



# Commission Meeting Agenda

Thursday, December 7, 2023 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 2023 Minutes
- II. Chair's Report
- III. Committee Reports
- IV. CEO's Report
- V. CIO's Report
  - A. Quarterly Investment Performance Update
- VI. Verus
  - A. Overview of ALM Process
  - B. Capital Market Assumptions Review
- VII. Delegated Investment Report
- VIII. Executive Session to discuss investment matters, including specific co-investments and 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 14, 2023 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 (absent)

Ms. Melissa Schumpert, Vice Chair

Ms. Peggy Boykin, PEBA Executive Director (absent)

Mr. William J. Condon, Jr.

Mr. Kenneth F. Deon

Mr. Edward Giobbe

Dr. Holley H. Ulbrich

Mr. Reynolds Williams (Via Telephone)

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

Vice Chair Melissa Schumpert announced that Chair William Hancock would be unable to attend the meeting and that she would preside as Acting Chair for the meeting. Acting Chair Schumpert called the meeting of the South Carolina Retirement System Investment Commission (“Commission” or “RSIC”) to order at 9:30 a.m. Dr. Holley H. Ulbrich made a motion to adopt the agenda as presented. Mr. Edward Giobbe seconded the motion, which was unanimously approved.

Mr. William J. Condon, Jr., made a motion to approve the minutes of the Commission’s June 1, 2023, meeting. Dr. Ulbrich seconded the motion, which was approved unanimously. A link to the entire meeting is below:

[2023.09.14 Commission Meeting - YouTube](#)

**II. Executive Session**

Mr. Giobbe made a motion to recede into executive session to discuss investment matters pursuant to S.C. Code Ann. Section 9-16-80 and 9-16-320, including specific matters related to the public equity and portable alpha portfolios; 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). Dr. Ulbrich seconded the motion, which was approved unanimously. The Commission receded into executive session at 9:40 a.m. Upon return to open session at 12:42 p.m., Mr. Michael R. Hitchcock, Chief Executive Officer (“CEO”), announced that no action was taken in executive session.

**III. Chair’s Report**

Acting Chair Schumpert announced that she had no report.

#### IV. Committee Reports

Acting Chair Schumpert announced that the Audit and Enterprise Risk Management Committee (“AERMC”) met on June 13, 2023, and the AERMC Meeting Report had been posted for the Commissioners for review prior to the Commission meeting. Acting Chair Shumpert then gave an update on the Human Resources and Compensation Committee (“HRCC”). The HRCC met on September 8, 2023, to receive updates regarding staff changes since the previous HRCC meeting. The HRCC also reviewed an updated organizational chart and then recessed into executive session to discuss personnel matters, including general compensation matters and the variable compensation program. A link to the AERMC and HRCC Committee reports is below:

<https://www.youtube.com/watch?v=aGPGwq51Rcl&t=223s>

#### V. CEO’s Report

Acting Chair Schumpert recognized Mr. Hitchcock for his report. Mr. Hitchcock presented RSIC’s proposed annual budget recommendation for fiscal year (“FY”) 2025, which totaled \$16,503,000. He reminded the Commissioners that RSIC is an “other funds” agency, and consequently, it does not receive any general funds from the South Carolina General Assembly (“General Assembly”). The General Assembly’s annual Appropriations Bill simply authorizes RSIC to expend funds of the South Carolina Retirement Systems Group Trust in order to operate. He noted that the FY 2025 budget request would be the first time that RSIC has requested an increase in authorization since 2017. Mr. Hitchcock also pointed out that RSIC has absorbed the expenses associated with the cost-of-living adjustments (“COLAs”) passed by the General Assembly since 2017. The increase in the budget request for FY 2025 reflects the amounts of those previous COLAs. Mr. Hitchcock then discussed two budget provisos that would be included in the budget authorization request. After a discussion of the proposed budget request and the proposed provisos, Dr. Ulbrich made a motion to authorize the CEO to submit a proposed FY 2025 detail budget substantially similar to the draft budget presented for inclusion in the Governor’s annual budget. Mr. Condon seconded the motion, which passed unanimously.

Mr. Hitchcock then turned to a brief discussion of a proposed schedule to review the Portfolio’s Strategic Asset Allocation (“SAA”). He noted that the Commission established a discipline to review the SAA every five years, and the current SAA was adopted in April of 2020. The Commission would look to adopt an updated SAA for the next five years in April of 2025. Mr. Hitchcock proposed a framework schedule to consider the various SAA components over the course of three meetings beginning in December of 2024. After a lengthy discussion regarding the SAA process, Mr. Hitchcock stated that he would review all of the feedback provided and revise the proposed SAA schedule for further discussion at a future Commission meeting.

Next, Mr. Hitchcock shared a proposed compliance dashboard (“Dashboard”) for the Consolidated Annual Investment Plan and Statement of Investment Objectives and Policies (“AIP/SIOP”) with the Commissioners. He said that the proposed Dashboard was developed in response to the Funston Fiduciary Audit Report recommendation regarding exception-based reporting, as well as feedback from the Commissioners requesting assistance with quarterly SIOP reviews. The proposed Dashboard

provides a visual overview of the major parts of the SIOP and is designed to assist the Commission in focusing attention on items that need review. Mr. Hitchcock asked that any feedback on the proposed Dashboard be provided to him before the December meeting. The Commissioners then had a brief discussion of the proposed Dashboard.

Lastly, Mr. Hitchcock recognized Mr. Andrew Chernick, Chief Operations Officer, for a brief review of RSIC's FY 2024-2025 business plan. Mr. Chernick gave an overview of the four overall objectives for RSIC's back office and then concluded his report.

After additional discussion with the Commissioners, Mr. Hitchcock concluded his report. A link to the CEO's Report is below:

<https://www.youtube.com/watch?v=aGPGwq51Rcl&t=305s>

## VI. CIO's Report

Next, Acting Chair Schumpert recognized Mr. Geoffrey Berg, Chief Investment Officer, for the investment performance review for the prior fiscal year. Mr. Berg reported that for the year ending June 30, 2023, the Portfolio outperformed the Policy Benchmark by 1.33 percent, with a total Plan return of 6.83 percent. He pointed out that the three, five and ten-year returns were all above the 7 percent assumed rate of return. Mr. Berg noted that the net benefit payments for the fiscal year were \$266 million, a substantial decrease from the levels of five years ago, and explained what a meaningful change this reduction in net benefit payments had made to the liquidity needs of the Plan.

Mr. Berg reviewed the RSIC Portfolio Performance Framework with the Commissioners. The Reference Portfolio (70/30 stock/bond mix) returned 10.94 percent for the fiscal year, with equities' strong performance more than compensating for the challenges experienced by fixed income. While the Reference Portfolio outperformed both the Policy Benchmark and Plan return for the fiscal year, for three years the Policy Benchmark (+134 bps) and Plan return (+430 bps) were significantly higher than the Reference Portfolio. Mr. Berg went over the performance framework in more detail, after which he, Mr. Hitchcock, and the Commissioners had a brief discussion regarding the framework and related topics. Mr. Berg then went over the performance of each individual asset class over the one, three, and five-year periods, as well as the performance of the portable alpha portfolio. Sources of underperformance during the fiscal year were the Plan's overweight to private equity and real assets, underweight to public equity, and the duration overweight in bonds. Sources of outperformance were the underweight to bonds, selection in private markets, and strong performance of infrastructure within real assets.

Following additional conversation with the Commissioners, Mr. Berg turned to a discussion regarding compliance. He reported that the private equity portfolio continued to exceed the upper end of the authorized range while the aggregate private market exposure exceeded the notification threshold. He noted that the private equity overweight had been reduced by more than one percent during the year and stated that Staff was continuing to address both matters, and reminded the Commission that the process of doing so will take time. He then reviewed the latest risk estimates and pointed out the distinction between the forward risk estimates and the historical risk. Mr. Berg then concluded his report. A link to the CIO's Report is below:

<https://www.youtube.com/watch?v=aGPGwq51Rcl&t=3320s>

## VII. Delegated Investment Report

Acting Chair Schumpert then recognized Mr. Berg for the delegated investment report. The following delegated investments were closed by Staff following the June 1, 2023, Commission meeting.

Delegated Investments (June 1, 2023 to September 13, 2023)			
Asset Classes	Investment	Investment Amount	RSIC Commitment Date
Private Equity	KPS Special Situations Fund VI	\$100 M	June 20, 2023
Private Equity	KPS Special Situations Mid-Cap Fund II	\$25 M	June 20, 2023
Private Credit	Banner Ridge Secondary Fund V	\$40 M	June 28, 2023
Private Credit	Banner Ridge Secondary Fund V Co	\$13.4 M	June 28, 2023
Private Equity	Varsity Healthcare Partners IV	\$50 M	June 29, 2023
Real Assets	Brookfield Strategic Real Estate Partners V	Up to \$100 M	August 28, 2023

After a brief discussion regarding private equity strategy, Mr. Berg concluded the delegated investment report. A link to the Delegated Investment Report is below:

<https://www.youtube.com/watch?v=aGPGwq51Rcl&t=4693s>

## VIII. Executive Session

The Commission made a motion by acclamation to recede into executive session to discuss investment matters pursuant to S.C. Code Sections 9-16-80 and 9-16-320, including specific matters related to the public equity and portable alpha portfolios; to discuss personnel matters pursuant to S.C. Code Section 30-4-70(a)(1); and to receive advice from legal counsel pursuant to S.C. Code Section 30-4-70(a)(2). Mr. Giobbe seconded the motion, which was approved unanimously. The Commission receded into executive session at 2:04 p.m.

## IX. Potential Actions Resulting from Executive Session

Upon return to open session, Acting Chair Shumpert announced that no action was taken in executive session.

## X. Adjourn

There being no further business, Dr. Ulbrich made a motion to adjourn. Mr. Giobbe seconded the motion, which was approved unanimously.

[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 3:13 p.m., on September 12, 2023.]

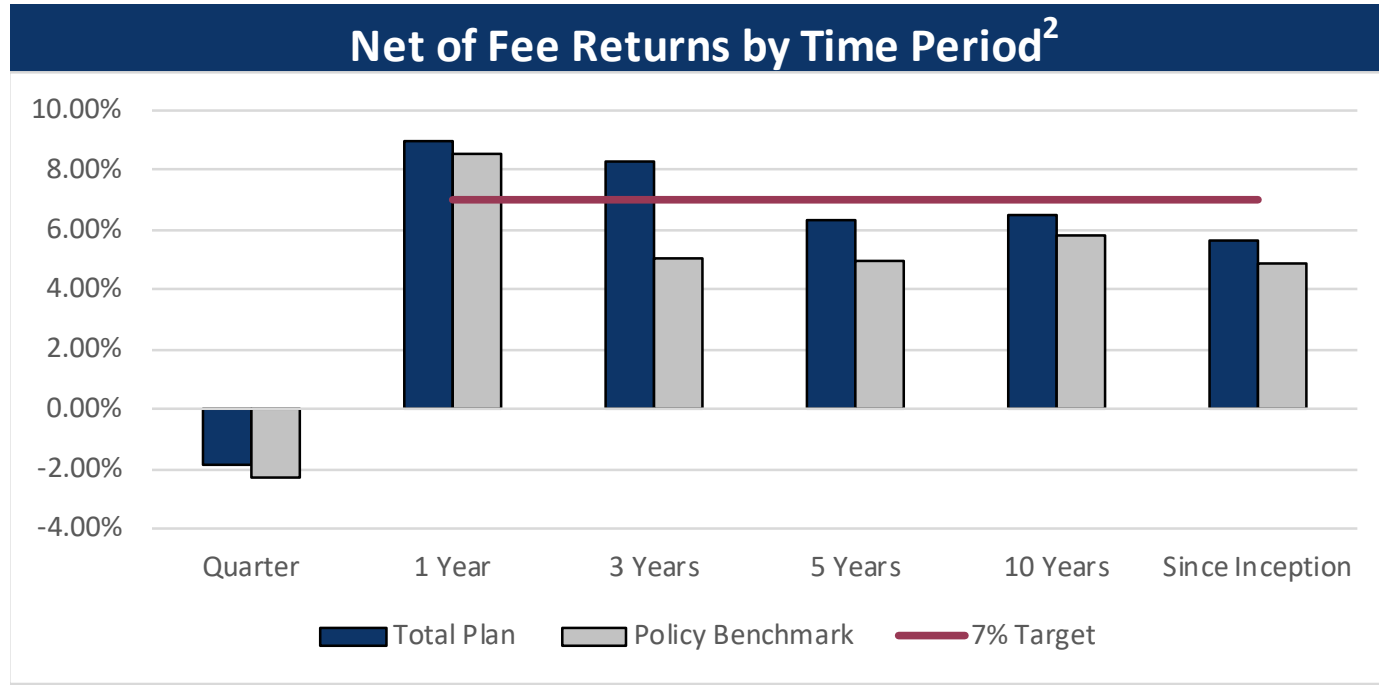
# RSIC Performance Analysis

Data as of 09-30-2023



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

As of September 30, 2023



Rolling period performance as of September 30, 2023 <sup>1</sup>				Annualized			
Executive Summary	Market Value (millions)	Quarter	1 Year	3 Years	5 Years	10 Years	Since Inception
<b>Total Plan</b>	<b>\$39,879</b>	<b>-1.86%</b>	<b>8.95%</b>	<b>8.33%</b>	<b>6.30%</b>	<b>6.46%</b>	<b>5.62%</b>
<b>Policy Benchmark</b>		<b>-2.27%</b>	<b>8.52%</b>	<b>5.09%</b>	<b>4.97%</b>	<b>5.80%</b>	<b>4.92%</b>
<b>Excess Return</b>		<b>0.41%</b>	<b>0.43%</b>	<b>3.25%</b>	<b>1.33%</b>	<b>0.66%</b>	<b>0.70%</b>
<b>Net Benefit Payments (millions)</b>		<b>\$17</b>	<b>(\$238)</b>	<b>(\$1,351)</b>	<b>(\$2,498)</b>	<b>(\$8,107)</b>	<b>(\$15,707)</b>



# Portfolio Performance Framework

As of September 30, 2023

Reference Portfolio		Policy Benchmark		Implementation Benchmark		Plan Return	
Quarter	<b>-3.33%</b>	Quarter	<b>-2.27%</b>	Quarter	<b>-1.68%</b>	Quarter	<b>-1.86%</b>
1-Year	<b>14.12%</b>	1-Year	<b>8.52%</b>	1-Year	<b>8.91%</b>	1-Year	<b>8.95%</b>
3-Years	<b>3.31%</b>	3-Years	<b>5.09%</b>	3-Years	<b>6.27%</b>	3-Years	<b>8.33%</b>

Value from Diversification		Quality of Portfolio Structure		Quality of Manager Selection	
Quarter	<b>1.05%</b>	Quarter	<b>0.59%</b>	Quarter	<b>-0.18%</b>
1-Year	<b>-5.61%</b>	1-Year	<b>0.39%</b>	1-Year	<b>0.04%</b>
3-Years	<b>1.78%</b>	3-Years	<b>1.18%</b>	3-Years	<b>2.06%</b>

Actual vs Reference		Actual vs Policy	
Quarter	<b>1.47%</b>	Quarter	<b>0.41%</b>
1-Year	<b>-5.17%</b>	1-Year	<b>0.43%</b>
3-Years	<b>5.03%</b>	3-Years	<b>3.25%</b>



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

As of September 30, 2023

Trailing Performance as of 09/30/2023	Portfolio Weight	Annualized			
		Quarter	1 Year	3 Years	5 Years
<b>Public Equity</b>	<b>43.5%</b>	<b>-3.34%</b>	<b>20.60%</b>	<b>7.30%</b>	<b>6.25%</b>
<i>Benchmark</i>		<i>-3.40%</i>	<i>20.16%</i>	<i>6.88%</i>	<i>6.06%</i>
<b>Bonds</b>	<b>20.4%</b>	<b>-3.24%</b>	<b>-0.31%</b>	<b>-3.64%</b>	<b>-0.29%</b>
<i>Benchmark</i>		<i>-3.23%</i>	<i>0.64%</i>	<i>-5.21%</i>	<i>-0.79%</i>
<b>Private Equity</b>	<b>14.0%</b>	<b>0.31%</b>	<b>2.32%</b>	<b>21.41%</b>	<b>12.58%</b>
<i>Benchmark</i>		<i>1.60%</i>	<i>1.51%</i>	<i>20.30%</i>	<i>13.43%</i>
<b>Private Debt</b>	<b>9.5%</b>	<b>2.12%</b>	<b>8.09%</b>	<b>11.76%</b>	<b>6.74%</b>
<i>Benchmark</i>		<i>3.52%</i>	<i>12.21%</i>	<i>7.82%</i>	<i>5.64%</i>
<b>Real Assets</b>	<b>12.6%</b>	<b>-0.96%</b>	<b>-2.56%</b>	<b>11.30%</b>	<b>8.58%</b>
<i>Benchmark</i>		<i>-2.16%</i>	<i>-12.93%</i>	<i>6.17%</i>	<i>5.08%</i>
<b>Portable Alpha Hedge Funds</b>	<b>12.5%</b>	<b>1.54%</b>	<b>-0.13%</b>	<b>9.27%</b>	<b>5.45%</b>
<b>Total Plan</b>	<b>100.0%</b>	<b>-1.86%</b>	<b>8.95%</b>	<b>8.33%</b>	<b>6.30%</b>
<i>RSIC Policy Benchmark</i>		<i>-2.27%</i>	<i>8.52%</i>	<i>5.09%</i>	<i>4.97%</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 LIBOR as an estimate for Overlay financing costs.



Policy  
Benchmark

- **Policy Benchmark:** The return of the five-asset class target portfolio.

Allocation

- **Allocation effect:** isolates the impact of making overweight or underweight decisions to each of the five asset classes.

Implement-  
ation

- **Implementation effect:** measures the impact of decisions to construct each asset class portfolio differently than the benchmark.

Selection

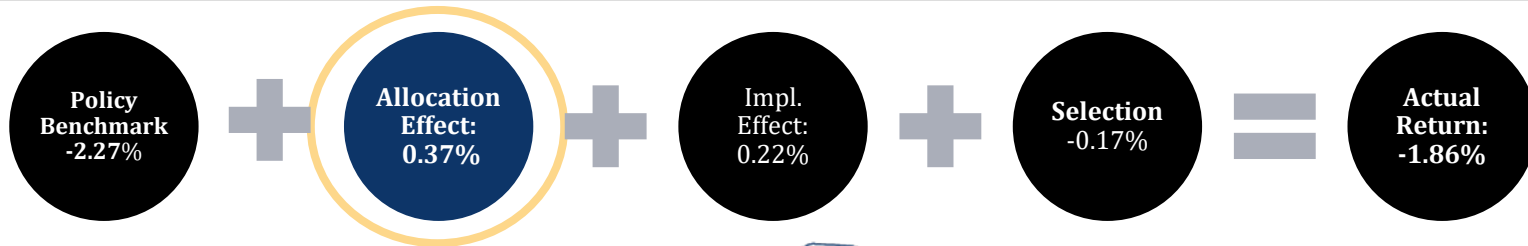
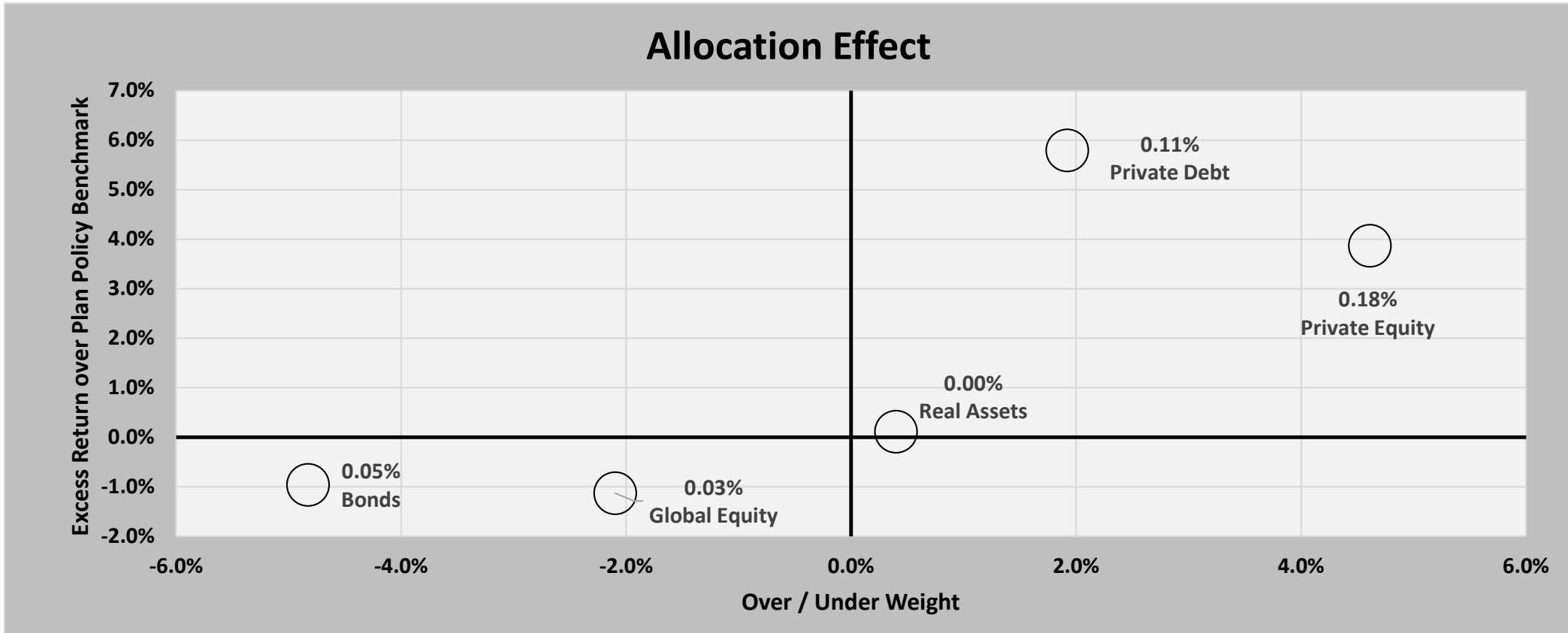
- **Selection effect:** evaluates the impact of manager selection decisions.

Actual  
Return

- The **Actual return** reflects the sum of all of these impacts.

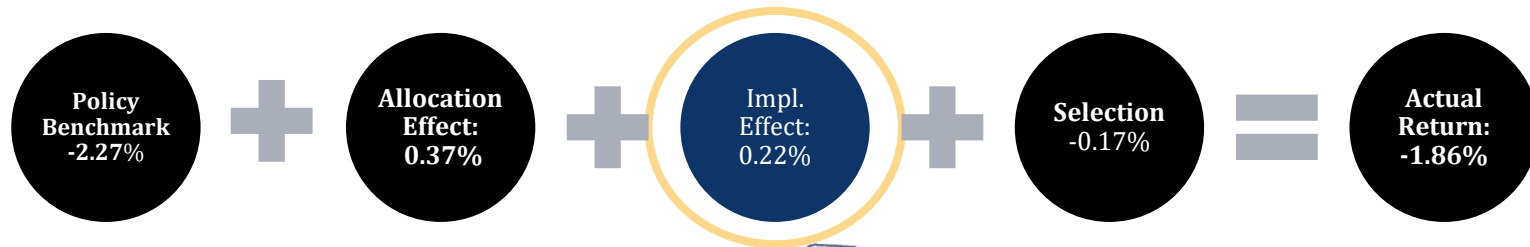
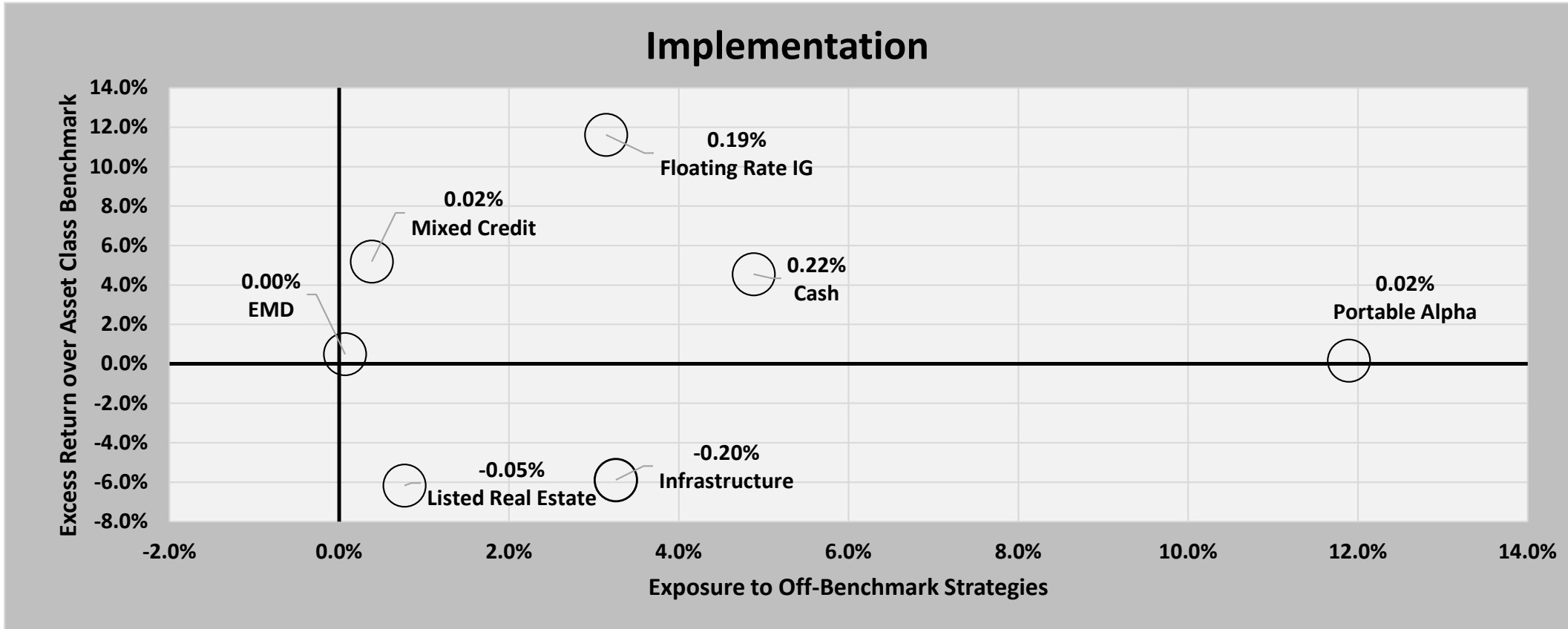
# Attribution – FYTD – Allocation:

As of September 30, 2023



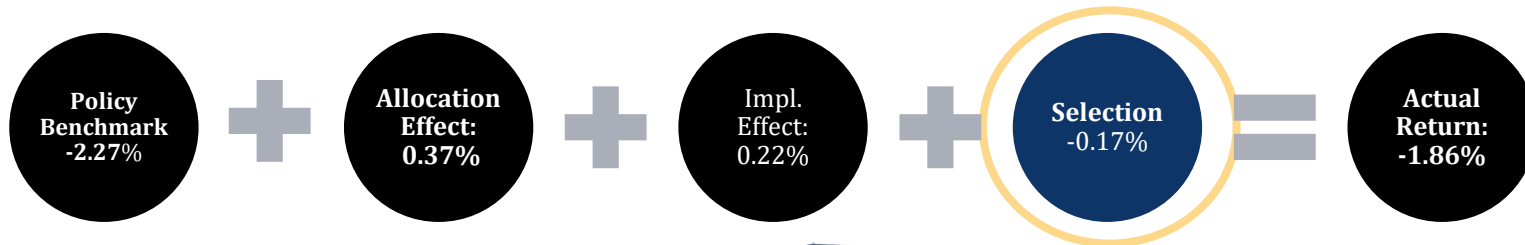
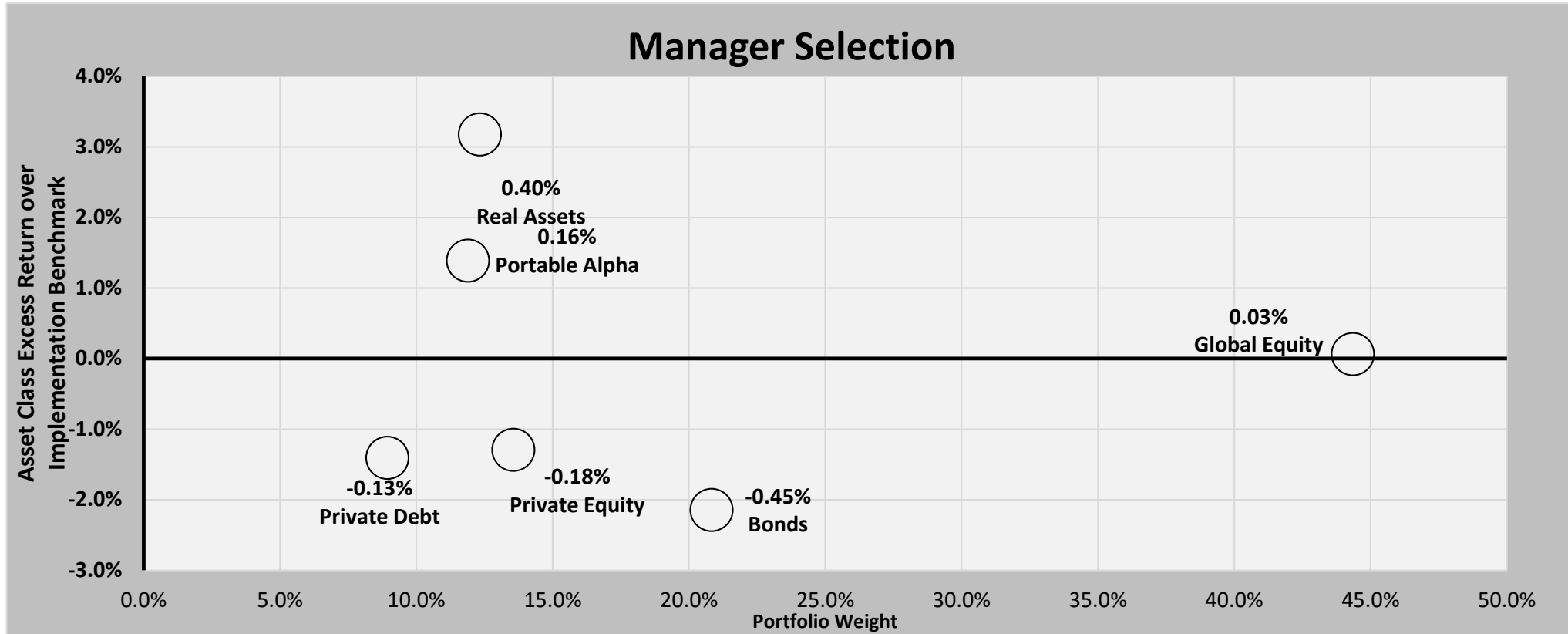
# Attribution – FYTD – Implementation:

As of September 30, 2023



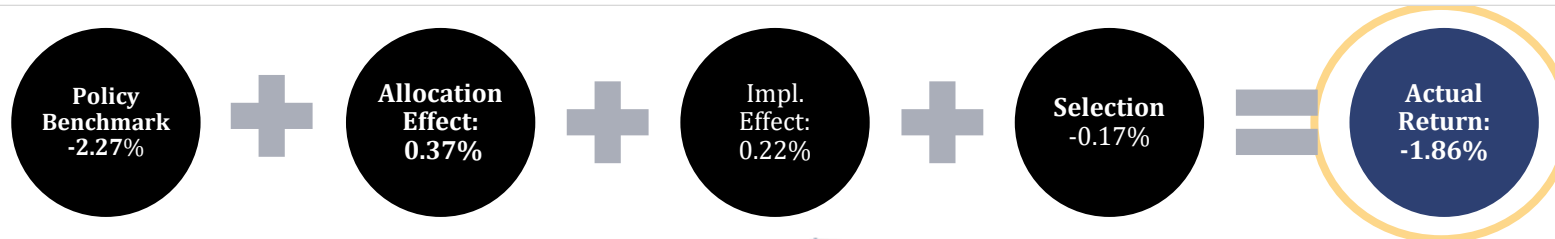
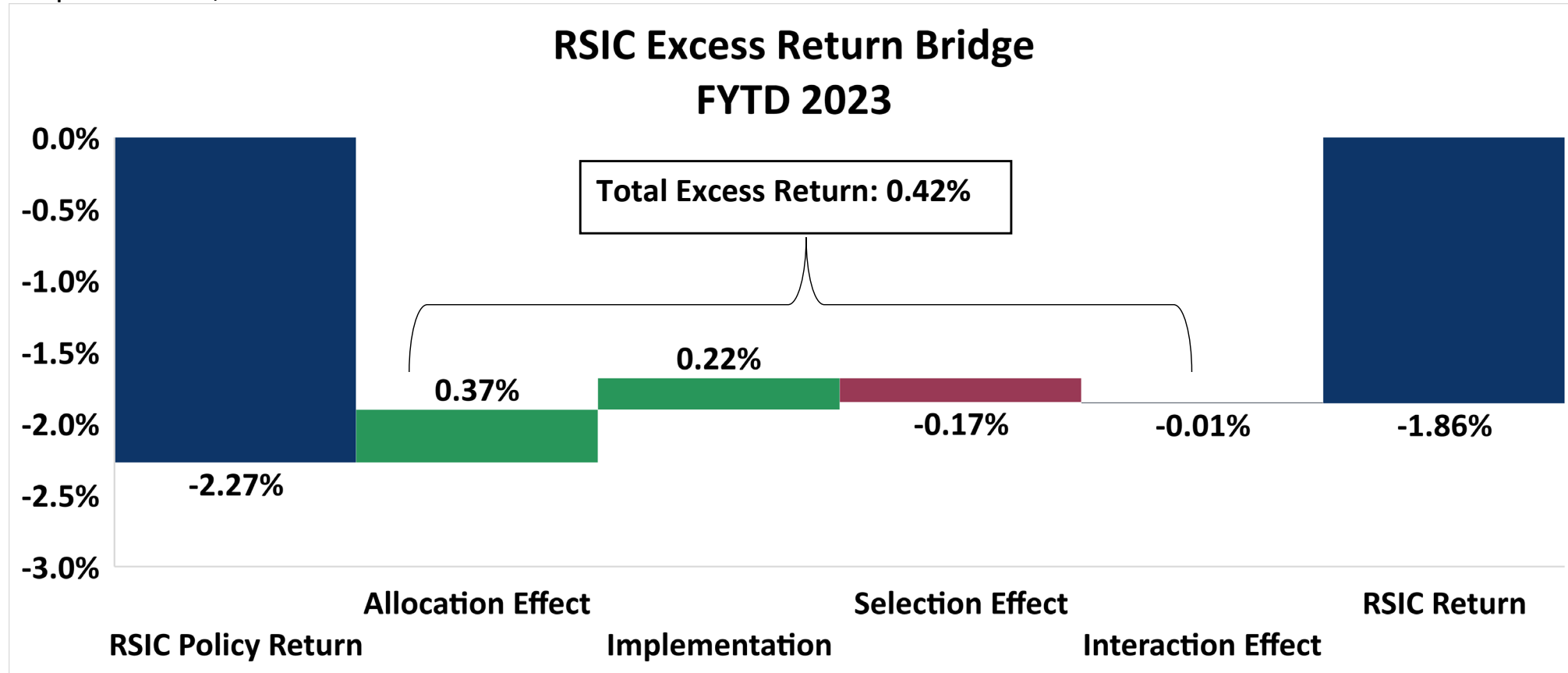
# Attribution – FYTD – Selection:

As of September 30, 2023



# Attribution – FYTD – Return Bridge:

As of September 30, 2023



# Attribution – FYTD – Attribution Heatmap:

As of September 30, 2023

Attribution Table (BPS)	Allocation	Implementation	Selection	Total
Bonds	5	45	-45	5
Private Debt	11	0	-13	-2
Global Equity	3	0	3	5
Private Equity	18	0	-18	0
Real Assets	0	-25	40	15
Portable Alpha	n/a	2	16	18
<b>Total</b>	<b>37</b>	<b>22</b>	<b>-17</b>	<b>42</b>

- Sources of underperformance:
  - Listed Infrastructure
  - Longer Duration Treasuries
  - Private Markets Selection
- Sources of outperformance:
  - Underweight to Bonds
  - Private Infrastructure
  - Portable Alpha
  - Real Estate Selection



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

As of September 30, 2023

Exposure Report as of 09/30/2023	Net Exposure	Policy Targets	Over / Under	Allowable Ranges	SIOP Compliance
Public Equity	43.5%	46.0%	-2.5%	30% - 60%	Yes
Bonds	20.4%	26.0%	-5.6%	15% - 35%	Yes
Private Equity	14.0%	9.0%	5.0%	5% - 13%	No
Private Debt	9.5%	7.0%	2.5%	3% - 11%	Yes
Real Assets	12.6%	12.0%	0.6%	6% - 18%	Yes
Portable Alpha Hedge Funds	12.5%	n/a	12.5%	0% - 15%	Yes
Total Plan	100.0%	100.0%	0.0%	n/a	No
Total Private Markets	35.0%	28.0%	7.0%	0% - 30%	No

# Portfolio Risk Estimates (Forward)

## Risk Estimates <sup>1</sup> September 2023 Exposures and Risk

	Reference	Policy <sup>3</sup>	Implementation <sup>3</sup>	Actual <sup>5</sup>
<b>Total Risk <sup>2</sup></b>	13.4%	12.6%	13.6%	13.7%
<b>Relative Risk <sup>4</sup></b>	Reference vs Policy	Policy vs Implementation	Implementation vs Actual <sup>5</sup>	
	1.7%	1.4%	0.5%	

Footnotes:

- 1 Estimates based on an equal weighted (no-decay) model employing three years of monthly data.*
- 2 Total risk shown as volatility, or annualized standard deviation of returns based on current positioning*
- 3 Private benchmarks proxied with public alternatives*
- 4 Relative risk shown as relative volatility, or annualized standard deviation of the excess returns of one portfolio vs the other*
- 5 Actual risk and actual vs implementation relative risk estimated from a set of assumptions and exposures*

# Historical (Realized) Volatility vs Forward Volatility

Realized (Historical) vs Forward Risk Measurements <sup>1</sup>				
September 2023 Risk				
<b>Forward Risk</b>	Reference	Policy	Implementation	Actual
	13.4%	12.6%	13.6%	13.7%
	↓	↓	↓	↓
<b>Historical Risk <sup>2,3</sup></b>	Portfolio	Policy <sup>3</sup>	Implementation <sup>3</sup>	Actual
	13.4%	9.7%	9.6%	9.0%

Footnotes:

- <sup>1</sup> Historical risk reflects actual historical volatility (rather than expected volatility) for RSIC portfolio, using the past 3 years of monthly data
- <sup>2</sup> Historical risk reflects actual historical positioning (rather than current positioning)
- <sup>3</sup> Policy and Implementation portfolio risk calculated using underlying performance benchmarks (rather than public proxy-based risk benchmarks)

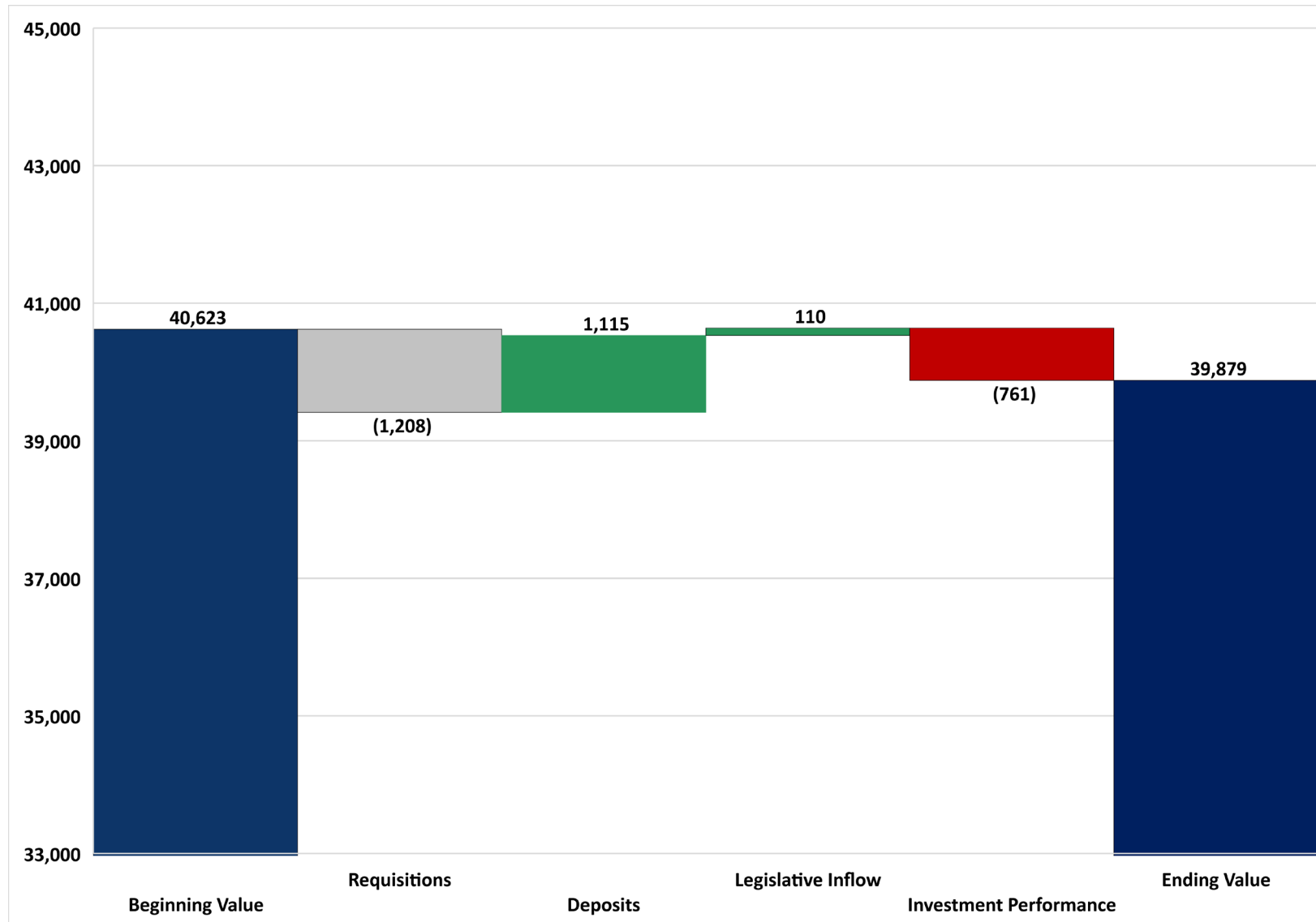


# Appendix



# FYTD Benefits and Performance

As of September 30, 2023



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

Exposures as of September 30, 2023

Exposure Report as of 09/30/2023	Net Exposure	Policy Targets	Over / Under	Allowable Ranges	SLOP Compliance
<b>Public Equity</b>	<b>43.5%</b>	<b>46.0%</b>	<b>-2.5%</b>	<b>30% - 60%</b>	<b>Yes</b>
<b>Bonds</b>	<b>20.4%</b>	<b>26.0%</b>	<b>-5.6%</b>	<b>15% - 35%</b>	<b>Yes</b>
Investment Grade - Fixed	13.9%	26.0%	-12.1%	10% - 35%	Yes
Investment Grade - Floating	3.3%	n/a	3.3%	0% - 5%	Yes
EMD	0.1%	n/a	0.1%	0% - 6%	Yes
Mixed Credit	0.4%	n/a	0.4%	0% - 8%	Yes
Cash and Short Duration (Net)	2.8%	n/a	2.8%	0% - 7%	Yes
<b>Private Equity</b>	<b>14.0%</b>	<b>9.0%</b>	<b>5.0%</b>	<b>5% - 13%</b>	<b>No</b>
<b>Private Debt</b>	<b>9.5%</b>	<b>7.0%</b>	<b>2.5%</b>	<b>3% - 11%</b>	<b>Yes</b>
<b>Real Assets</b>	<b>12.6%</b>	<b>12.0%</b>	<b>0.6%</b>	<b>6% - 18%</b>	<b>Yes</b>
Private Real Estate	8.4%	9.0%	-0.6%	n/a	Yes
Public Real Estate	0.7%	n/a	0.7%	n/a	Yes
Private Infrastructure	3.1%	3.0%	0.1%	n/a	Yes
Public Infrastructure	0.4%	n/a	0.4%	n/a	Yes
<b>Portable Alpha Hedge Funds</b>	<b>12.5%</b>	<b>n/a</b>	<b>12.5%</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>No</b>
<b>Total Private Markets</b>	<b>35.0%</b>	<b>28.0%</b>	<b>7.0%</b>	<b>0% - 30%</b>	<b>No</b>

# Performance – Plan & Asset Classes<sup>1,3,4,5</sup>

Exposures as of September 30, 2023

Trailing Performance as of 09/30/2023	Portfolio Weight	Annualized			
		Quarter	1 Year	3 Years	5 Years
<b>Public Equity</b>	<b>43.5%</b>	<b>-3.34%</b>	<b>20.60%</b>	<b>7.30%</b>	<b>6.25%</b>
<i>Benchmark</i>		<i>-3.40%</i>	<i>20.16%</i>	<i>6.88%</i>	<i>6.06%</i>
<b>Bonds</b>	<b>20.4%</b>	<b>-3.24%</b>	<b>-0.31%</b>	<b>-3.64%</b>	<b>-0.29%</b>
<i>Benchmark</i>		<i>-3.23%</i>	<i>0.64%</i>	<i>-5.21%</i>	<i>-0.79%</i>
IG Fixed	13.9%	-6.31%	-3.80%	-6.53%	-0.95%
IG Floating (Hedged)	3.3%	0.77%	6.35%	3.15%	n/a
EMD	0.1%	-0.21%	-45.19%	-21.09%	-11.94%
Mixed Credit	0.4%	6.92%	11.55%	7.76%	5.99%
Cash and Short Duration (Ne	2.8%	1.34%	4.58%	1.85%	1.83%
<b>Private Equity</b>	<b>14.0%</b>	<b>0.31%</b>	<b>2.32%</b>	<b>21.41%</b>	<b>12.58%</b>
<i>Benchmark</i>		<i>1.60%</i>	<i>1.51%</i>	<i>20.30%</i>	<i>13.43%</i>
<b>Private Debt</b>	<b>9.5%</b>	<b>2.12%</b>	<b>8.09%</b>	<b>11.76%</b>	<b>6.74%</b>
<i>Benchmark</i>		<i>3.52%</i>	<i>12.21%</i>	<i>7.82%</i>	<i>5.64%</i>
<b>Real Assets</b>	<b>12.6%</b>	<b>-0.96%</b>	<b>-2.56%</b>	<b>11.30%</b>	<b>8.58%</b>
<i>Benchmark</i>		<i>-2.16%</i>	<i>-12.93%</i>	<i>6.17%</i>	<i>5.08%</i>
Private Real Estate	8.4%	-1.06%	-7.91%	11.21%	8.18%
Public Real Estate	0.7%	-7.49%	3.87%	6.89%	4.87%
Private Infrastructure	3.1%	1.99%	12.95%	8.90%	7.92%
Public Infrastructure	0.4%	-8.60%	1.29%	3.74%	4.56%
<b>Portable Alpha Hedge Funds</b>	<b>12.5%</b>	<b>1.54%</b>	<b>-0.13%</b>	<b>9.27%</b>	<b>5.45%</b>
<b>Total Plan</b>	<b>100.0%</b>	<b>-1.86%</b>	<b>8.95%</b>	<b>8.33%</b>	<b>6.30%</b>
<i>RSIC Policy Benchmark</i>		<i>-2.27%</i>	<i>8.52%</i>	<i>5.09%</i>	<i>4.97%</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 LIBOR as an estimate for Overlay financing costs.

## 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, LIBOR 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.

Allocation / exposure percentages might not add up to totals due to rounding.



## 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, 2023

Verus<sup>777</sup>®

[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, 2023

Allocation vs. Targets and Policy  
Quarter Ending September 30, 2023

	MV at 9/30/2023	Overlay Exposures	Net Position	% of Total System	% of Total System (Net)	Policy Targets	Allowable Ranges	SIOP Compliance?
<b>Total System</b>	<b>39,878,538,357</b>	<b>-</b>	<b>39,878,538,357</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>		
<b>Public Equity</b>	<b>17,210,660,193</b>	<b>150,000,000</b>	<b>17,360,660,193</b>	<b>43%</b>	<b>44%</b>	<b>46%</b>	<b>30% - 60%</b>	<b>Yes</b>
Public Equity	17,210,660,193	150,000,000	17,360,660,193	43%	44%	46%	30% - 60%	Yes
<b>Bonds</b>	<b>3,287,213,856</b>	<b>4,850,502,341</b>	<b>8,137,716,197</b>	<b>8%</b>	<b>20%</b>	<b>26%</b>	<b>15% - 35%</b>	<b>Yes</b>
Investment Grade - Fixed	422,040,203	5,113,105,167	5,535,145,370	1%	14%	0%	10% - 35%	Yes
Investment Grade - Floating	1,296,909,887	-	1,296,909,887	3%	3%	0%	0% - 5%	Yes
Emerging Market Debt	27,798,631	-	27,798,631	0%	0%	0%	0% - 6%	Yes
Mixed Credit	164,284,061	-	164,284,061	0%	0%	0%	0% - 8%	Yes
Cash and Short Duration	1,376,181,074	(262,602,826)	1,113,578,248	3%	3%	0%	0% - 7%	Yes
<b>Private Equity</b>	<b>5,601,055,236</b>	<b>-</b>	<b>5,601,055,236</b>	<b>14%</b>	<b>14%</b>	<b>9%</b>	<b>5% - 13%</b>	<b>No</b>
<b>Private Debt</b>	<b>3,769,379,395</b>	<b>-</b>	<b>3,769,379,395</b>	<b>9%</b>	<b>9%</b>	<b>7%</b>	<b>3% - 11%</b>	<b>Yes</b>
<b>Real Assets</b>	<b>5,009,727,337</b>	<b>-</b>	<b>5,009,727,337</b>	<b>13%</b>	<b>13%</b>	<b>12%</b>	<b>6% - 18%</b>	<b>Yes</b>
Real Estate	3,627,093,272	-	3,627,093,272	9%	9%	9%	5% - 13%	Yes
Infrastructure	1,382,634,065	-	1,382,634,065	3%	3%	3%	0% - 5%	Yes
<b>Portable Alpha Hedge Funds</b>	<b>5,000,502,341</b>	<b>(5,000,502,341)</b>	<b>-</b>	<b>13%</b>	<b>0%</b>	<b>0%</b>	<b>0% - 15%</b>	<b>Yes</b>

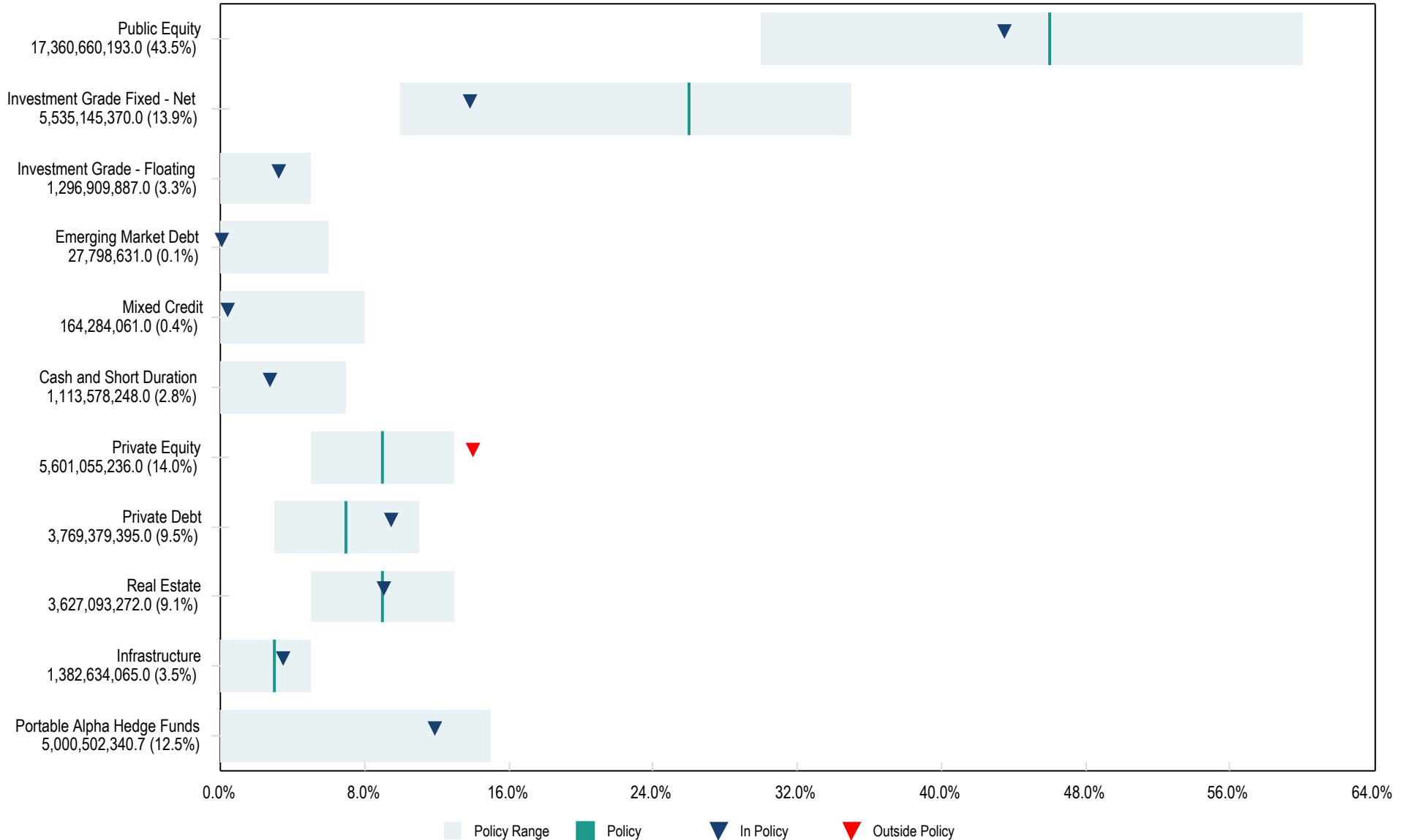
Includes cash in the Russell Overlay separate account

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, 2023

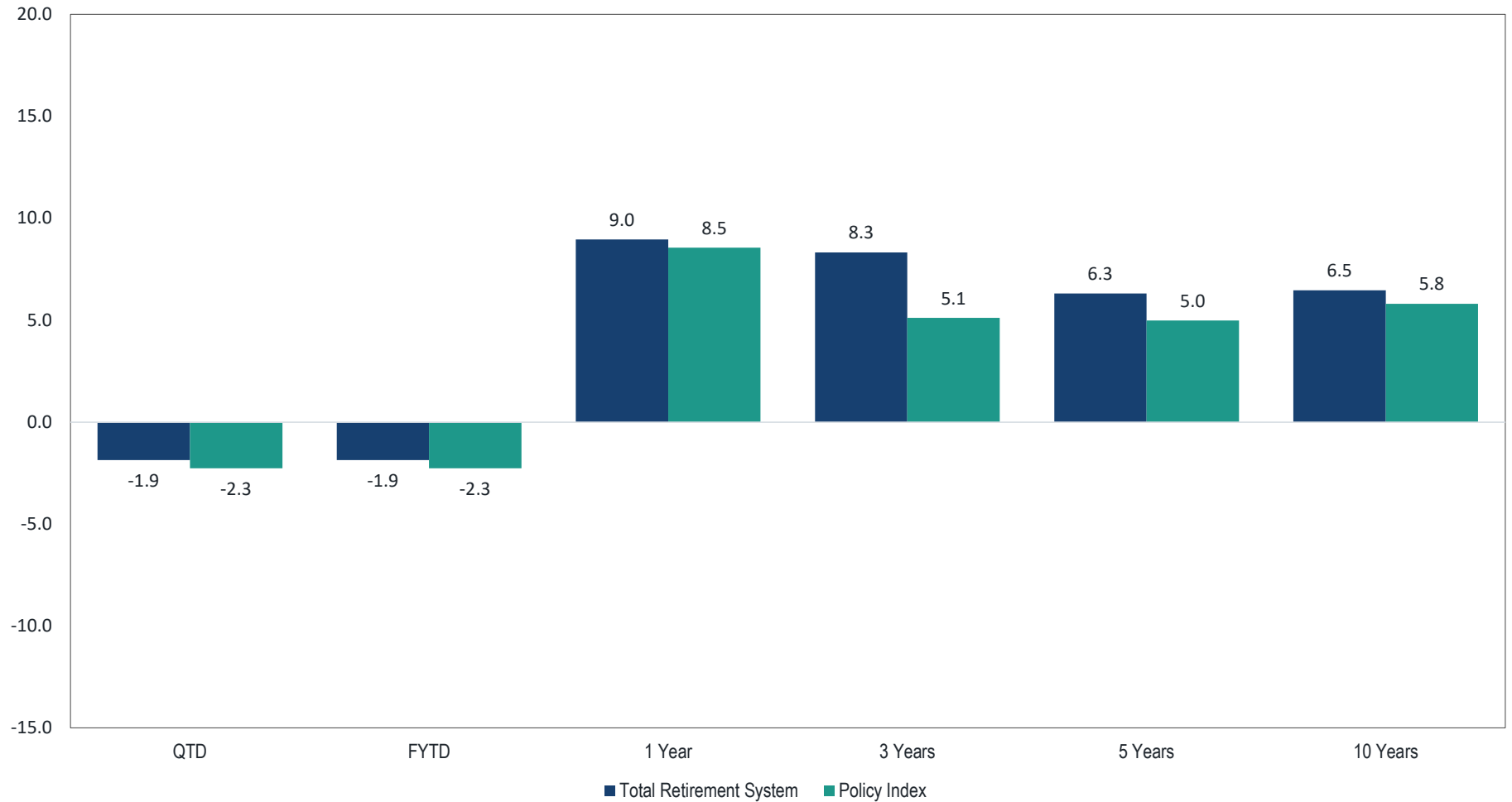
Actual vs. Policy Ranges:  
(Including Overlay)



# Total Retirement System Net Return Summary

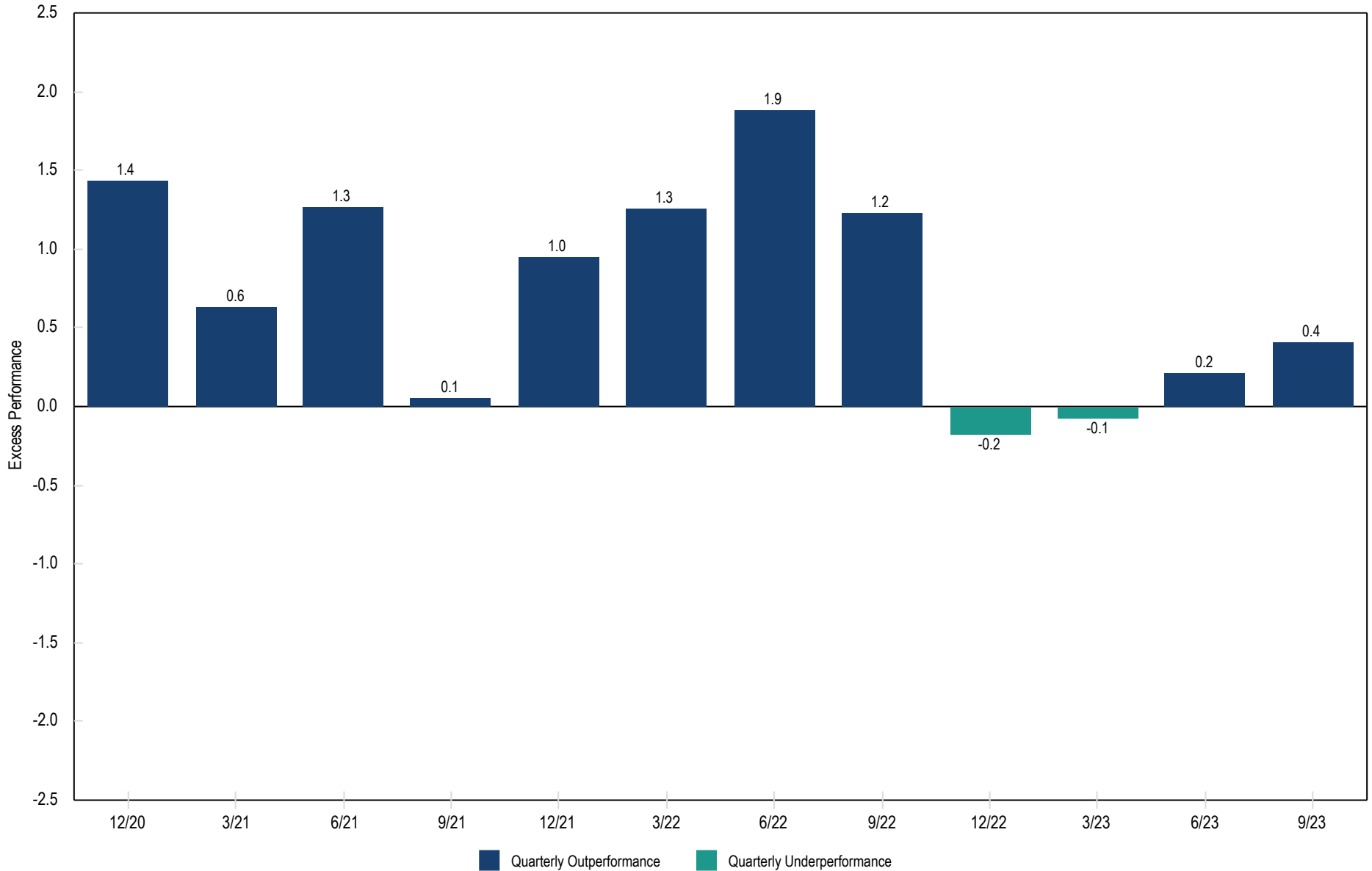
# South Carolina Retirement System Investment Commission Period Ending: September 30, 2023

Net Return Summary



Returns for periods greater than one year are annualized.

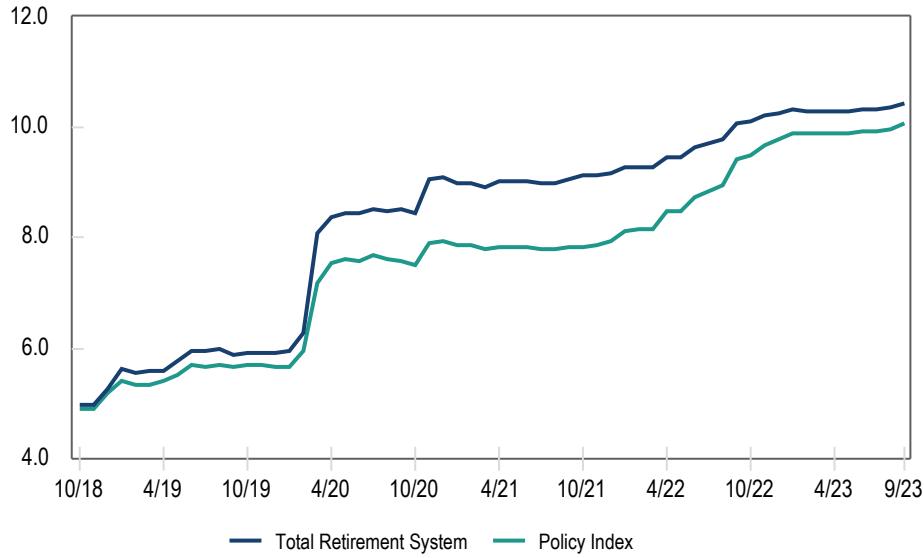
Quarterly Excess Performance vs. Policy Benchmark



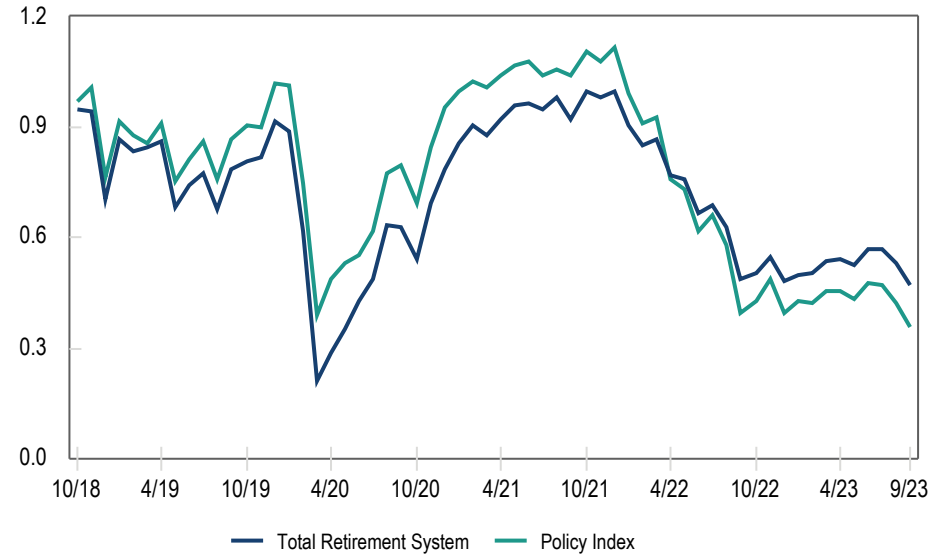
# Total Retirement System Risk Analysis - 5 Years (Net of Fees)

# South Carolina Retirement System Investment Commission Period Ending: September 30, 2023

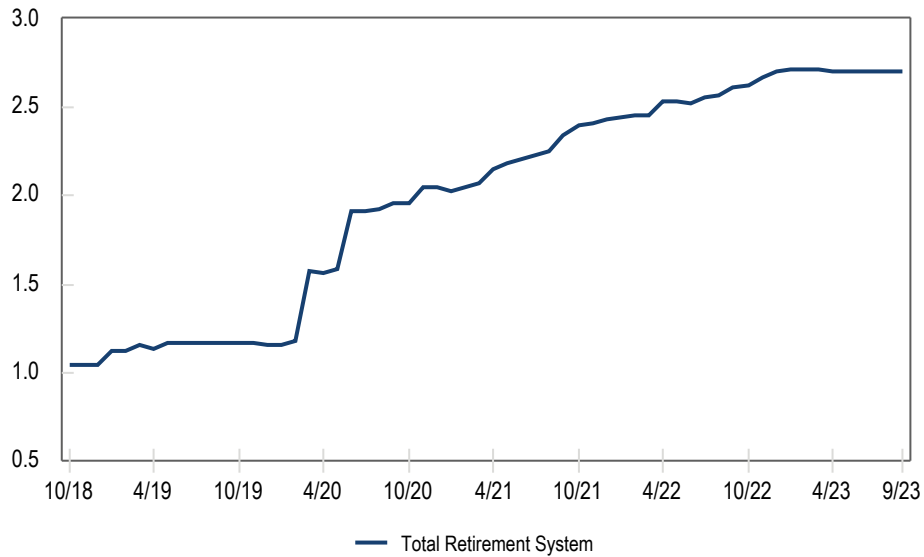
Rolling 5 Year Std. Deviation



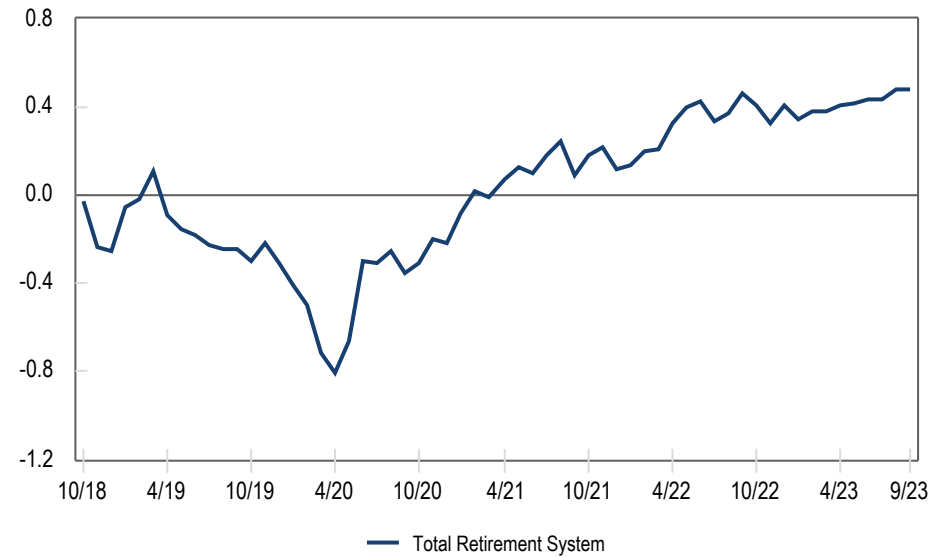
Rolling 5 Year Sharpe Ratio



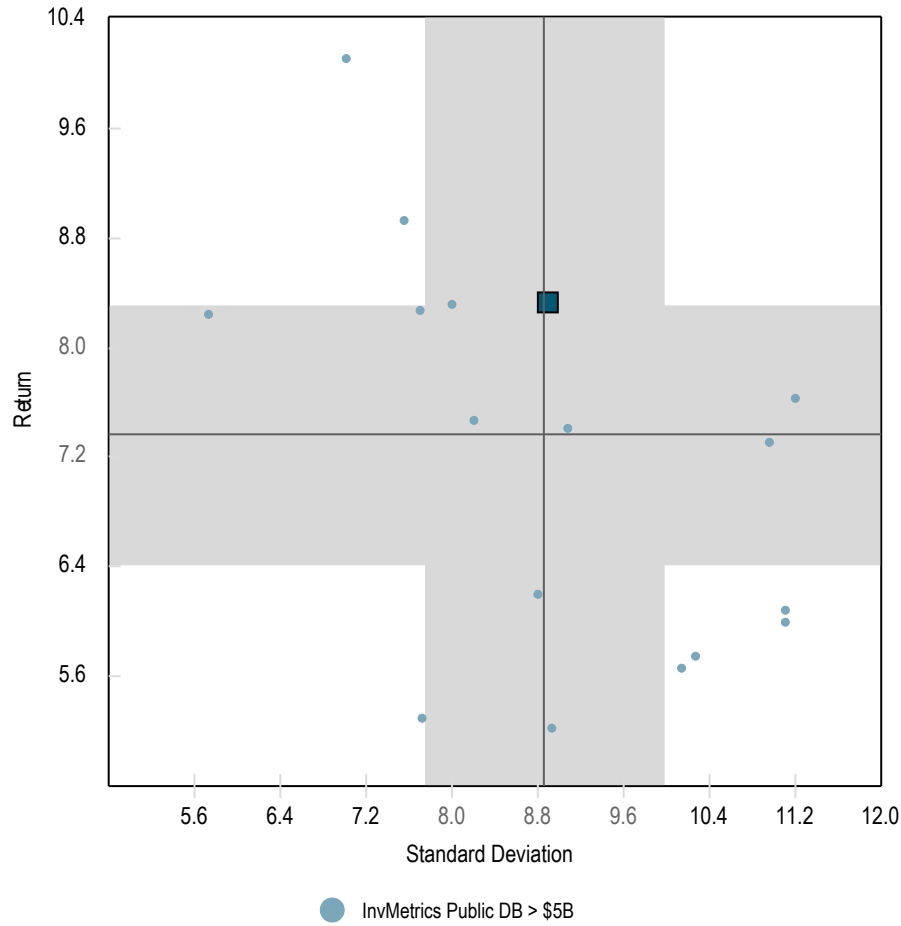
Rolling 5 Year Tracking Error



Rolling 5 Year Information Ratio

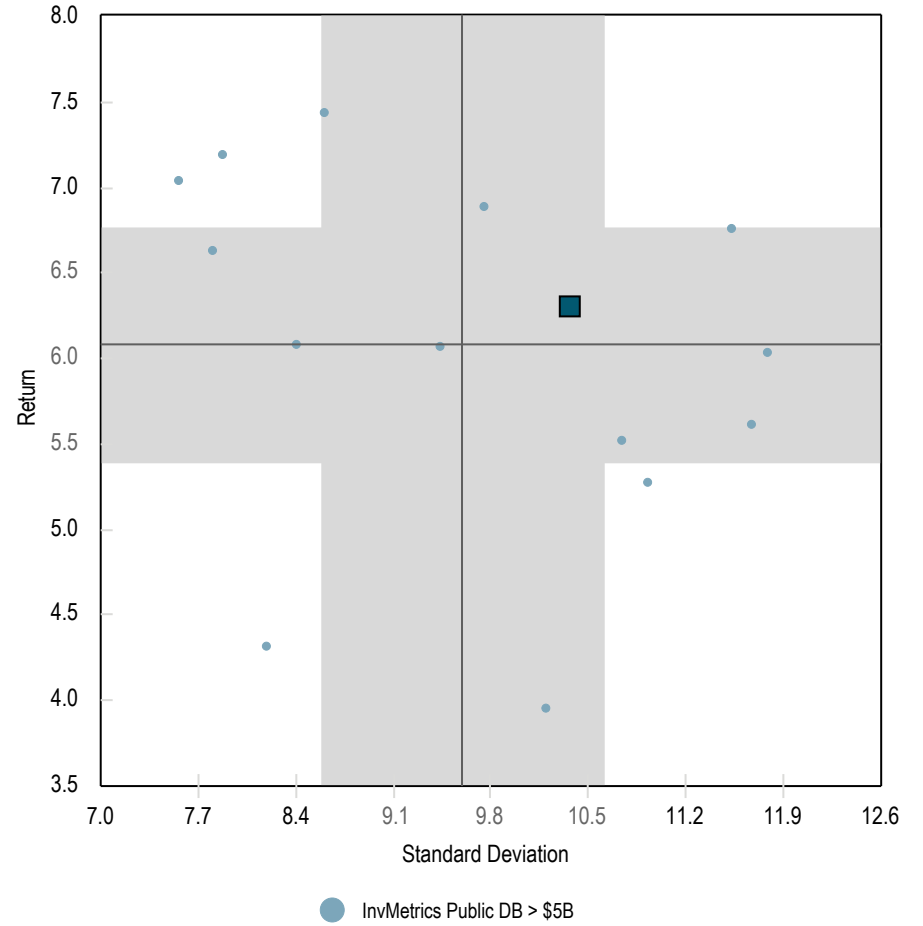


3 Years Return vs. Standard Deviation



	Return	Standard Deviation
■ Total Retirement System	8.33	8.90
— Median	7.36	8.86
Population	16	16

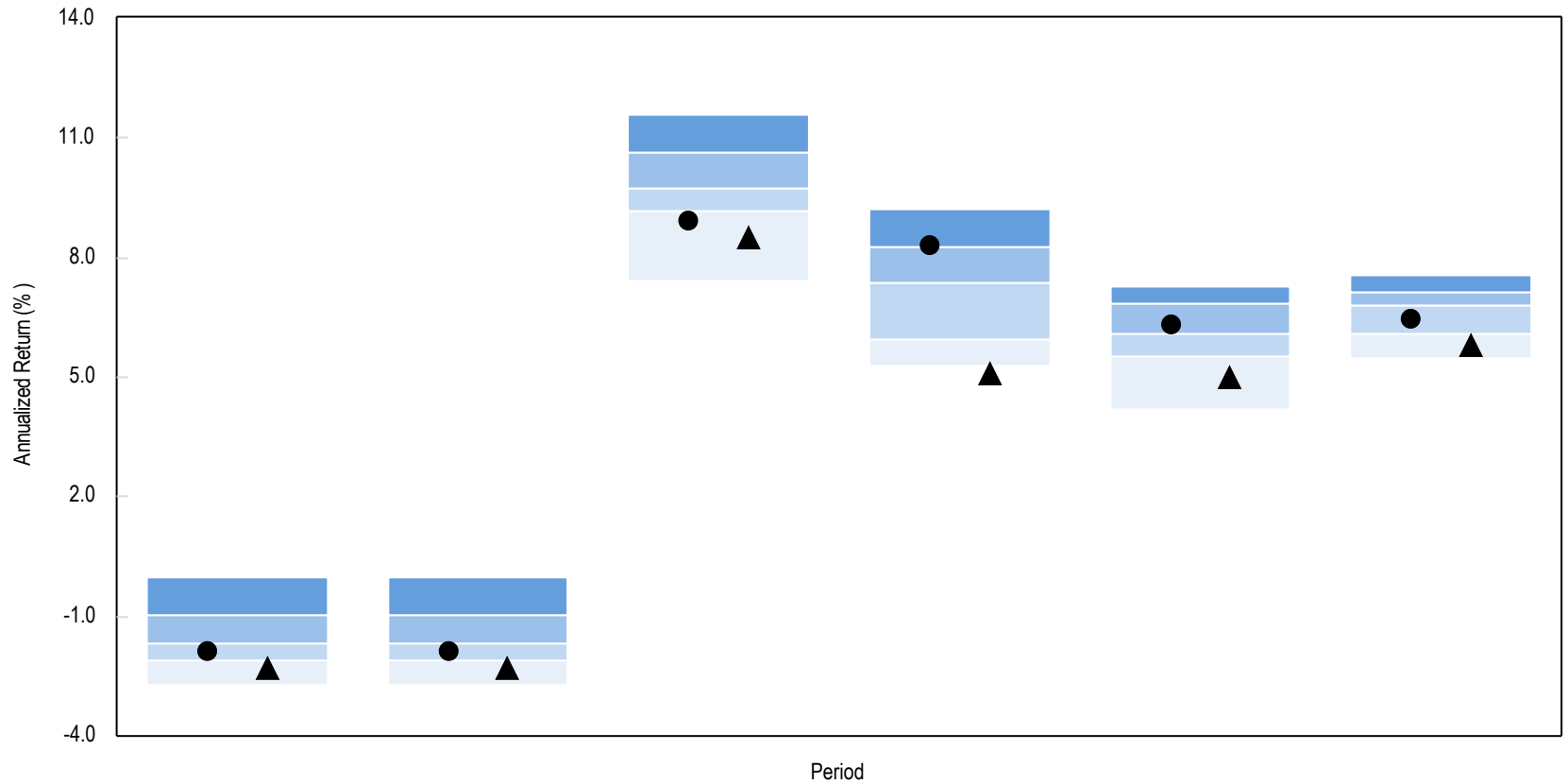
5 Years Return vs. Standard Deviation



	Return	Standard Deviation
■ Total Retirement System	6.30	10.36
— Median	6.08	9.59
Population	14	14



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

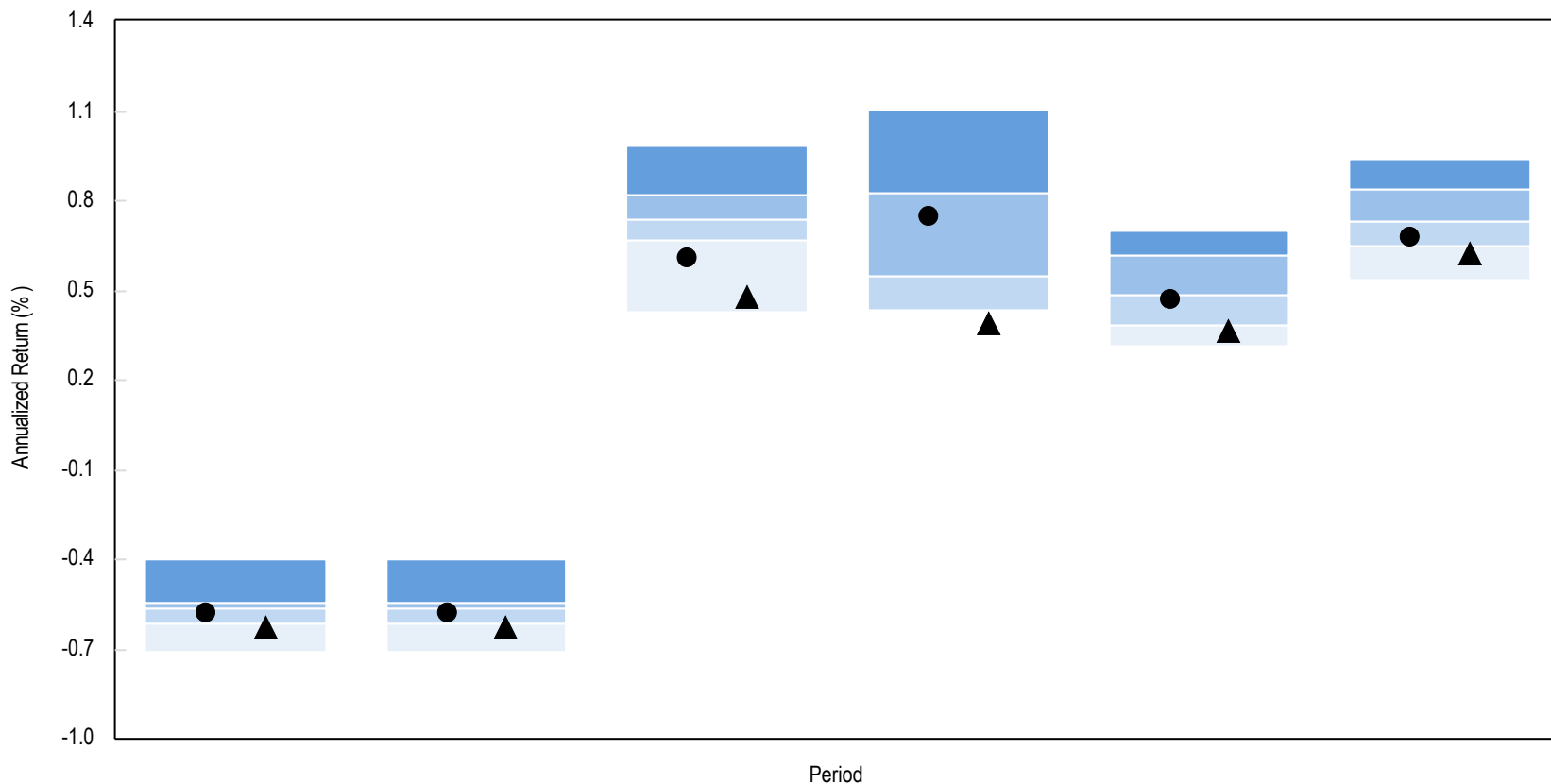


	QTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
● Total Retirement System	-1.86 (58)	-1.86 (58)	8.95 (78)	8.33 (14)	6.30 (44)	6.46 (71)
▲ Policy Index	-2.27 (80)	-2.27 (80)	8.52 (86)	5.10 (100)	4.98 (87)	5.80 (90)
5th Percentile	-0.04	-0.04	11.60	9.22	7.28	7.56
1st Quartile	-0.98	-0.98	10.65	8.25	6.86	7.12
Median	-1.69	-1.69	9.75	7.36	6.08	6.79
3rd Quartile	-2.13	-2.13	9.18	5.93	5.54	6.11
95th Percentile	-2.73	-2.73	7.42	5.27	4.19	5.46
Population	24	24	21	16	14	13

Total Retirement System  
Peer Universe Comparison: Sharpe Ratio

South Carolina Retirement System Investment Commission  
Period Ending: September 30, 2023

Total Fund Sharpe Ratio vs. InvMetrics Public DB > \$5B



	QTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
● Total Retirement System	-0.58 (55)	-0.58 (55)	0.61 (78)	0.75 (31)	0.47 (55)	0.68 (62)
▲ Policy Index	-0.62 (77)	-0.62 (77)	0.48 (89)	0.39 (100)	0.36 (87)	0.62 (79)
5th Percentile	-0.40	-0.40	0.98	1.10	0.70	0.94
1st Quartile	-0.54	-0.54	0.82	0.83	0.62	0.84
Median	-0.57	-0.57	0.74	0.55	0.48	0.73
3rd Quartile	-0.62	-0.62	0.66	0.43	0.38	0.65
95th Percentile	-0.71	-0.71	0.43	0.42	0.32	0.54
Population	24	24	21	16	14	13

# Total Retirement System

## Asset Class Performance Summary

# South Carolina Retirement System Investment Commission

## Period Ending: September 30, 2023

	Market Value	% of Portfolio	QTD	Fiscal YTD	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	Inception	Inception Date
<b>Total Retirement System</b>	<b>39,878,538,357</b>	<b>100.0</b>	<b>-1.9</b>	<b>-1.9</b>	<b>4.6</b>	<b>9.0</b>	<b>8.3</b>	<b>6.3</b>	<b>6.5</b>	<b>5.6</b>	<b>Oct-05</b>
<i>Policy Index</i>			-2.3	-2.3	4.0	8.5	5.1	5.0	5.8	4.9	
<b>Public Equity</b>	<b>17,210,660,193</b>	<b>43.2</b>	<b>-3.3</b>	<b>-3.3</b>	<b>9.6</b>	<b>20.5</b>	<b>7.2</b>	<b>5.4</b>	<b>6.7</b>	<b>5.6</b>	<b>Oct-05</b>
<i>Public Equity Blended Benchmark</i>			-3.4	-3.4	9.4	20.2	6.9	6.1	7.4	6.4	
<b>Total Bonds</b>	<b>2,802,308,404</b>	<b>7.0</b>	<b>1.4</b>	<b>1.4</b>	<b>4.0</b>	<b>5.4</b>	<b>1.7</b>	<b>2.4</b>	<b>2.3</b>	<b>3.2</b>	<b>Oct-05</b>
<i>Bonds Blended Benchmark</i>			-3.2	-3.2	-1.2	0.6	-5.2	0.1	1.1	2.8	
<i>Investment Grade - Fixed</i>	<i>422,040,203</i>	<i>1.1</i>	<i>-1.7</i>	<i>-1.7</i>	<i>1.4</i>	<i>2.8</i>	<i>-3.0</i>	<i>1.7</i>	<i>-</i>	<i>1.9</i>	<i>Jul-15</i>
<i>Investment Grade - Floating</i>	<i>1,296,909,887</i>	<i>3.3</i>	<i>2.1</i>	<i>2.1</i>	<i>6.5</i>	<i>8.8</i>	<i>3.9</i>	<i>-</i>	<i>-</i>	<i>4.8</i>	<i>Jul-20</i>
<i>Mixed Credit</i>	<i>164,284,061</i>	<i>0.4</i>	<i>6.9</i>	<i>6.9</i>	<i>13.2</i>	<i>11.5</i>	<i>7.8</i>	<i>6.0</i>	<i>4.9</i>	<i>6.2</i>	<i>May-08</i>
<i>50% S&amp;P LSTA Leveraged Loan Index/50% Blmbg. High Yield Index</i>			1.9	1.9	8.0	11.7	4.0	3.8	4.4	5.3	
<b>Emerging Market Debt</b>	<b>27,798,631</b>	<b>0.1</b>	<b>-0.2</b>	<b>-0.2</b>	<b>-47.3</b>	<b>-45.2</b>	<b>-21.1</b>	<b>-11.9</b>	<b>-5.1</b>	<b>-1.4</b>	<b>Jul-09</b>
<i>50% JPM EMBI Global Div (USD)/50% JPM GBI EM Global Div</i>			-2.7	-2.7	3.0	11.6	-3.6	-0.1	0.9	3.2	
<b>Cash - Short Duration</b>	<b>891,275,622</b>	<b>2.2</b>	<b>1.3</b>	<b>1.3</b>	<b>3.6</b>	<b>4.4</b>	<b>1.6</b>	<b>2.0</b>	<b>1.3</b>	<b>1.7</b>	<b>Oct-05</b>
<i>90 Day U.S. Treasury Bill</i>			1.3	1.3	3.6	4.5	1.7	1.7	1.1	1.3	
<b>Short Duration</b>	<b>179,498,100</b>	<b>0.5</b>	<b>1.4</b>	<b>1.4</b>	<b>3.9</b>	<b>5.0</b>	<b>1.9</b>	<b>2.5</b>	<b>2.0</b>	<b>2.0</b>	<b>Mar-10</b>
<i>Blmbg. 1-3 Year Gov/Credit index</i>			0.7	0.7	1.9	2.8	-0.7	1.2	1.0	1.1	
<b>Private Equity</b>	<b>5,601,055,236</b>	<b>14.0</b>	<b>0.3</b>	<b>0.3</b>	<b>2.2</b>	<b>2.3</b>	<b>21.4</b>	<b>12.6</b>	<b>12.8</b>	<b>9.3</b>	<b>Apr-07</b>
<i>Private Equity Blended Benchmark</i>			1.6	1.6	3.8	1.5	20.3	16.7	15.9	12.7	
<b>Private Debt</b>	<b>3,769,379,395</b>	<b>9.5</b>	<b>2.1</b>	<b>2.1</b>	<b>6.8</b>	<b>8.1</b>	<b>11.8</b>	<b>6.7</b>	<b>6.6</b>	<b>7.0</b>	<b>Jun-08</b>
<i>S&amp;P LSTA Leveraged Loan Index + 150 bps 3-mo lag</i>			3.5	3.5	10.6	12.5	7.8	5.6	5.6	5.4	
<b>Real Assets</b>	<b>5,009,727,337</b>	<b>12.6</b>	<b>-1.0</b>	<b>-1.0</b>	<b>-1.8</b>	<b>-2.5</b>	<b>11.3</b>	<b>8.6</b>	<b>10.5</b>	<b>7.5</b>	<b>Jul-08</b>
<i>Real Assets Blended Benchmark</i>			-2.1	-2.1	-8.1	-12.9	6.2	5.0	5.0	3.4	
<b>Private Real Estate</b>	<b>3,359,187,526</b>	<b>8.4</b>	<b>-1.1</b>	<b>-1.1</b>	<b>-5.3</b>	<b>-7.9</b>	<b>11.2</b>	<b>8.2</b>	<b>10.8</b>	<b>7.5</b>	<b>Jul-08</b>
<i>Private Real Estate Blended Benchmark</i>			-2.1	-2.1	-8.1	-12.9	6.2	5.1	7.8	5.2	
<b>Public Real Estate</b>	<b>267,905,746</b>	<b>0.7</b>	<b>-7.5</b>	<b>-7.5</b>	<b>-1.5</b>	<b>3.1</b>	<b>6.6</b>	<b>4.8</b>	<b>-</b>	<b>4.0</b>	<b>Jul-16</b>
<i>FTSE NAREIT Equity REIT</i>			-7.1	-7.1	-2.1	3.0	5.8	2.8	6.0	2.3	
<b>Private Infrastructure</b>	<b>1,229,267,055</b>	<b>3.1</b>	<b>1.8</b>	<b>1.8</b>	<b>9.5</b>	<b>13.2</b>	<b>8.7</b>	<b>7.8</b>	<b>-</b>	<b>7.3</b>	<b>Jul-18</b>
<i>Dow Jones Brookfield Global Infrastructure</i>			-8.1	-8.1	-6.8	2.1	3.8	3.3	4.7	3.0	
<b>Public Infrastructure</b>	<b>153,367,010</b>	<b>0.4</b>	<b>-8.6</b>	<b>-8.6</b>	<b>-7.3</b>	<b>1.3</b>	<b>3.7</b>	<b>4.6</b>	<b>-</b>	<b>4.2</b>	<b>Jun-16</b>
<i>Dow Jones Brookfield Global Infrastructure</i>			-8.1	-8.1	-6.8	2.1	3.8	3.3	4.7	4.2	
<b>Hedge Funds Portable Alpha</b>	<b>5,000,502,341</b>	<b>12.5</b>	<b>2.9</b>	<b>2.9</b>	<b>4.7</b>	<b>4.7</b>	<b>11.5</b>	<b>7.5</b>	<b>7.0</b>	<b>8.1</b>	<b>Jul-07</b>
<i>HFRI Conservative Fund of Funds Less LIBOR</i>			0.0	0.0	-0.4	-0.2	3.3	2.0	2.0	0.6	
<b>Russell Overlay</b>	<b>484,905,452</b>	<b>1.2</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, 2023

	Anlzd Return	Anlzd Standard Deviation	Information Ratio	Beta	Sharpe Ratio	Tracking Error
<b>Total Retirement System</b>	<b>6.3</b>	<b>10.4</b>	<b>0.5</b>	<b>1.0</b>	<b>0.5</b>	<b>2.7</b>
<i>Policy Index</i>	5.0	10.0	-	1.0	0.4	0.0
<b>Public Equity</b>	<b>5.4</b>	<b>18.8</b>	<b>-0.4</b>	<b>1.0</b>	<b>0.3</b>	<b>1.3</b>
<i>Public Equity Blended Benchmark</i>	6.1	18.3	-	1.0	0.3	0.0
<b>Total Bonds</b>	<b>2.4</b>	<b>4.3</b>	<b>0.4</b>	<b>0.3</b>	<b>0.2</b>	<b>5.5</b>
<i>Bonds Blended Benchmark</i>	0.1	5.5	-	1.0	-0.3	0.0
<b>Mixed Credit</b>	<b>6.0</b>	<b>7.7</b>	<b>0.4</b>	<b>0.7</b>	<b>0.6</b>	<b>5.9</b>
<i>50% S&amp;P LSTA Leveraged Loan Index/50% Blmbg. U.S. Corporate High Yield Index</i>	3.8	7.9	-	1.0	0.3	0.0
<b>Emerging Market Debt</b>	<b>-11.9</b>	<b>23.3</b>	<b>-0.4</b>	<b>0.6</b>	<b>-0.5</b>	<b>22.8</b>
<i>50% JP Morgan EMBI Global Diversified (USD)/50% JP Morgan EMBI Global Diversified</i>	-0.1	10.9	-	1.0	-0.1	0.0
<b>Cash - Short Duration</b>	<b>2.0</b>	<b>0.9</b>	<b>0.3</b>	<b>0.7</b>	<b>0.3</b>	<b>0.8</b>
<i>90 Day U.S. Treasury Bill</i>	1.7	0.5	-	1.0	-	0.0
<b>Short Duration</b>	<b>2.5</b>	<b>1.7</b>	<b>0.5</b>	<b>0.3</b>	<b>0.5</b>	<b>1.7</b>
<i>90 Day U.S. Treasury Bill</i>	1.7	0.5	-	1.0	-	0.0
<b>Private Equity</b>	<b>12.6</b>	<b>7.4</b>	<b>-0.3</b>	<b>0.0</b>	<b>1.4</b>	<b>15.3</b>
<i>Private Equity Blended Benchmark</i>	16.7	14.1	-	1.0	1.0	0.0
<b>Private Debt</b>	<b>6.7</b>	<b>4.3</b>	<b>0.1</b>	<b>-0.1</b>	<b>1.1</b>	<b>8.8</b>
<i>S&amp;P LSTA Leveraged Loan Index + 150 bps 3-mo lag</i>	5.6	7.2	-	1.0	0.6	0.0
<b>Real Assets</b>	<b>8.6</b>	<b>5.1</b>	<b>0.5</b>	<b>0.4</b>	<b>1.2</b>	<b>6.0</b>
<i>Real Assets Blended Benchmark</i>	5.0	7.9	-	1.0	0.4	0.0
<b>Private Real Estate</b>	<b>8.2</b>	<b>4.7</b>	<b>0.5</b>	<b>0.4</b>	<b>1.3</b>	<b>5.7</b>
<i>Private Real Estate Blended Benchmark</i>	5.1	7.0	-	1.0	0.5	0.0
<b>Public Real Estate</b>	<b>4.8</b>	<b>19.9</b>	<b>0.7</b>	<b>1.0</b>	<b>0.2</b>	<b>2.5</b>
<i>FTSE NAREIT All Equity REITs</i>	2.8	20.0	-	1.0	0.2	0.0
<b>Private Infrastructure</b>	<b>7.8</b>	<b>5.3</b>	<b>0.2</b>	<b>0.0</b>	<b>1.1</b>	<b>17.7</b>
<i>Dow Jones Brookfield Global Infrastructure</i>	3.3	17.0	-	1.0	0.2	0.0
<b>Public Infrastructure</b>	<b>4.6</b>	<b>16.2</b>	<b>0.5</b>	<b>0.9</b>	<b>0.3</b>	<b>2.2</b>
<i>Dow Jones Brookfield Global Infrastructure</i>	3.3	17.0	-	1.0	0.2	0.0
<b>Hedge Funds Portable Alpha</b>	<b>7.5</b>	<b>4.5</b>	<b>1.6</b>	<b>0.7</b>	<b>1.2</b>	<b>3.4</b>
<i>HFRI Conservative Fund of Funds Less LIBOR</i>	2.0	4.5	-	1.0	0.1	0.0

Page excludes managers with less than 5 years of history.

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**PERSPECTIVES  
THAT DRIVE  
ENTERPRISE  
SUCCESS**



**DECEMBER 2023**

Asset Liability Study: Process Overview and Capital Market Assumption Highlights

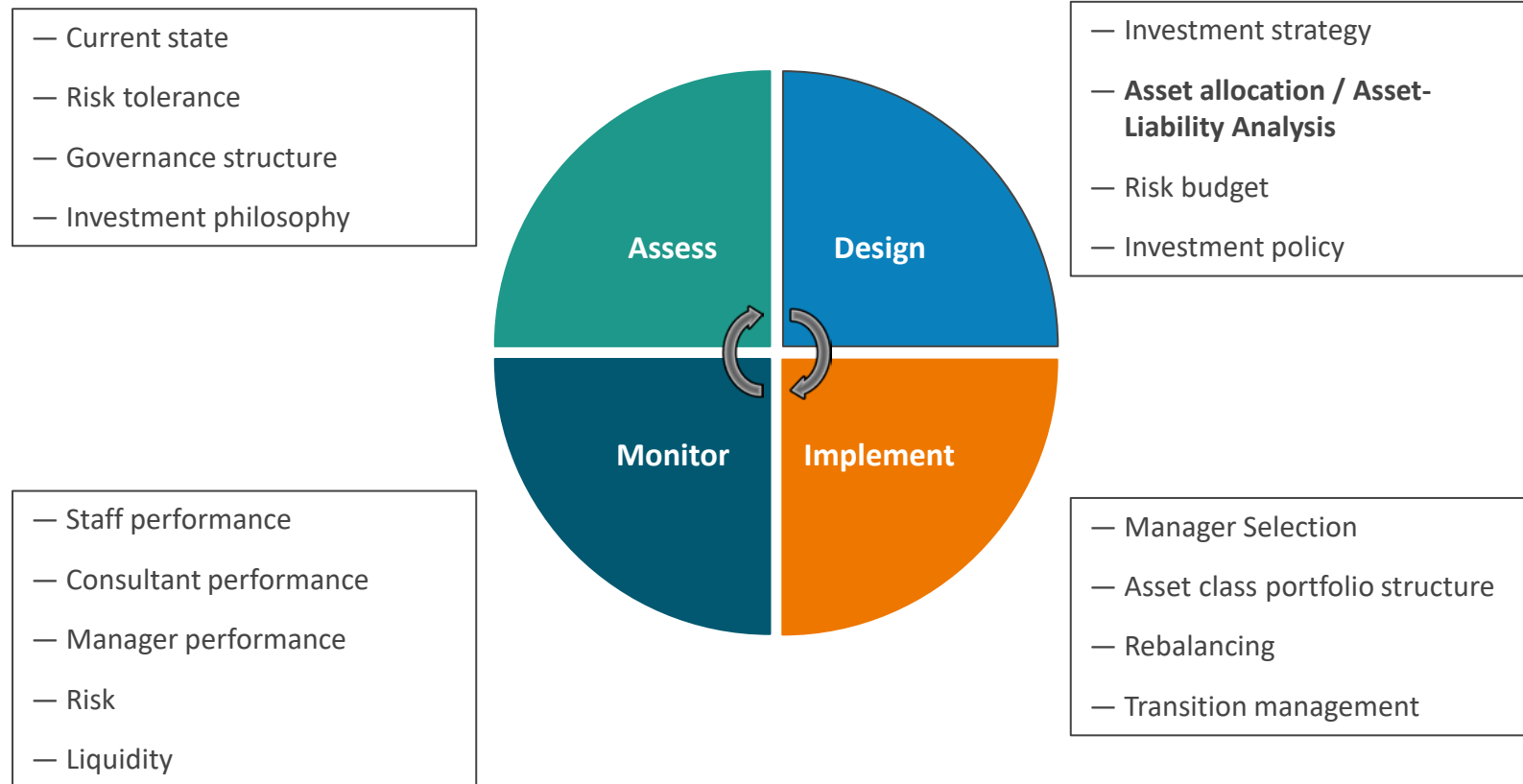
**South Carolina RSIC**

# ALM Study: Education Schedule

— In preparation for the upcoming ALM study in 2025, Verus has worked with RSIC staff in developing the following series of educational topics to be covered at 2023/2024 Commission meetings:

- Dec 2023                      Overview of ALM process and high level discussion on Capital Market Assumptions
- March 2024:                Deep dive presentation on Verus CMAs and our methodology
- June 2024:                 Review of RSIC liability profile
- September 2024:         Review of risks to be evaluated as part of ALM study
- December 2024:         Role of asset classes in a diversified portfolio and education on any new asset classes to be incorporated into ALM study

# Institutional investing process





# Asset-liability process overview

Key  
Inputs:

- RSIC Current financial position
- RSIC projected plan liabilities and expected contributions
- Verus long term capital market assumptions



Modeling  
Tools:

Stochastic  
Monte Carlo  
Analysis

Deterministic  
Scenario  
Analysis

Risk  
Analysis  
(via Barra)

Liquidity  
Coverage  
Model



Model  
Output/  
Decision  
Factors:

Return  
expectations

Volatility of  
Returns

Portfolio  
Sensitivity  
Analysis

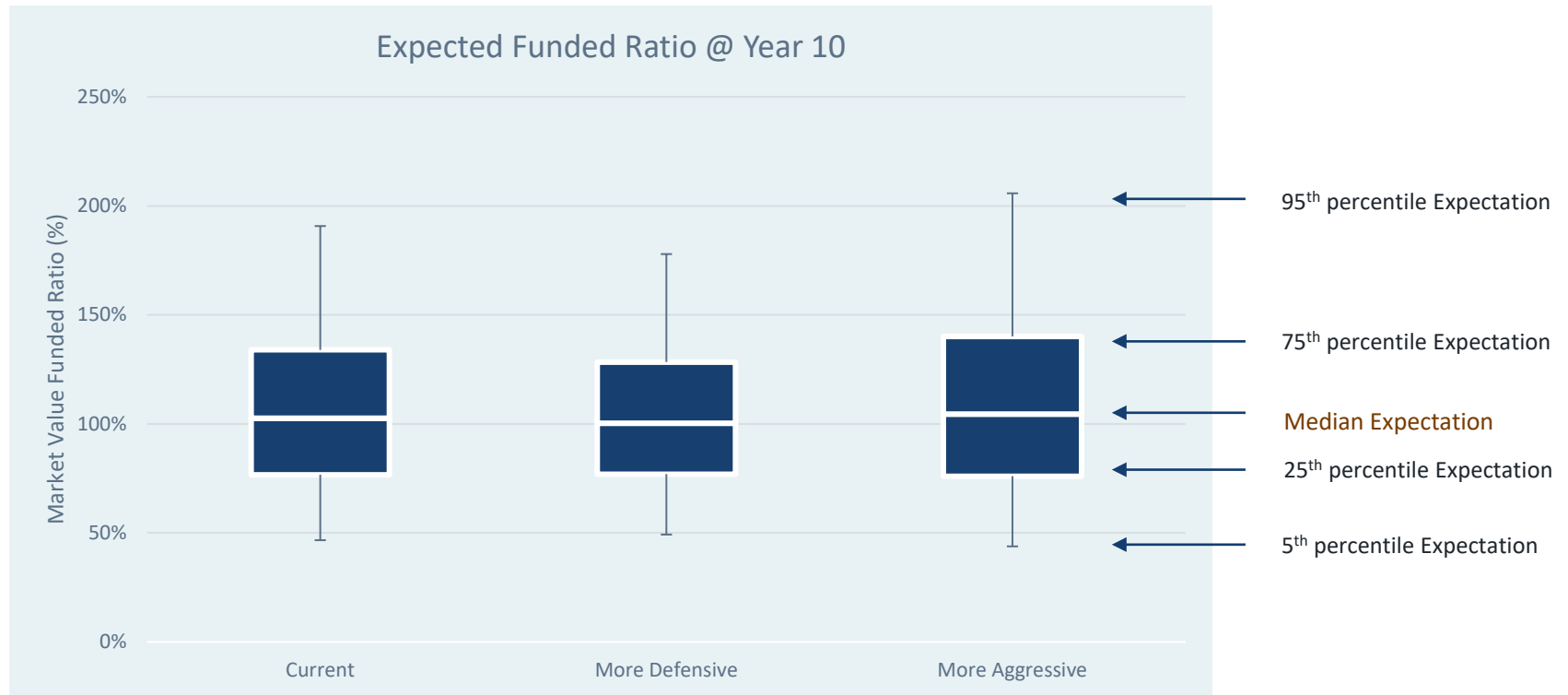
Historical  
Scenario  
analysis

Stress testing  
results

Liquidity  
coverage

# Stochastic Modeling Example: Funded Status

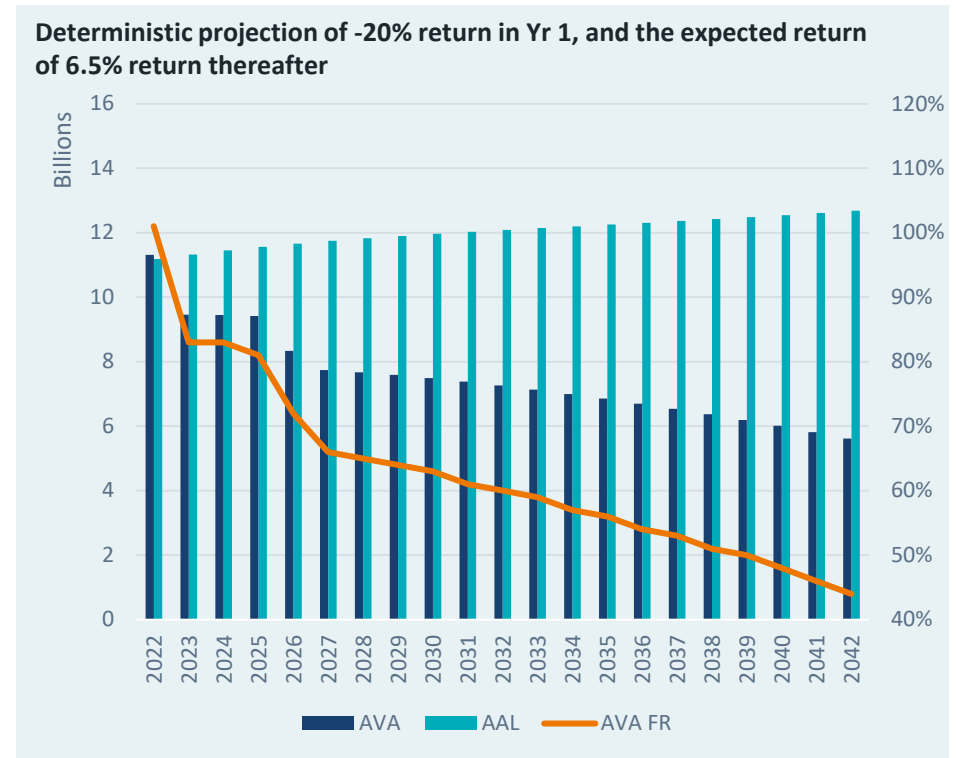
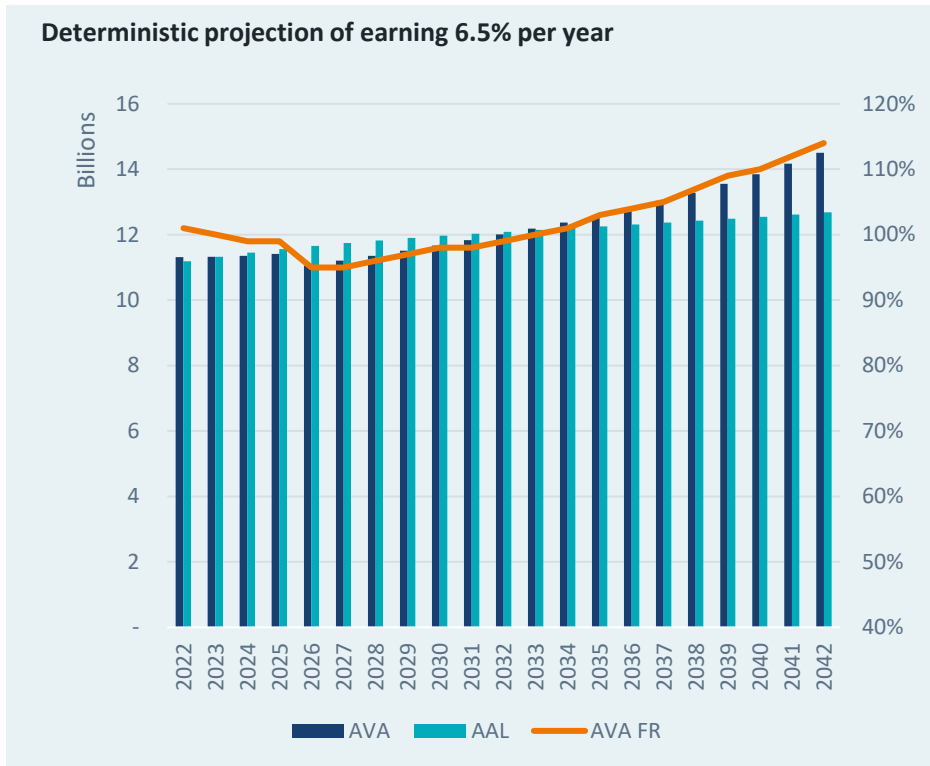
- Stochastic modelling is used to evaluate ranges of outcomes, using thousands of trials



	Current Mix	More Defensive	More Aggressive
Best Case (95%)	190.8%	177.9%	205.8%
Median (50%)	102.6%	100.3%	104.4%
Worst Case (5%)	46.6%	49.2%	43.8%

# Deterministic Modeling Example

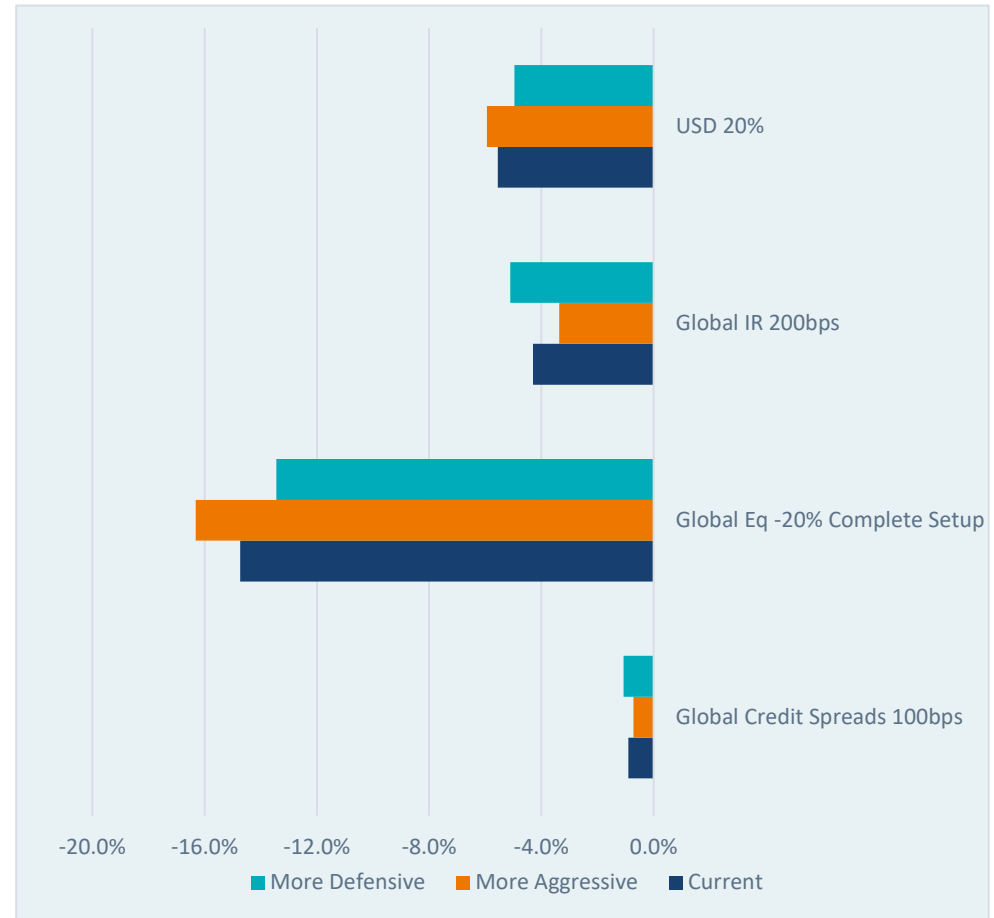
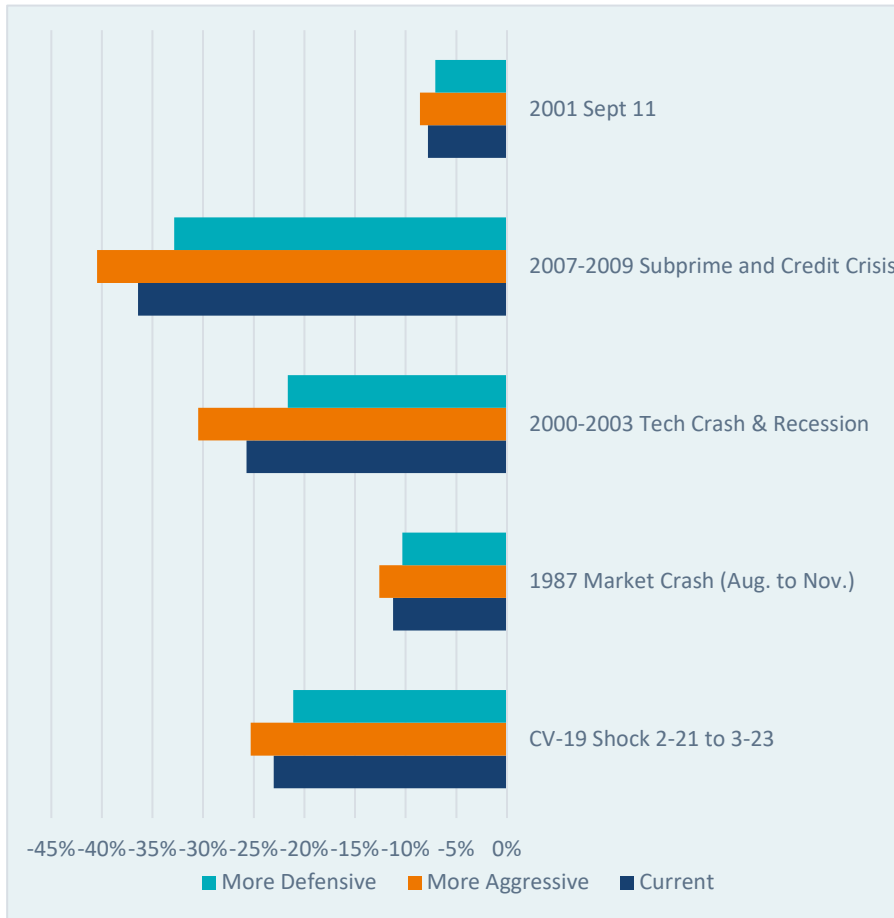
- Deterministic modeling can be used to evaluate individual, specific scenarios
- Example below: Left chart compares a deterministic projection of earning 6.5% per year (example plans EROA) per year versus right chart which models a -20% return in Yr 1, and the expected return of 6.5% return thereafter



AVA FR=funded ratio using actuarial value of assets

# Example of Scenario Analysis and stress tests

- Barra risk analytics is employed to evaluate impact of various historical scenarios and potential economic environments and market events on portfolio results.



Source: MSCI BARRA

# Liquidity Coverage Analysis (LCR) Example

- In the LCR analysis, the Plan's liquid assets are summed with expected cash flows in (contributions, investment returns and income) and divided by cash flow needs out (benefit payments and expected plan expenses).



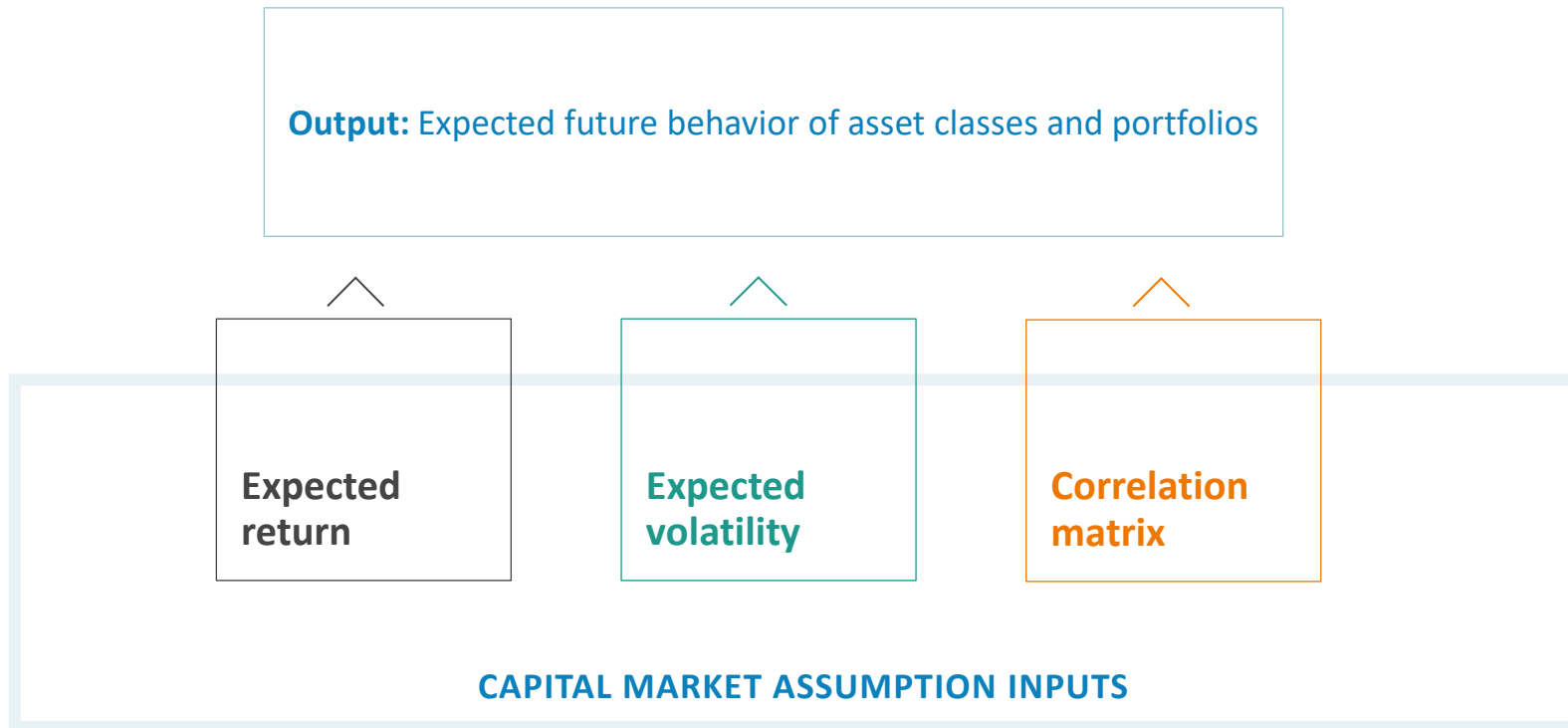
An LCR ratio greater than 1 indicates the Plan has sufficient liquid assets to cover all cash flows.

# Capital Market Assumption Preview

# 2024 Capital Market Assumptions Preview

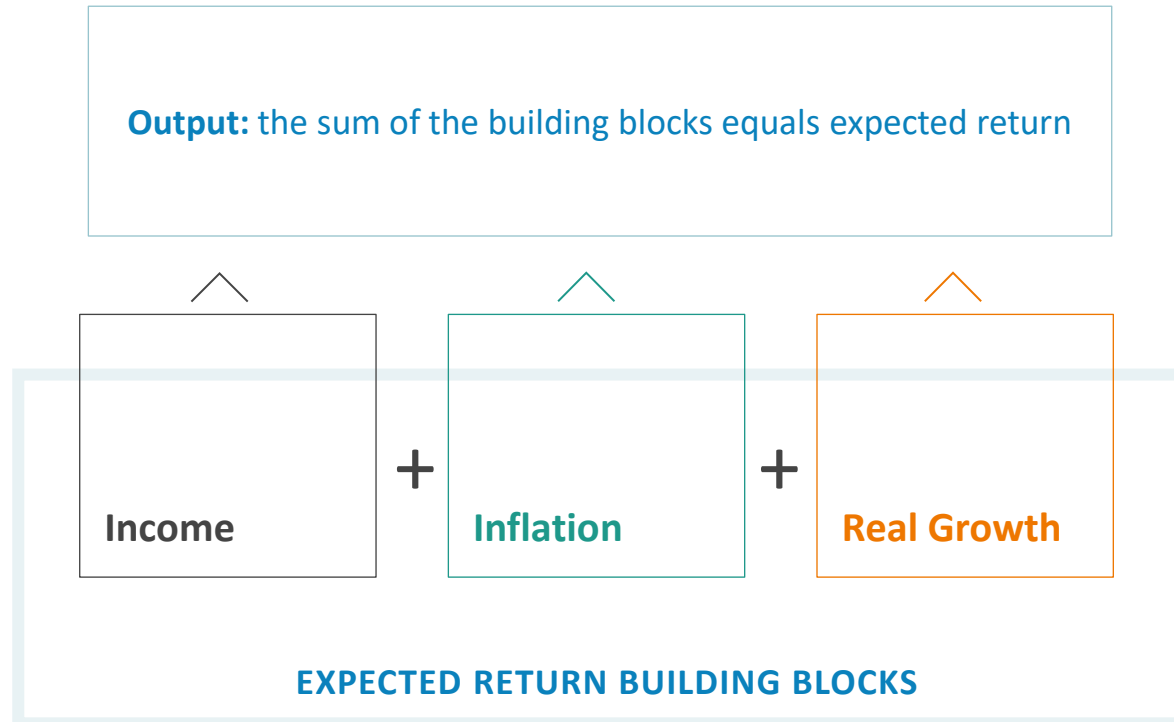
- Changes in return expectations will be mixed:
  - Fixed income asset yields are higher as the trend of rising interest rates continues.
  - Domestic equities have not materially repriced despite the increase in rates, as valuations remain lofty.
  - Higher bond yields and expensive equity markets result in forecasts for fixed income markets being more competitive with U.S. equity.
- The U.S. yield curve has been inverted for some time, and markets are pricing in a *higher for longer* interest rate environment for years to come, along with a relatively flat yield curve shape. Recent curve flattening has been due to yields increasing on the long end of the curve.
- Credit spreads have contracted slightly, despite a volatile bond environment, though materially higher interest rates have resulted in a net gain to most fixed income forecasts. Credit default activity has picked up from low levels and is now at fairly average levels over the past twelve months.
- Both domestic and global 60/40 portfolio ten-year expected returns were little changed from last year, as higher bond forecasts offset the changes in equity expected returns.

# Required forecasting inputs





# Building block methodology

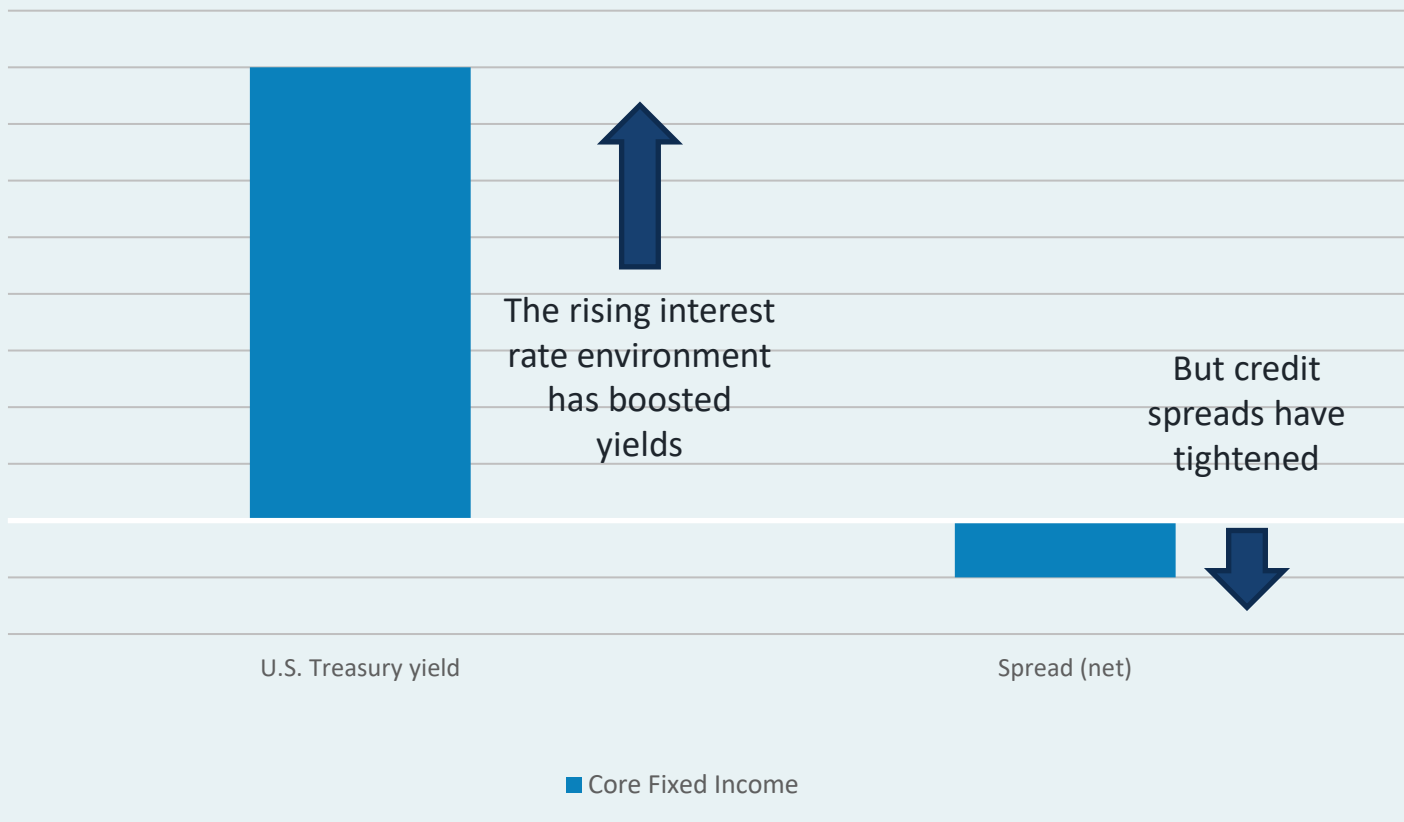


*For illustrative purposes only*

# How have return building blocks changed?

## U.S. CORE FIXED INCOME

### % CHANGE TO BUILDING BLOCKS 2023 VS 2024



Bond forecasts have broadly risen

Source: Verus

# How have return building blocks changed?

## U.S. LARGE CAP EQUITY

% CHANGE TO BUILDING BLOCKS 2023 VS 2024



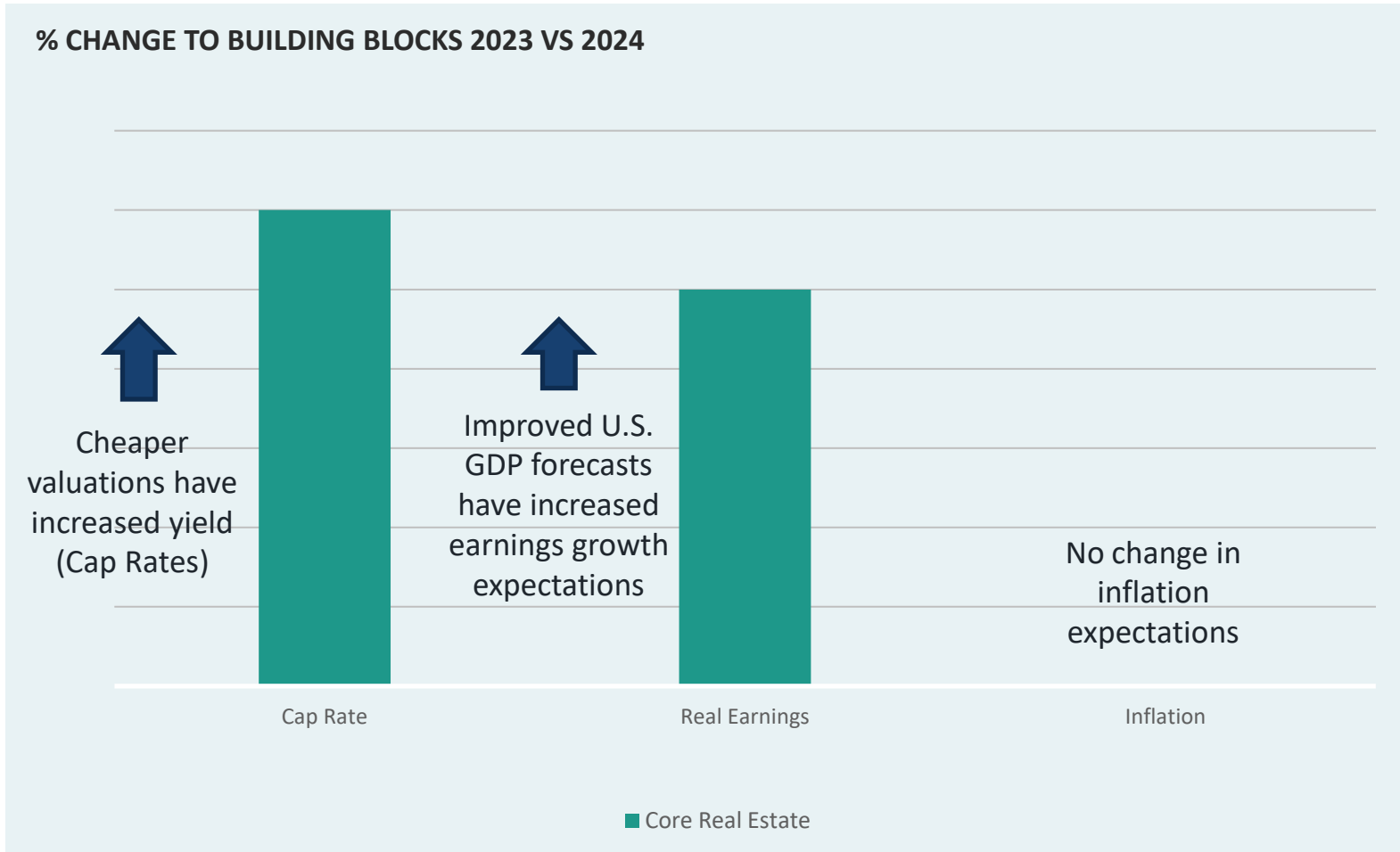
Higher equity valuations have resulted in a moderate downward adjustment to U.S. equity forecasts

Source: Verus

# How have return building blocks changed?

## PRIVATE REAL ESTATE

### % CHANGE TO BUILDING BLOCKS 2023 VS 2024



The selloff in real estate and improved economic outlook has resulted in stronger return expectations

Source: Verus

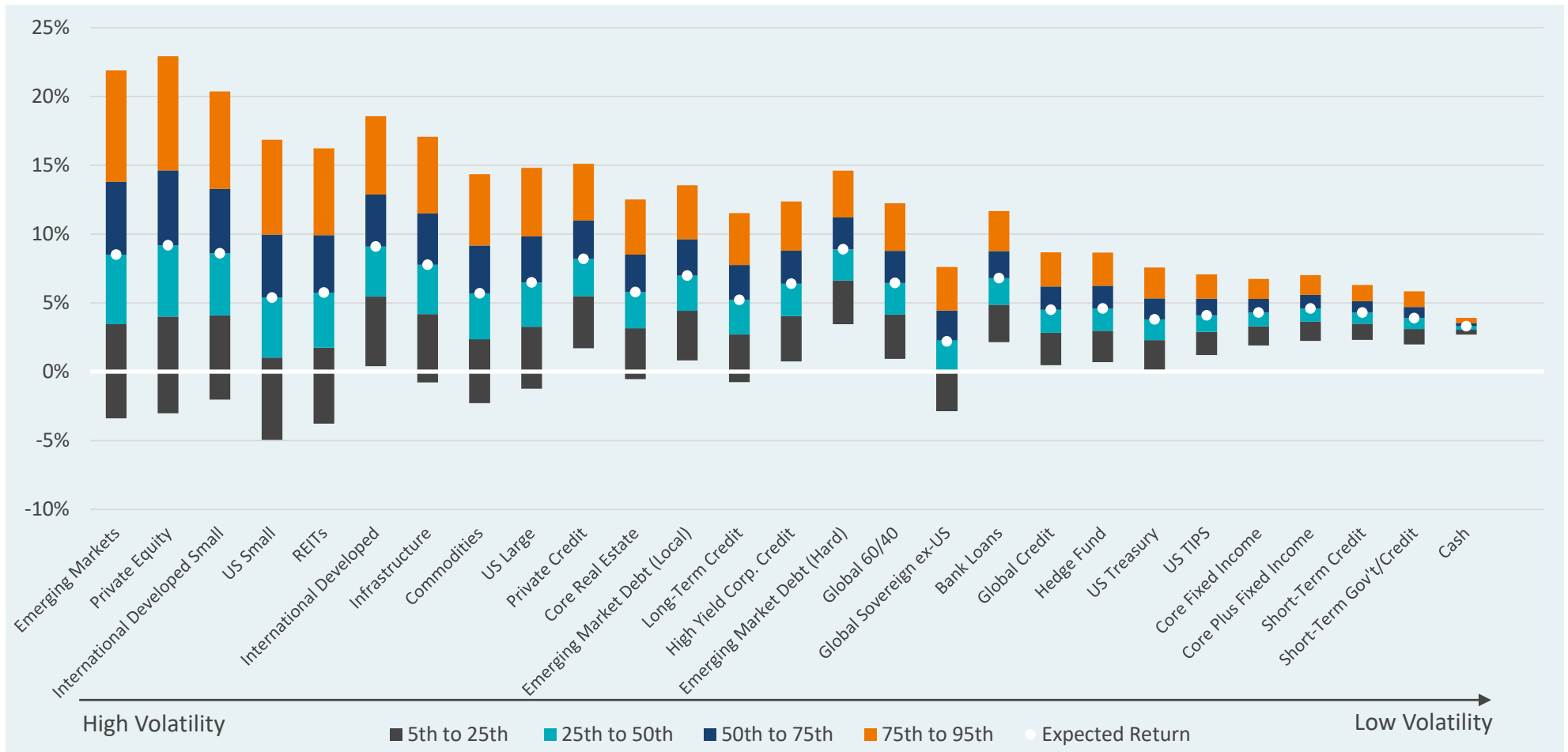
# Appendix

# Methodology

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 * current federal funds rate + 1/3 * U.S. 10-year Treasury yield + 1/3 * 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	1.2 * Long-term volatility of U.S. small cap
Commodities	Collateral return (cash) + spot return (inflation forecast) + roll return (assumed to be zero)	Long-term volatility
Hedge Funds	Return coming from traditional betas + 15-year historical idiosyncratic 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

# Probabilistic thinking (2023 CMA's)

2023 CMA 10-YEAR RETURN 90% CONFIDENCE INTERVAL



Source: Verus, MPI

# Delegated Investments (September 14, 2023 to December 6, 2023)

Asset Class	Investment	Investment Amount	RSIC Commitment Date
	None		

