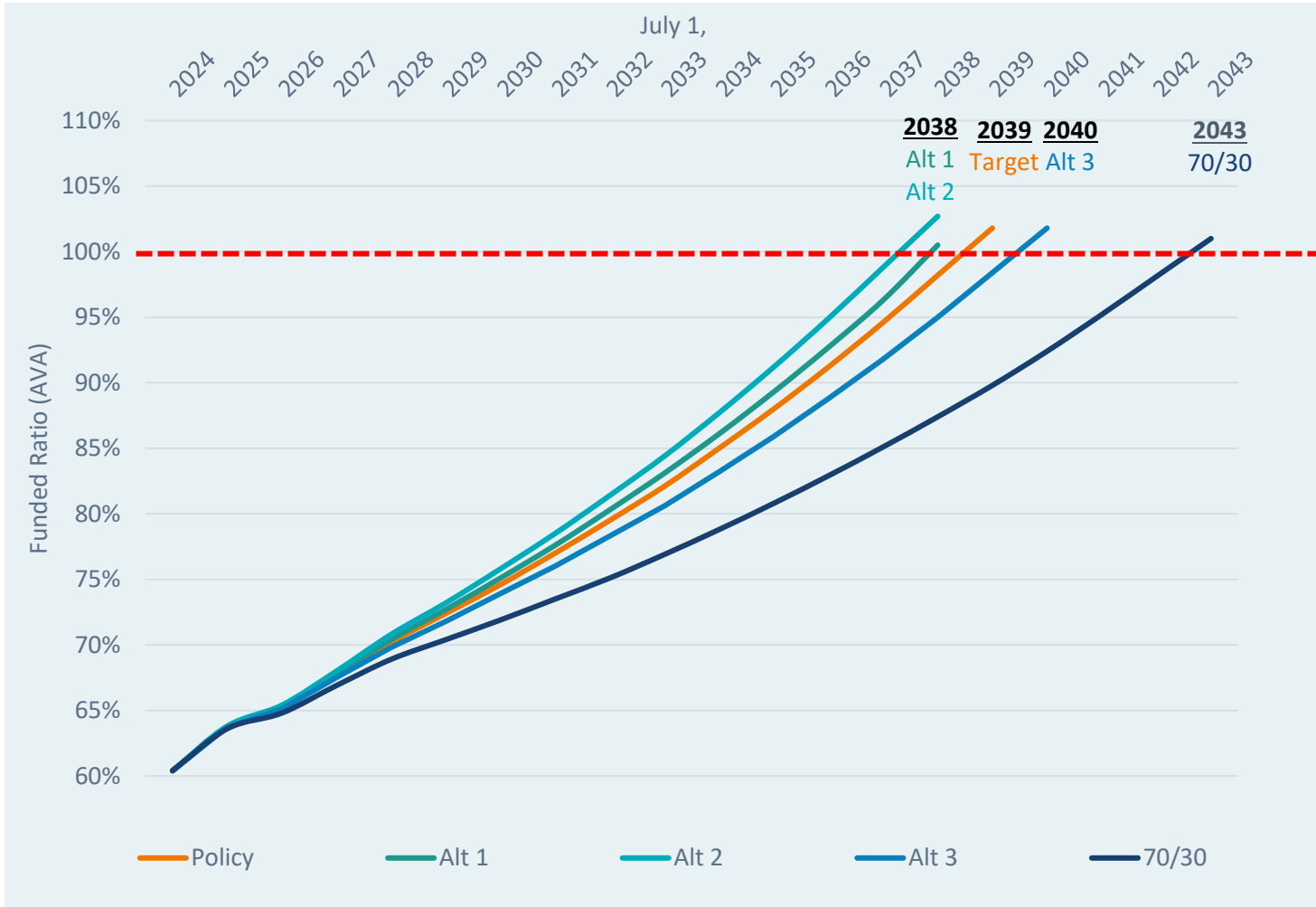


2034 Funded Ratio (MVA)	Target	Alt 1	Alt 2	Alt 3	70/30
<b>Percentile</b>					
95%	138.1%	140.6%	147.1%	129.2%	132.6%
75%	103.3%	105.0%	107.8%	99.6%	96.5%
<b>50%</b>	<b>83.4%</b>	<b>84.8%</b>	<b>86.4%</b>	<b>81.9%</b>	<b>76.4%</b>
25%	65.8%	66.8%	67.4%	65.9%	59.2%
<b>5%</b>	<b>46.6%</b>	<b>47.1%</b>	<b>46.7%</b>	<b>48.0%</b>	<b>41.3%</b>
<b>Probability</b>					
> Target	N/A	79%	80%	30%	10%
> 85% MVA FR	48%	50%	52%	45%	38%

Source: Reflects 5,000 simulations of assets and liabilities based on Verus' 2025 capital market assumptions. See appendix for additional details.

# Funded ratio (AVA) - Time to full funding

FUNDED RATIO (AVA) MEDIAN PROJECTION



Employer contributions are ~\$3.5B annually until full funding is reached (~2040). Thereafter, contributions are expected to fall to ~\$1B annually.

The below table estimates the expected employer cost to achieve full funding, for the various portfolios:

Portfolio	Total Employer Cost (\$B) <sup>1</sup>	Delta
Target	38.8	N/A
Alt 1	37.1	-1.7
Alt 2	35.1	-3.7
Alt 3	41.9	+3.1
70/30	52.6	+14.8

Source: Reflects deterministic projections of assets and liabilities. Assumes forecasted return is earned each year of the projection. See appendix for additional details.

<sup>1</sup>Employer portion of normal cost subtracted from contributions so that only contributions going toward deficit is captured in total employer cost amount.

# Risk Analysis: Simulated performance during historical market events

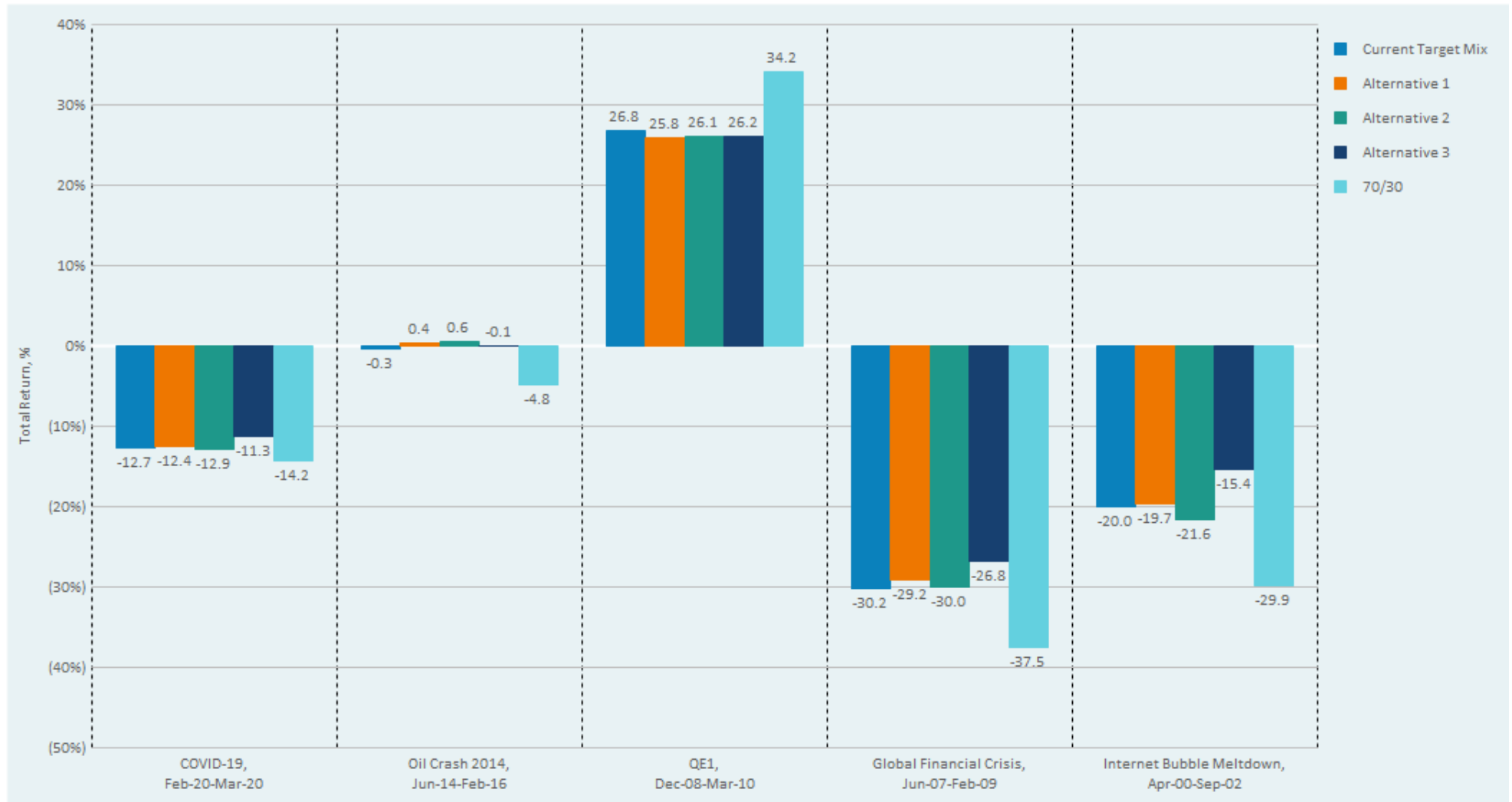


Chart illustrates how each portfolio asset mix performed during a variety of historical periods, given conditions at that historical time, and given the specified rebalancing frequency.

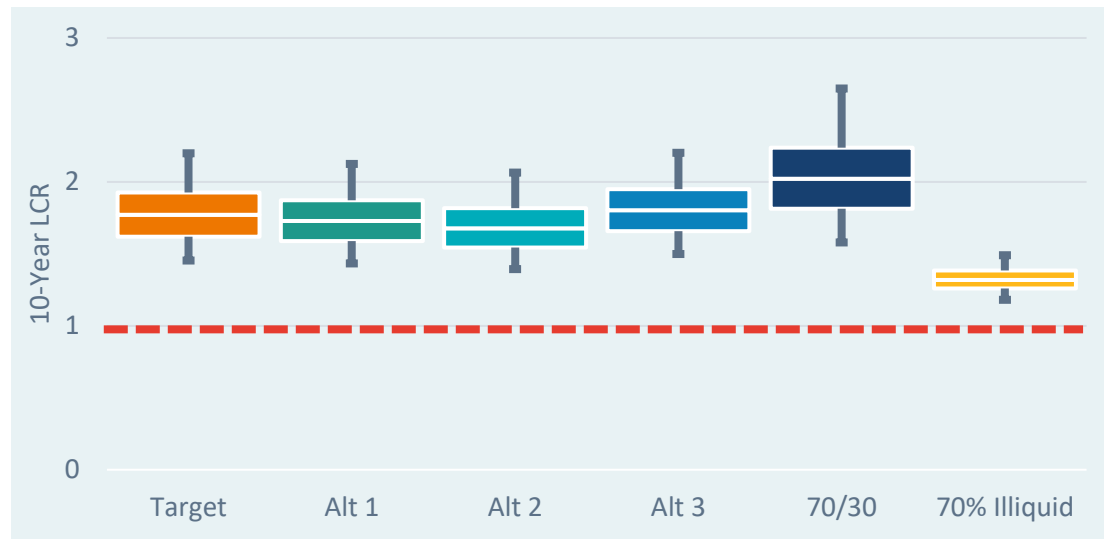
# Risk Analysis: Simulated performance during stress scenarios



Chart estimates the total portfolio performance of each asset mix, given a specific shock to the portfolio. This is calculated based on the sensitivity of all of the exposures in an asset mix to a given shock. For example, the historical sensitivity of each exposure to a 50 basis point rise in the 10-year U.S. Treasury yield.

# Liquidity coverage ratio analysis

DISTRIBUTION OF 10-YEAR LCR OUTCOMES



- Liquidity Coverage Ratio (LCR) measures the fund’s liquid assets and expected cash inflows to expected cash outflows.
- The fund is expected to have sufficient liquidity to meet cashflow needs over the next 10 years, even in adverse return scenarios.
- The cash flow profile is expected to turn negative when the plan reaches full funding. The plan’s liquidity profile should therefore continue to be monitored as the plan’s funding improves.

10-Year LCR	Target	Alt 1	Alt 2	Alt 3	70/30	70% Illiquid Portfolio
<b>Percentile</b>						
95%	2.20	2.12	2.06	2.20	2.65	1.49
75%	1.93	1.87	1.82	1.95	2.24	1.38
50%	1.77	1.73	1.68	1.80	2.02	1.32
25%	1.62	1.59	1.54	1.66	1.81	1.26
5%	1.45	1.43	1.39	1.50	1.58	1.18
<b>Probability of Liquidity Event</b>	<b>0.00%</b>	<b>0.00%</b>	<b>0.00%</b>	<b>0.00%</b>	<b>0.00%</b>	<b>0.02%</b>

*Based on 1,000 monte carlo simulations of liquidity coverage ratio. See appendix for additional details. Assumes benefit payments and private market cashflows are as expected. Contributions reflect actual modeled performance and the plan’s funding policy.*



# Recommendation

- Verus recommends RSIC adopt alternative 1 as the updated target policy mix, which very closely resembles the current asset allocation position as the new target mix.

	Alternative 1
Global Equity	43
Bonds	25
Private Equity	12
Private Debt	8
Real Assets	12
<b>Forecast 10 Year Return</b>	<b>6.8</b>
<b>Forecast 30 Year Return</b>	<b>7.1</b>
Standard Deviation	12.1

- This portfolio provides continuation of the overall investment strategy put into place following passage of the pension reform bill which combines contributions and investment returns to achieve full funding over the next ~15 years.
- Expected return of this portfolio mix is 6.8% over 10 years, with a longer-term return assumption of 7.1%
- It is expected the impact of portable alpha and manager selection will provide additional return to support achieving a return above the 7% actuarial rate.

# Appendix

# Assumptions and methods

Unless otherwise stated, all assumptions and methods are consistent with SC RSIC's 2023 actuarial valuation report.

<b>Assets</b>	<p><b>Cashflows:</b> Contributions, benefit payments, and administrative expenses are assumed to occur at mid-year.</p> <p><b>Stochastic assumptions:</b> Modeled using Verus 2025 CMAs. See appendix for details. Returns in stochastic scenarios are modeled randomly starting July 1, 2024.</p> <p><b>Allocation:</b> Allocations are assumed to remain constant during projection.</p>
<b>Liabilities</b>	<p><b>Actuarial projection provider:</b> Liability projections were provided by South Carolina RSIC.</p> <p><b>Actuarial Cost Method:</b> Entry Age Normal</p> <p><b>Census Date:</b> July 1, 2023</p> <p><b>Discount Rate:</b> 7.0%</p>
<b>Funding Methodology (ADC)</b>	<p>The minimum annual statutory employer contribution is the greater of: 1) 18.56% of payroll or 2) the contribution rate that would be required to achieve full funding in 23 years in fiscal 2025, decreasing by 1 year annually until a minimum 20 year amortization period is reached.</p>
<b>Actuarial Value of Assets</b>	<p>Five-year smoothing</p>

# Heat map

## Funded status and contributions

		Funded Ratio (MVA)										
June 30,		2024	2026	2028	2030	2032	2034	2036	2038	2040	2042	2044
Annual Investment Return	1.0%	62%	59%	56%	53%	50%	47%	44%	42%	39%	37%	36%
	2.0%	62%	60%	58%	56%	54%	52%	51%	49%	47%	46%	44%
	3.0%	62%	61%	60%	60%	59%	58%	58%	57%	56%	56%	56%
	4.0%	62%	62%	63%	63%	64%	65%	65%	66%	67%	69%	70%
	5.0%	62%	64%	65%	67%	69%	72%	74%	77%	80%	83%	87%
	6.0%	62%	65%	68%	71%	75%	79%	84%	89%	94%	101%	99%
	7.0%	62%	66%	71%	76%	81%	87%	94%	102%	103%	103%	104%
	8.0%	62%	67%	73%	80%	88%	96%	106%	109%	112%	114%	117%
	9.0%	62%	69%	76%	85%	95%	106%	111%	116%	121%	126%	131%

The heat map shows the impacts of varying returns to the plan's funded status and contribution requirements.

Significantly adverse returns would be required before SC RSIC would need to increase the contribution rate beyond 18.56%.

		Annual Contributions (\$B)										Fiscal 25-44 Total
Fiscal Year		2025	2027	2029	2031	2033	2035	2037	2039	2041	2043	
Annual Investment Return	1.0%	2.5	2.6	2.7	2.9	3.0	3.2	3.3	3.4	3.5	3.7	64
	2.0%	2.5	2.6	2.7	2.9	3.0	3.2	3.3	3.4	3.5	3.6	63
	3.0%	2.5	2.6	2.7	2.9	3.0	3.2	3.3	3.4	3.5	3.6	63
	4.0%	2.5	2.6	2.7	2.9	3.0	3.2	3.3	3.4	3.5	3.6	63
	5.0%	2.5	2.6	2.7	2.9	3.0	3.2	3.3	3.4	3.5	3.6	63
	6.0%	2.5	2.6	2.7	2.9	3.0	3.2	3.3	3.4	3.5	3.6	57
	7.0%	2.5	2.6	2.7	2.9	3.0	3.2	3.3	3.4	0.8	0.8	46
	8.0%	2.5	2.6	2.7	2.9	3.0	3.2	0.7	0.7	0.6	0.6	39
	9.0%	2.5	2.6	2.7	2.9	3.0	0.7	0.6	0.6	0.5	0.4	32

Assumes returns are as stated on slide in each year of projection. See appendix for additional details.

# Capital market assumptions

# Methodology

## SUMMARY OF THE VERUS APPROACH

- We use a fundamental building block approach to forecast asset class returns, based on several inputs. These include practitioner best-in-class thinking, historical data, and academic research. Each year Verus conducts an in-depth review of our methodology, analyzing new industry research findings and evaluating alternative forecasting approaches to determine whether an improvement to our methodology might be warranted. We maintain flexibility and openness to adjusting our approach if strong evidence suggests change is appropriate.
- For most asset classes, we use the long-term historical volatility after adjusting for autocorrelation.
- Correlations between asset classes are calculated based on the last 10 years. For illiquid assets, such as private equity and private real estate, we use BarraOne correlation estimates.

Asset	Return Methodology	Volatility Methodology*
Inflation	25% weight to the University of Michigan Survey 5-10 year ahead inflation expectation and the Survey of Professional Forecasters (Fed Survey), and the remaining 50% to the market's expectation for inflation as observed through the 10-year TIPS breakeven rate	-
Cash	$1/3 * \text{current federal funds rate} + 1/3 * \text{U.S. 10-year Treasury yield} + 1/3 * \text{Federal Reserve long-term interest rate target}$	Long-term volatility
Bonds	Nominal bonds: current yield; Real bonds: real yield + inflation forecast	Long-term volatility
International Bonds	Current yield	Long-term volatility
Credit	Current option-adjusted spread + U.S. 10-year Treasury – effective default rate	Long-term volatility
International Credit	Current option-adjusted spread + foreign 10-year Treasury – effective default rate	Long-term volatility
Private Credit	Levered gross return (SOFR + spread + original issuance discounts) – management fees – carried interest	Estimated volatility
Equity	Current yield + real earnings growth (historical average) + inflation on earnings (inflation forecast) + expected P/E change	Long-term volatility
Intl Developed Equity	Current yield + real earnings growth (historical average) + inflation on earnings (intl. inflation forecast) + expected P/E change	Long-term volatility
Private Equity**	US large cap domestic equity forecast * 1.85 beta adjustment	Implied annualized volatility, using actual historical private equity performance distribution
Commodities	Collateral return (cash) + spot return (inflation forecast) + roll return (assumed to be zero)	Long-term volatility
Hedge Funds	Return coming from traditional market betas + historical idiosyncratic/alpha return	Long-term volatility
Core Real Estate	Cap rate + real income growth – capex + inflation forecast	65% of REIT volatility
REITs	Core real estate	Long-term volatility
Value-Add Real Estate	Core real estate + 2%	Volatility to produce Sharpe Ratio (g) equal to core real estate
Opportunistic Real Estate	Core real estate + 3%	Volatility to produce Sharpe Ratio (g) equal to core real estate
Infrastructure	Current yield + real income growth + inflation on earnings (inflation forecast)	Long-term volatility
Risk Parity	Modeled as the 10-year return expectations of a <i>representative selection of Risk Parity strategies</i>	Target volatility

\*Long-term historical volatility data is adjusted for autocorrelation (see Appendix)

\*\*Private Equity is modeled assuming an 8.0% floor for expected return, and a 3% return premium ceiling over U.S. Large Cap Equity. These adjustments are in place to recognize that higher interest rates (cost of leverage) act as a drag on expected Private Equity returns but that this drag has had limits historically, and to recognize that future Private Equity total universe performance is likely to be more anchored to public equity performance than in past times, given a more competitive market environment

# 10-year return & risk assumptions

Asset Class	Index Proxy	Ten Year Return		Standard Deviation Forecast	Sharpe Ratio Forecast (g)	Sharpe Ratio Forecast (a)	10-Year Historical Sharpe Ratio (g)	10-Year Historical Sharpe Ratio (a)
		Forecast						
		Geometric	Arithmetic					
<b>Equities</b>								
U.S. Large	S&P 500	5.3%	6.4%	15.5%	0.10	0.17	0.77	0.80
U.S. Small	Russell 2000	6.3%	8.4%	21.3%	0.12	0.22	0.35	0.44
International Developed	MSCI EAFE	6.7%	8.1%	17.5%	0.17	0.25	0.27	0.33
International Small	MSCI EAFE Small Cap	8.8%	10.8%	21.4%	0.23	0.33	0.27	0.35
Emerging Markets	MSCI EM	7.0%	9.6%	24.2%	0.13	0.24	0.14	0.22
Global Equity	MSCI ACWI	6.0%	7.3%	16.7%	0.13	0.21	0.52	0.57
Global Equity ex USA	MSCI ACWI ex USA	7.0%	8.7%	19.3%	0.17	0.25	0.24	0.31
Private Equity	CA Private Equity	8.0%	10.9%	26.0%	0.16	0.27	-	-
Private Equity Direct	CA Private Equity	9.0%	11.9%	26.0%	0.20	0.31	-	-
Private Equity (FoF)	CA Private Equity	7.0%	10.0%	26.0%	0.12	0.23	-	-
<b>Fixed Income</b>								
Cash	30 Day T-Bills	3.8%	3.8%	1.1%	-	-	-	-
U.S. TIPS	Bloomberg U.S. TIPS 5-10	4.0%	4.2%	5.5%	0.04	0.07	0.18	0.20
Non-U.S. Inflation Linked Bonds	Bbg World Govt. Inflation Linked ex U.S.	3.4%	3.7%	7.4%	-0.05	-0.01	-0.03	0.01
U.S. Treasury	Bloomberg Treasury 7-10 Year	3.8%	4.0%	7.1%	0.00	0.03	-0.02	0.01
Long U.S. Treasury	Bloomberg Treasury 20+ Year	4.1%	4.9%	13.4%	0.02	0.08	-0.06	0.01
Global Sovereign ex U.S.	Bloomberg Global Treasury ex U.S.	2.2%	2.7%	10.0%	-0.16	-0.11	-0.30	-0.26
Global Aggregate	Bloomberg Global Aggregate	3.4%	3.6%	6.7%	-0.06	-0.03	-0.17	-0.14
Core Fixed Income	Bloomberg U.S. Aggregate Bond	4.3%	4.4%	4.7%	0.11	0.13	0.04	0.06
Core Plus Fixed Income	Bloomberg U.S. Universal	4.4%	4.5%	4.7%	0.13	0.15	0.10	0.13
Investment Grade Corp. Credit	Bloomberg U.S. Corporate IG	4.6%	4.9%	8.4%	0.10	0.13	0.19	0.22
Short-Term Gov't/Credit	Bloomberg U.S. Gov't/Credit 1-3 Year	3.9%	3.9%	3.6%	0.03	0.03	0.00	0.00
Short-Term Credit	Bloomberg Credit 1-3 Year	4.2%	4.3%	3.6%	0.11	0.14	0.28	0.29
Intermediate Credit	Bloomberg U.S. Intermediate Credit	4.3%	4.5%	5.9%	0.08	0.12	0.19	0.25
Long-Term Credit	Bloomberg Long U.S. Credit	4.6%	5.2%	11.1%	0.07	0.13	0.13	0.19
High Yield Corp. Credit	Bloomberg U.S. Corporate High Yield	5.6%	6.1%	10.8%	0.17	0.21	0.45	0.47
Bank Loans	S&P/LSTA Leveraged Loan	6.9%	7.3%	8.8%	0.35	0.40	0.58	0.59
Global Credit	Bloomberg Global Credit	4.1%	4.4%	7.8%	0.04	0.08	0.07	0.10
Emerging Markets Debt (Hard)	JPM EMBI Global Diversified	7.7%	8.2%	10.5%	0.37	0.42	0.18	0.22
Emerging Markets Debt (Local)	JPM GBI-EM Global Diversified	5.8%	6.5%	12.1%	0.17	0.22	-0.10	-0.04
Securitized Credit	Bloomberg U.S. Securitized	4.7%	4.8%	4.0%	0.23	0.25	-0.03	-0.01

Investors wishing to produce expected geometric return forecasts for their portfolios should use the arithmetic return forecasts provided here as inputs into that calculation, rather than the single-asset-class geometric return forecasts. This is the industry standard approach, but requires a complex explanation only a heavy quant could love, so we have chosen not to provide further details in this document – we will happily provide those details to any readers of this who are interested.

# 10-year return & risk assumptions

Asset Class	Index Proxy	Ten Year Return		Standard Deviation Forecast	Sharpe Ratio Forecast (g)	Sharpe Ratio Forecast (a)	10-Year Historical Sharpe Ratio (g)	10-Year Historical Sharpe Ratio (a)
		Forecast	Geometric Arithmetic					
<b>Fixed Income (continued)</b>								
Private Credit	S&P LSTA Leveraged Loan Index	8.2%	8.8%	11.8%	0.37	0.42	-	-
Private Credit (Direct Lending - Unlevered)	S&P LSTA Leveraged Loan Index	7.1%	7.5%	8.8%	0.38	0.42	-	-
Private Credit (Direct Lending - Levered)	S&P LSTA Leveraged Loan Index	8.3%	8.9%	11.8%	0.38	0.43	-	-
Private Credit (Credit Opportunities)	S&P LSTA Leveraged Loan Index	8.8%	9.6%	13.4%	0.37	0.43	-	-
Private Credit (Junior Capital / Mezzanine)	S&P LSTA Leveraged Loan Index	8.6%	9.4%	12.9%	0.37	0.43	-	-
Private Credit (Distressed)	S&P LSTA Leveraged Loan Index	9.1%	12.7%	29.1%	0.18	0.31	-	-
<b>Other</b>								
Commodities	Bloomberg Commodity	6.3%	7.4%	16.0%	0.16	0.23	-0.11	-0.04
Hedge Funds	HFRI Fund Weighted Composite	5.0%	5.3%	7.5%	0.16	0.20	0.55	0.56
Hedge Fund of Funds	HFRI Fund of Funds Composite	4.0%	4.3%	7.5%	0.03	0.07	0.39	0.41
Hedge Funds (Equity Style)	Custom HFRI Benchmark Mix*	5.4%	6.3%	13.9%	0.12	0.18	0.37	0.42
Hedge Funds (Credit Style)	Custom HFRI Benchmark Mix*	5.2%	5.6%	9.2%	0.15	0.20	0.61	0.62
Hedge Funds (Assymmetric Style)	Custom HFRI Benchmark Mix*	5.4%	5.6%	6.3%	0.25	0.29	0.55	0.56
Real Estate Debt	Bloomberg CMBS IG	6.8%	7.1%	7.4%	0.41	0.45	0.20	0.22
Core Real Estate	NCREIF Property	7.2%	7.9%	12.5%	0.27	0.33	-	-
Value-Add Real Estate	NCREIF Property + 200bps	9.2%	10.3%	15.4%	0.35	0.42	-	-
Opportunistic Real Estate	NCREIF Property + 300bps	10.2%	12.1%	21.2%	0.30	0.39	-	-
REITs	Wilshire REIT	7.2%	8.8%	19.2%	0.18	0.26	0.34	0.41
Global Infrastructure	S&P Global Infrastructure	8.1%	9.4%	16.8%	0.26	0.33	0.24	0.31
Risk Parity**	S&P Risk Parity 10% Vol Index	6.3%	7.1%	10.0%	0.25	0.33	0.40	0.44
Currency Beta	MSCI Currency Factor Index	2.2%	2.3%	3.3%	-0.48	-0.45	-0.30	-0.28
Inflation		2.4%	-	-	-	-	-	-
60/40 Portfolio	MSCI ACWI / Bbg U.S. Agg	5.5%	6.0%	10.9%	0.16	0.20	0.50	0.53

Investors wishing to produce expected geometric return forecasts for their portfolios should use the arithmetic return forecasts provided here as inputs into that calculation, rather than the single-asset-class geometric return forecasts. This is the industry standard approach, but requires a complex explanation only a heavy quant could love, so we have chosen not to provide further details in this document – we will happily provide those details to any readers of this who are interested.

\*To represent hedge fund styles, we use a combination of HFRI benchmarks: Equity Style = 33% HFRI Fundamental Growth, 33% HFRI Fundamental Value, 33% HFRI Activist. Credit Style = 20% HFRI Distressed/Restructuring, 20% HFRI Credit Arbitrage, 20% HFRI Fixed Income-Corporate, 20% HFRI Fixed Income-Convertible Arbitrage, 20% HFRI Fixed Income-Asset Backed. Asymmetric Style = 50% HFRI Relative Value, 50% HFRI Macro

\*\*The Risk Parity forecast shown here assumes a 10% target volatility strategy. We recommend customizing this forecast to the target volatility specifications of the risk parity strategy that an investor wishes to model. Please speak with your Verus consultants for customization needs.



# 30-year return & risk assumptions

- Occasionally investors may have a specific need for longer-term capital market forecasts. We have developed a set of 30-year assumptions to meet those needs.
- The return forecasts below have been constructed using our existing building block approach, but with longer-term inputs. Risks and correlations are estimated using the same approach as our 10-year forecasts, using full-history autocorrelation-adjusted realized risk and past 10 year realized correlations.
- These return figures must be thought of separately from our 10-year forecasts and are not meant to imply performance for the 20 years *beyond* our 10-year forecasts.
- Please reach out to your Verus consultant with questions regarding whether 30-year Capital Market Assumptions might be appropriate for your needs.

Asset Class	Index Proxy	Thirty Year Return Forecast		Standard Deviation Forecast	Sharpe Ratio Forecast (g)	Sharpe Ratio Forecast (a)
		Geometric	Arithmetic			
<b>Equities</b>						
U.S. Large	S&P 500	5.7%	6.8%	15.5%	0.12	0.19
U.S. Small	Russell 2000	6.6%	8.6%	21.3%	0.13	0.22
International Developed	MSCI EAFE	6.7%	8.1%	17.5%	0.16	0.24
International Small	MSCI EAFE Small Cap	7.6%	9.6%	21.4%	0.17	0.27
Emerging Markets	MSCI EM	7.0%	9.6%	24.2%	0.13	0.24
Global Equity	MSCI ACWI	6.2%	7.4%	16.7%	0.14	0.21
Global Equity ex-US	MSCI ACWI ex-US	7.0%	8.5%	19.3%	0.16	0.24
Private Equity	Cambridge U.S. Private Equity	8.0%	10.9%	26.0%	0.16	0.27
Private Equity (Direct)	Cambridge U.S. Private Equity	9.0%	11.9%	26.0%	0.20	0.31
Private Equity (Fund of Funds)	Cambridge U.S. Private Equity	7.0%	10.0%	26.0%	0.12	0.23
<b>Fixed Income</b>						
Cash	30 Day T-Bills	3.9%	3.9%	1.1%	-	-
U.S. TIPS	Bloomberg U.S. TIPS 5 - 10	4.1%	4.2%	5.5%	0.04	0.05
Non-U.S. Inflation Linked Bonds	BBG World Govt. Inflation Linked Bond ex U.S.	3.4%	4.3%	7.4%	-0.07	0.05
U.S. Treasury	Bloomberg Treasury 7-10 Year	4.1%	4.3%	7.1%	0.03	0.06
Long U.S. Treasury	Bloomberg U.S. Treasury 20+ Year	4.1%	4.9%	13.4%	0.01	0.07
Global Sovereign ex U.S.	Bloomberg Global Treasury ex U.S.	3.0%	3.5%	10.0%	-0.09	-0.04
Global Aggregate	Bloomberg Global Aggregate	3.5%	3.7%	6.7%	-0.06	-0.03
Core Fixed Income	Bloomberg U.S. Aggregate Bond	4.9%	5.0%	4.7%	0.21	0.23
Core Plus Fixed Income	Bloomberg U.S. Universal	5.3%	5.4%	4.7%	0.30	0.32
Investment Grade Corp. Credit	Bloomberg U.S. Corporate Investment Grade	5.2%	5.5%	8.4%	0.15	0.19
Short-Term Gov't/Credit	Bloomberg U.S. Gov't/Credit 1 - 3 year	4.3%	4.4%	3.6%	0.11	0.14
Short-Term Credit	Bloomberg Credit 1-3 Year	4.9%	5.0%	3.6%	0.28	0.31
Intermediate Credit	Bloomberg U.S. Intermediate Credit	5.2%	5.4%	5.9%	0.22	0.25
Long-Term Credit	Bloomberg Long U.S. Credit	5.3%	5.9%	11.1%	0.13	0.18
High Yield Corp. Credit	Bloomberg U.S. Corporate High Yield	6.8%	7.3%	10.8%	0.27	0.31
Bank Loans	Morningstar Leveraged Loan	7.3%	7.7%	8.8%	0.39	0.43
Global Credit	Bloomberg Global Credit	3.1%	3.4%	7.8%	-0.10	-0.06
Emerging Markets Debt (Hard)	JPM EMBI Global Diversified	8.3%	8.8%	10.5%	0.42	0.47
Emerging Markets Debt (Local)	JPM GBI EM Global Diversified	5.8%	6.5%	12.1%	0.16	0.21
Securitized Credit	Bloomberg U.S. Securitized	5.3%	5.4%	4.0%	0.35	0.38

# 30-year return & risk assumptions

- Occasionally investors may have a specific need for longer-term capital market forecasts. We have developed a set of 30-year assumptions to meet those needs.
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- These return figures must be thought of separately from our 10-year forecasts and are not meant to imply performance for the 20 years *beyond* our 10-year forecasts.
- Please reach out to your Verus consultant with questions regarding whether 30-year Capital Market Assumptions might be appropriate for your needs.

Asset Class	Index Proxy	Thirty Year Return Forecast		Standard Deviation Forecast	Sharpe Ratio Forecast (g)	Sharpe Ratio Forecast (a)
		Geometric	Arithmetic			
<b>Fixed Income (Continued)</b>						
Private Credit	Morningstar LSTA Leveraged Loan Index	8.2%	8.8%	11.8%	0.36	0.42
Private Credit (Direct Lending - Unlevered)	Morningstar LSTA Leveraged Loan Index	7.1%	7.5%	8.8%	0.36	0.41
Private Credit (Direct Lending - Levered)	Morningstar LSTA Leveraged Loan Index	8.3%	8.9%	11.8%	0.37	0.42
Private Credit (Credit Opportunities)	Morningstar LSTA Leveraged Loan Index	8.8%	9.6%	13.4%	0.37	0.43
Private Credit (Junior Capital / Mezzanine)	Morningstar LSTA Leveraged Loan Index	8.6%	9.4%	12.9%	0.36	0.43
Private Credit (Distressed)	Morningstar LSTA Leveraged Loan Index	9.1%	12.7%	29.1%	0.18	0.30
<b>Other</b>						
Commodities	Bloomberg Commodity	6.1%	7.3%	16.0%	0.14	0.21
Hedge Funds	HFRI Fund Weighted Composite	5.4%	5.7%	7.5%	0.20	0.24
Hedge Fund of Funds	HFRI Fund of Funds Composite	4.4%	4.7%	7.5%	0.07	0.11
Hedge Fund (Equity Style)	Custom HFRI Benchmark Mix*	5.5%	6.4%	13.9%	0.12	0.18
Hedge Fund (Credit Style)	Custom HFRI Benchmark Mix*	5.9%	6.3%	9.2%	0.22	0.26
Hedge Fund (Asymmetric Style)	Custom HFRI Benchmark Mix*	5.5%	5.7%	6.3%	0.25	0.29
Real Estate Debt	Bloomberg IG CMBS	6.9%	7.2%	7.4%	0.41	0.45
Core Real Estate	NCREIF Property	7.0%	7.7%	12.5%	0.25	0.30
Value-Add Real Estate	NCREIF Property + 200bps	9.0%	10.1%	15.4%	0.33	0.40
Opportunistic Real Estate	NCREIF Property + 400bps	10.0%	11.9%	21.2%	0.29	0.38
REITs	Wilshire REIT	7.0%	8.7%	19.2%	0.16	0.25
Global Infrastructure	S&P Global Infrastructure	8.1%	9.4%	16.8%	0.25	0.33
Risk Parity**	Risk Parity	6.8%	7.7%	10.0%	0.29	0.38
Currency Beta	MSCI Currency Factor Mix Index	2.2%	2.3%	3.3%	-0.52	-0.48
Inflation		2.2%	-	-	-	-

Investors wishing to produce expected geometric return forecasts for their portfolios should use the arithmetic return forecasts provided here as inputs into that calculation, rather than the single-asset-class geometric return forecasts. This is the industry standard approach, but requires a complex explanation only a heavy quant could love, so we have chosen not to provide further details in this document – we will happily provide those details to any readers of this who are interested.

\*To represent hedge fund styles, we use a combination of HFRI benchmarks: Equity Style = 33% HFRI Fundamental Growth, 33% HFRI Fundamental Value, 33% HFRI Activist. Credit Style = 20% HFRI Distressed/Restructuring, 20% HFRI Credit Arbitrage, 20% HFRI Fixed Income-Corporate, 20% HFRI Fixed Income-Convertible Arbitrage, 20% HFRI Fixed Income-Asset Backed. Asymmetric Style = 50% HFRI Relative Value, 50% HFRI Macro

\*\*The Risk Parity forecast shown here assumes a 10% target volatility strategy. We recommend customizing this forecast to the target volatility specifications of the risk parity strategy that an investor wishes to model. Please speak with your Verus consultant for customization needs.

# Correlation assumptions

	Cash	US Large	US Small	Intl Large	Intl Small	EM	Global Equity	PE	US TIPS	US Treasury	Global Sovereign ex-US	US Core	Core Plus	Short-Term Gov't/Credit	Short-Term Credit	Long-Term Credit	US HY	Bank Loans	Global Credit	EM Debt USD	EM Debt Local	Commodities	Hedge Funds	Real Estate	REITs	Infrastructure	Currency Beta	Risk Parity	
Cash	1.0																												
US Large	0.0	1.0																											
US Small	-0.1	0.9	1.0																										
Intl Large	0.0	0.9	0.8	1.0																									
Intl Small	0.0	0.9	0.8	1.0	1.0																								
EM	0.0	0.7	0.6	0.8	0.8	1.0																							
Global Equity	0.0	1.0	0.9	0.9	0.9	0.8	1.0																						
PE	-0.1	0.7	0.7	0.6	0.6	0.6	0.7	1.0																					
US TIPS	0.0	0.5	0.4	0.5	0.5	0.4	0.5	0.2	1.0																				
US Treasury	0.1	0.1	0.0	0.1	0.1	0.1	0.1	-0.1	0.8	1.0																			
Global Sovereign ex-US	0.2	0.4	0.3	0.5	0.5	0.5	0.5	0.1	0.7	0.6	1.0																		
US Core	0.1	0.4	0.3	0.4	0.4	0.4	0.4	0.0	0.8	0.9	0.8	1.0																	
Core Plus	0.2	0.5	0.4	0.5	0.5	0.5	0.5	0.1	0.8	0.9	0.8	1.0	1.0																
Short-Term Gov't/Credit	0.3	0.2	0.1	0.3	0.3	0.3	0.3	0.0	0.7	0.8	0.6	0.8	0.8	1.0															
Short-Term Credit	0.3	0.4	0.4	0.5	0.5	0.5	0.5	0.2	0.7	0.5	0.7	0.7	0.8	0.7	1.0														
Long-Term Credit	0.1	0.6	0.5	0.6	0.6	0.6	0.6	0.2	0.8	0.7	0.8	0.9	0.9	0.7	0.8	1.0													
US HY	0.0	0.8	0.8	0.8	0.8	0.7	0.8	0.5	0.6	0.2	0.5	0.5	0.6	0.4	0.6	0.7	1.0												
Bank Loans	0.0	0.6	0.6	0.6	0.7	0.6	0.6	0.5	0.3	-0.1	0.2	0.2	0.3	0.1	0.5	0.4	0.8	1.0											
Global Credit	0.1	0.7	0.6	0.7	0.8	0.7	0.7	0.3	0.8	0.6	0.8	0.8	0.9	0.7	0.8	0.9	0.8	0.6	1.0										
EMD USD	0.1	0.7	0.6	0.7	0.7	0.7	0.7	0.4	0.6	0.4	0.7	0.6	0.7	0.5	0.7	0.8	0.8	0.7	0.9	1.0									
EMD Local	0.1	0.5	0.4	0.7	0.7	0.8	0.7	0.4	0.5	0.3	0.7	0.5	0.6	0.4	0.5	0.6	0.7	0.5	0.8	0.8	1.0								
Commodities	-0.1	0.4	0.4	0.4	0.4	0.5	0.5	0.3	0.2	-0.2	0.2	-0.1	0.0	-0.1	0.1	0.1	0.5	0.5	0.3	0.3	0.4	1.0							
Hedge Funds	0.0	0.8	0.9	0.8	0.9	0.8	0.9	0.6	0.4	-0.1	0.3	0.2	0.4	0.1	0.5	0.5	0.8	0.8	0.7	0.7	0.6	0.5	1.0						
Real Estate	-0.2	0.6	0.5	0.5	0.5	0.4	0.6	0.4	0.2	0.0	-0.1	0.1	0.1	0.0	-0.1	0.2	0.4	0.4	0.3	0.4	0.3	0.2	0.5	1.0					
REITs	-0.1	0.8	0.7	0.7	0.7	0.5	0.7	0.6	0.6	0.4	0.4	0.5	0.6	0.3	0.4	0.7	0.7	0.5	0.7	0.7	0.5	0.3	0.7	0.6	1.0				
Infrastructure	0.0	0.8	0.7	0.8	0.8	0.7	0.8	0.6	0.5	0.2	0.5	0.4	0.5	0.3	0.5	0.6	0.8	0.7	0.8	0.8	0.7	0.5	0.8	0.5	0.7	1.0			
Currency Beta	-0.1	0.0	-0.1	-0.2	-0.2	-0.2	-0.1	0.1	-0.2	-0.1	-0.3	-0.2	-0.2	-0.2	-0.3	-0.2	-0.2	-0.1	-0.3	-0.2	-0.3	-0.1	-0.1	0.1	0.0	-0.1	1.0		
Risk Parity	0.1	0.7	0.7	0.8	0.7	0.6	0.8	0.4	0.7	0.4	0.7	0.6	0.7	0.4	0.7	0.7	0.8	0.5	0.8	0.7	0.6	0.5	0.7	0.1	0.7	0.7	-0.2	1.0	

Note: as of 9/30/24 - Correlation assumptions are based on the last ten years. Private Equity and Real Estate correlations are especially difficult to model due to appraisal-based pricing and lag problems that exist in the data – we have therefore used BarraOne correlation data to strengthen these correlation estimates.

# Range of likely 10-year outcomes

10-YEAR RETURN 90% CONFIDENCE INTERVAL



Source: Verus 2025 Capital Market Assumptions, MPI

# Notices & disclosures

**Past performance is no guarantee of future results.** This document is provided for informational purposes only and is directed to institutional clients and eligible institutional counterparties only and is not intended for retail investors. Nothing herein constitutes investment, legal, accounting or tax advice, or a recommendation to buy, sell or hold a security or pursue a particular investment vehicle or any trading strategy. This document may include or imply estimates, outlooks, projections and other “forward-looking statements.” No assurance can be given that future results described or implied by any forward looking information will be achieved. Investing entails risks, including possible loss of principal. Additional information about Verus Advisory, Inc. is available on the SEC’s website at [www.adviserinfo.sec.gov](http://www.adviserinfo.sec.gov).

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# Delegated Investments (September 12, 2024 to December 11, 2024)<sup>1</sup>

Asset Class	Investment	Investment Amount	RSIC Commitment Date
Private Debt	D.E. Shaw Dioptr Fund II	\$50 M	October 31, 2024
Private Equity	Unity Partners Fund I	\$50 M	November 1, 2024
Private Debt	Eagle Point Defensive Income Fund III	\$50 M	December 6, 2024

<sup>1</sup> Section III of the Commission’s Investment Authority Delegation Policy (“Delegation Policy”) limits the size of delegated investments depending upon type and also provides that the “amount of delegation for new investments approved pursuant to this policy shall not exceed 5% of the total value of Plan assets between regularly scheduled Commission meetings.” All of the delegated investments listed in this report comply with the Delegation Policy’s size limits and “between meetings” test.

