

# STATE OF MICHIGAN INVESTMENT BOARD MEETING

## October 1, 2024

State of Michigan Retirement System  
Quarterly Investment Review



Rachael Eubanks, State Treasurer  
Prepared by Bureau of Investments  
Michigan Department of Treasury

# STATE OF MICHIGAN INVESTMENT BOARD MEETING

OCTOBER 1, 2024

## Agenda



- 9:30 a.m.      Call to Order and Opening Remarks
- Approval of the 6/12/24 SMIB Meeting Minutes
- 9:35 a.m.      Executive Summary & Performance for Periods Ending 6/30/24
- 9:40 a.m.      Current Asset Allocation Review
- Markets Review and Outlook
- 9:50 a.m.      Review of Investment Reports
- Real Return & Opportunistic – Update
  - Private Equity – Receive and File
  - Real Estate & Infrastructure – Receive and File
  - Absolute Return – Receive and File
  - Defined Contribution – Receive and File
  - Domestic Equity – Receive and File
  - International Equity – Receive and File
  - Fixed Income – Receive and File
- 10:05 a.m.      Guest Speaker: Maggie Arvedlund, CEO, Turning Rock Partners
- 10:55 a.m.      Public Comment
- 11:00 a.m.      Closing Remarks ~ Adjournment



### 2024 Meeting Schedule

Tuesday, December 17, 2024

All meetings start at 9:30 a.m.

# State of Michigan Retirement System

## MINUTES

State of Michigan Investment Board Meeting

October 1, 2024



Jon M. Braeutigam  
Chief Investment Officer  
Bureau of Investments

# STATE OF MICHIGAN INVESTMENT BOARD

## June 12, 2024 Meeting Minutes

### Board Members Present:

Chairman – Treasurer Rachael Eubanks – Present  
Ms. Jennifer Flood – Absent  
Ms. Dina Richard – Present  
Mr. Reginald Sanders – Present  
Ms. Denise Ilitch – Present

### Members of the Public and Bureau of Investments Staff in Attendance:

Robert Brackenbury	Vikram Ambekar	Krasimir Yankov
Greg Parker	Rashon Kulkarni	Aaron Bandy
Janet Sudac	Mark Porrell	Todd Warstler
Allison Wardlaw	Patrick Moraniec	Mariko Boswell
Anthony Estell	Dan Quigley	Mohit Mittal
Jon Braeutigam	Max Kotary	Andrew Calogerakis
Travis Haney	Andrew Higginsen	Richard Holcomb
Leo Sanchez		

Many others attended via Microsoft Teams.

### Opening Remarks:

Chairman, Treasurer Rachael Eubanks, called the meeting to order at 9:30am.

### Approval of Minutes:

Approval of April 2, 2024, SMIB Meeting Minutes – Motion to approve by Dina Richards. Seconded: Reggie Sanders.

## AGENDA

### Executive Summary

Mr. Jon Braeutigam, Chief Investment Officer of the Bureau of Investments, explained the SMRS 10-year rate of return is 9.1%, which is higher than the peer median returns. This return rate gives approximately \$16.8 billion in excess value compared to median returns over the past ten years. The higher rate of return also adds an estimated \$2 billion to the fiscal year 2025 budget and for every year sooner the Funds become fully funded, a projected \$3.8 billion is added to the budget annually.

The SMRS portfolio is comprised of \$105.4 billion in assets with \$17.4 billion in unfunded commitments. The Fund had \$650 million in new commitments during the March 2024 quarter and \$601 million net of contributions over the past year were paid out by the combined systems.

Mr. Braeutigam further discussed the Funds diversification and plan liquidity and ended by explaining the quarter's new commitments within Private Equity, Real Estate and Infrastructure and Real Return and Opportunistic.

### **Asset Allocation Review**

Mr. Greg Parker, Director of Asset Allocation and Public Markets, presented a brief markets review, tying it to the capital markets assumption performed by AON focusing on the assumed rate of return of long-term fixed income at 4.8% and short-term at 4.1%.

Mr. Parker discussed U.S. interest rates, stating the yield curve remains about the same which is inverted. The 3-month U.S. T-bill is yielding 5.5% and the yield to maturity on the U.S. Aggregate is 4.9%.

Mr. Parker stated the U.S. credit spreads as of March 31, 2024, widened slightly after the bankruptcy of Silicon Valley Bank. Investment grade credit spreads are roughly 35 bps below 20-year median rates and high yield credit spreads are approximately 124 bps below 20-year median rates.

### **Guest Speaker: Mr. Mohit Mittal, CIO of Core Strategies, PIMCO**

Ms. Mariko Boswell of PIMCO discussed PIMCO's relationship with SMRS naming funds dating back to 2008 and presented an organizational overview of the company. She explained PIMCO's role in diversity and inclusion strategies inside and initiatives outside of the company.

Ms. Boswell introduced Mr. Mohit Mittal who presented on PIMCO's fixed income outlook noting that fixed income offers a compelling value proposition. He discussed the comeback of bonds noting high starting yields and stabilizing inflation mean potential for attractive income, downside resilience, and reduced correlation with equities. Mr. Mittal explained attractive returns on absolute and risk-adjusted basis noting diversified bond portfolios may offer long-term equity-like returns with a better risk-adjusted profile, particularly considering starting valuations. He discussed U.S. exceptionalism and central bank divergence noting asynchronous business cycles and divergent monetary policy presents relative value opportunities across global fixed income through country and security selection. Mr. Mittal presented on monetary policy normalization noting peaked inflation and slowing growth signal we're approaching a period of rate cuts, mirroring historical central bank behavior and discussed cash versus fixed income and that historically core fixed income has outperformed cash in the subsequent 1-year and 3-year periods post-Fed peak policy.

Mr. Mittal presented the economic outlook in length with much discussion being had during and after the presentation.

### **Public Comment:**

There was no public comment.

### **Adjournment:**

The meeting concluded at 10:55am. The next meeting is October 1, 2024.

Approved:

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Chairman, Treasurer Rachael Eubanks

State of Michigan Retirement System

# EXECUTIVE SUMMARY

State of Michigan Investment Board Meeting

October 1, 2024



Jon M. Braeutigam  
Chief Investment Officer  
Bureau of Investments

# EXECUTIVE SUMMARY

June 30, 2024

## **Performance**

*Great long-term returns.*

<b>MPSERS Plan (6/30/24)</b>	<b>1-Year</b>	<b>3-Years</b>	<b>5-Years</b>	<b>7-Years</b>	<b>10-Years</b>
Annualized Returns	11.9%	6.1%	9.7%	9.8%	8.9%
Policy Returns	14.3%	6.8%	9.7%	9.5%	8.9%
Peer Median Returns*	10.6%	4.5%	8.5%	8.3%	7.5%

\*State Street Universe greater than \$10 billion.

- Across all time periods, the returns are significantly higher than peer median returns. The peers are defined as the State Street Universe of public pension plans greater than \$10 billion. Notably, the standard deviation of the monthly returns is below average for the longer time horizons.
- Over a very long horizon, since 1979, the annualized rate of return on the plan assets has been approximately 9.4%.
- Compounding at higher than peer returns can add significant value. For example, based on the \$60.2 billion June 2014 market value, a ten-year annualized return of 8.9% compared to the 7.5% peer median return added approximately \$17.1 billion in excess value. This equates to roughly an additional \$2.0 billion to the FY2026 budget.

## **Asset Allocation**

*Market and liquidity risk.*

- To earn the actuarial rates of return or higher, investment risks (primarily equity risk) must be assumed. The spread between the required rate of return and the risk-free rate is approximately 60 bps. This is the lowest spread in over 30 years. At the end of June 2024, the equity risk (beta) is approximately 0.37; lower than peer median of approximately 0.56.
- Liquidity is another fundamental risk assumed and it is managed through asset allocation. The plans have outstanding capital commitments to fund approximately \$16.5 billion in illiquid assets. In the June 2024 quarter, \$887 million of new commitments were made. To meet the strategic asset allocation targets, the pace of new commitments will have to remain subdued for the next several years.
- The combined systems paid out approximately \$904 million net of contributions over the past twelve months ending in June 2024. This compares to \$386 million a year ago and \$1.5 billion two years ago. Over the next several years, it is expected this figure will grow larger both in dollars and % AUM. A few reasons include approximately \$1.2 billion in additional one-time contributions were made during FY-2023, MPSERS OPEB is now fully funded and will now require approximately \$700 million less in contributions, and as MPSERS and SERS pensions achieve fully funded status (estimated 50% probability to occur by 2031) an additional \$3.8 billion of contributions will no longer be required.

## NEW COMMITMENTS

April 1, 2024 – June 30, 2024

(\$ Millions)

<b>Asset class</b>	<b>Fund Name / (Managed By)</b>	<b>Commitment</b>
<b>Absolute Return</b>		
	Apollo Accord+ II Fund (Apollo Accord+ II Management, LP)	\$300
	AMG Comvest Senior Lending Feeder Fund II, LP (Comvest Credit Managers, LLC)	150
<b>Private Equity</b>		
	Veritas Capital Fund IX, LP (Veritas Capital Partners IX, LLC)	150
	HarbourVest Co-Invest Fund VII Combined, LP (HarbourVest Co-Investment VII Associates, LP)	100
	Thoma Bravo Discover Fund V, LP (Thoma Bravo Discover Partners V, LP)	100
	Thoma Bravo Fund XVI, LP (Thoma Bravo Partners XVI, LP)	50
<b>Real Estate and Infrastructure</b>		
	BGO Europe IV King II/King III Co-Investment, LP (BentallGreenOak Europe IV, GP, LP)	26.7
<b>Venture Capital</b>		
	Accel London VIII, LP (Accel London VIII Associates, LLC)	10
<b>TOTAL</b>		<b>\$886.7</b>



State of Michigan Retirement System

# PERFORMANCE

State of Michigan Investment Board Meeting

October 1, 2024



Jon M. Braeutigam  
Chief Investment Officer  
Bureau of Investments

# ***Bureau of Investments***

## **Mission Statement**

*The Bureau of Investments continually strives to provide quality investment management services, broad professional expertise, and independent advice to the State of Michigan Investment Board as fiduciary of the State of Michigan Retirement System, and independent of the Board, to the State Treasurer for various Michigan trust funds and the State's common cash, for which the State Treasurer is the fiduciary.*

## **SMRS Goals**

*Maintain sufficient liquidity to pay benefits.*

*Meet or exceed the actuarial assumption  
over the long term.*

*Perform in the top half of the public plan  
universe over the long term.*

*Diversify assets to reduce risk.*

*Exceed individual asset class benchmarks  
over the long term.*

# MPSERS PENSION

## Time-Weighted Rates of Return

### Periods Ending June 30, 2024

	% of Portfolio 6/30/24	Ten Years <sup>1</sup>		Seven Years <sup>1</sup>		Five Years <sup>1</sup>		Three Years <sup>1</sup>		One Year		Current Quarter	
		Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank
<b>TOTAL PLAN</b>	<b>100.0</b>	<b>8.9</b>	<b>12</b>	<b>9.8</b>	<b>11</b>	<b>9.7</b>	<b>12</b>	<b>6.1</b>	<b>16</b>	<b>11.9</b>	<b>34</b>	<b>2.4</b>	<b>4</b>
Median - Greater than \$10 Billion <sup>2</sup>		7.5		8.3		8.5		4.5		10.6		1.5	
MPSERS Total Plan Policy		8.9		9.5		9.7		6.8		14.3		3.3	
<b>PRIVATE EQUITY AND VENTURE CAPITAL</b>	<b>21.6</b>	<b>13.5</b>	<b>7</b>	<b>15.0</b>	<b>10</b>	<b>14.4</b>	<b>11</b>	<b>8.2</b>	<b>52</b>	<b>6.2</b>	<b>63</b>	<b>3.4</b>	<b>3</b>
Median <sup>2</sup>		9.1		9.7		9.9		8.4		6.8		1.6	
Private Equity and VC Benchmark <sup>3</sup>		16.3		17.5		18.5		14.8		33.7		11.4	
<b>DOMESTIC EQUITIES</b>	<b>20.8</b>	<b>12.3</b>	<b>12</b>	<b>13.9</b>	<b>5</b>	<b>13.9</b>	<b>5</b>	<b>8.5</b>	<b>9</b>	<b>29.0</b>	<b>4</b>	<b>3.8</b>	<b>5</b>
Median <sup>2</sup>		9.0		11.0		10.7		5.2		17.8		2.3	
S&P 1500 Index		12.5		13.8		14.6		9.4		23.5		3.7	
<b>INTERNATIONAL EQUITIES</b>	<b>13.8</b>	<b>5.0</b>	<b>25</b>	<b>6.0</b>	<b>61</b>	<b>6.6</b>	<b>70</b>	<b>0.5</b>	<b>64</b>	<b>14.5</b>	<b>17</b>	<b>1.8</b>	<b>12</b>
Median <sup>2</sup>		4.8		6.1		6.7		1.3		12.5		0.6	
MSCI ACWI ex USA Net Index <sup>4</sup>		3.8		5.2		5.6		0.5		11.6		1.0	
<b>REAL RETURN AND OPPORTUNISTIC</b>	<b>10.2</b>	<b>10.8</b>		<b>12.0</b>		<b>11.4</b>		<b>8.1</b>		<b>10.5</b>		<b>2.0</b>	
50% (CPI + 4%) + 50% (actuarial rate) <sup>5</sup>		7.3		7.4		7.4		7.6		6.5		1.5	
<b>FIXED INCOME</b>	<b>10.0</b>	<b>2.9</b>	<b>11</b>	<b>2.4</b>	<b>10</b>	<b>1.4</b>	<b>22</b>	<b>-0.6</b>	<b>27</b>	<b>5.6</b>	<b>22</b>	<b>0.7</b>	<b>21</b>
Median <sup>2</sup>		1.8		1.4		0.5		-2.3		3.5		0.2	
Bloomberg US Agg Index		1.4		0.9		-0.2		-3.0		2.6		0.1	
<b>ABSOLUTE RETURN</b>	<b>10.0</b>	<b>5.8</b>		<b>7.3</b>		<b>8.3</b>		<b>7.7</b>		<b>12.2</b>		<b>3.4</b>	
1-Month T-Bill + 400 bps		5.5		6.0		6.2		7.1		9.6		5.4	
HFR Benchmark <sup>6</sup>		3.6		4.4		5.0		3.6		7.7		1.8	
<b>REAL ESTATE &amp; INFRASTRUCTURE</b>	<b>9.0</b>	<b>8.9</b>	<b>18</b>	<b>7.8</b>	<b>22</b>	<b>7.1</b>	<b>23</b>	<b>11.0</b>	<b>16</b>	<b>0.2</b>	<b>40</b>	<b>-0.2</b>	<b>43</b>
Median <sup>2</sup>		6.9		5.3		4.2		3.7		-3.8		-0.2	
NCREIF Property Index <sup>7</sup>		4.7		3.0		2.1		1.0		-6.8		-0.6	
NCREIF Open Fund Index Net		5.5		3.5		2.3		1.0		-10.0		-0.7	
<b>CASH EQUIVALENTS</b>	<b>4.6</b>	<b>1.8</b>		<b>2.3</b>		<b>2.4</b>		<b>3.2</b>		<b>5.6</b>		<b>1.4</b>	
1 Month T-Bill		1.5		2.0		2.2		3.1		5.6		1.4	

<sup>1</sup> Annualized Returns and Percentile Rank.

<sup>2</sup> Comparison universe is the State Street Universe comprised of Public Funds greater than \$10 billion on the total plan level and greater than \$1 billion for asset classes.

<sup>3</sup> SP500 + 300 bps with a 3 month lag.

<sup>4</sup> History from 10/1/2010 to 6/30/14 reflects MSCI ACWI ex USA (gross).

<sup>5</sup> Current actuarial rate is 6%. History prior to 12/1/18 reflects 50% (CPI +5%) + 50% (actuarial rate).

<sup>6</sup> FOF Conservative 1 month lagged.

<sup>7</sup> NCREIF Property Index is NPI minus 130 bps.

## Cumulative and Consecutive Total Fund Returns

### MPSERS

Cumulative For Years Ending 6/30/24

	1 Year	2 Year	3 Year	4 Year	5 Year	6 Year	7 Year	8 Year	9 Year	10 Year
MPSERS	11.9	8.5	6.1	12.3	9.7	9.4	9.8	10.2	9.2	8.9
Public Plan - Median (> \$10 billion)*	10.6	9.4	4.5	10.0	8.5	8.2	8.3	9.0	7.8	7.5
Rank	34	57	16	7	12	12	11	12	12	12
bp Difference - Median	126	-92	156	234	123	126	153	123	137	142

Consecutive For Years Ending

	06/24	06/23	06/22	06/21	06/20	06/19	06/18	06/17	06/16	06/15
MPSERS	11.9	5.2	1.3	33.4	0.1	8.0	12.0	12.9	1.5	6.2
Public Plan - Median (> \$10 billion)*	10.6	7.2	-2.8	27.4	2.1	6.6	9.1	13.0	1.4	3.7
Rank	34	82	14	8	88	18	4	56	46	5
bp Difference - Median	126	-199	416	599	-207	133	296	-9	12	258

### MSERS

Cumulative For Years Ending 6/30/24

	1 Year	2 Year	3 Year	4 Year	5 Year	6 Year	7 Year	8 Year	9 Year	10 Year
MSERS	11.9	8.5	6.1	12.3	9.8	9.5	9.8	10.2	9.2	8.9
Public Plan - Median (> \$1 billion)*	10.6	9.7	4.4	9.7	8.4	8.0	8.2	8.7	7.8	7.5
Rank	38	67	19	4	8	8	8	8	8	8
bp Difference - Median	126	-115	167	266	138	147	164	149	137	142

Consecutive For Years Ending

	06/24	06/23	06/22	06/21	06/20	06/19	06/18	06/17	06/16	06/15
MSERS	11.9	5.2	1.3	33.4	0.1	7.9	12.0	13.0	1.5	6.2
Public Plan - Median (> \$1 billion)*	10.6	7.8	-3.5	27.2	2.5	6.5	8.6	13.0	1.3	3.4
Rank	38	87	10	6	89	14	4	49	43	4
bp Difference - Median	126	-255	480	624	-239	144	341	3	28	281

\*State Street Public Funds Universe

## Cumulative and Consecutive Total Fund Returns

### MSPRS

Cumulative For Years Ending 6/30/24

	1 Year	2 Year	3 Year	4 Year	5 Year	6 Year	7 Year	8 Year	9 Year	10 Year
MSPRS	11.9	8.5	6.0	12.3	9.7	9.4	9.8	10.2	9.2	8.9
Public Plan - Median (> \$1 billion)*	10.6	9.7	4.4	9.7	8.4	8.0	8.2	8.7	7.8	7.5
Rank	38	66	19	5	9	9	9	9	9	9
bp Difference - Median	126	-115	166	263	137	145	163	148	136	141

Consecutive For Years Ending

	06/24	06/23	06/22	06/21	06/20	06/19	06/18	06/17	06/16	06/15
MSPRS	11.9	5.3	1.3	33.4	0.1	7.9	12.0	13.0	1.5	6.2
Public Plan - Median (> \$1 billion)*	10.6	7.8	-3.5	27.2	2.5	6.5	8.6	13.0	1.3	3.4
Rank	38	87	11	6	88	14	4	49	43	4
bp Difference - Median	126	-254	475	619	-238	142	342	2	27	279

### MJRS

Cumulative For Years Ending 6/30/24

	1 Year	2 Year	3 Year	4 Year	5 Year	6 Year	7 Year	8 Year	9 Year	10 Year
MJRS	11.7	8.4	5.7	11.8	9.4	9.1	9.5	10.0	9.0	8.7
Public Plan - Median (> \$1 billion)*	10.6	9.7	4.4	9.7	8.4	8.0	8.2	8.7	7.8	7.5
Rank	39	70	23	9	13	12	11	13	11	10
bp Difference - Median	107	-126	135	216	100	114	136	126	116	123

Consecutive For Years Ending

	06/24	06/23	06/22	06/21	06/20	06/19	06/18	06/17	06/16	06/15
MJRS	11.7	5.2	0.6	32.3	0.1	7.9	12.0	13.0	1.5	6.2
Public Plan - Median (> \$1 billion)*	10.6	7.8	-3.5	27.2	2.5	6.5	8.6	13.0	1.3	3.4
Rank	39	88	15	8	88	14	4	46	43	4
bp Difference - Median	107	-259	410	507	-237	143	342	9	25	278

\*State Street Public Funds Universe

State of Michigan Retirement System

# ASSET ALLOCATION REVIEW

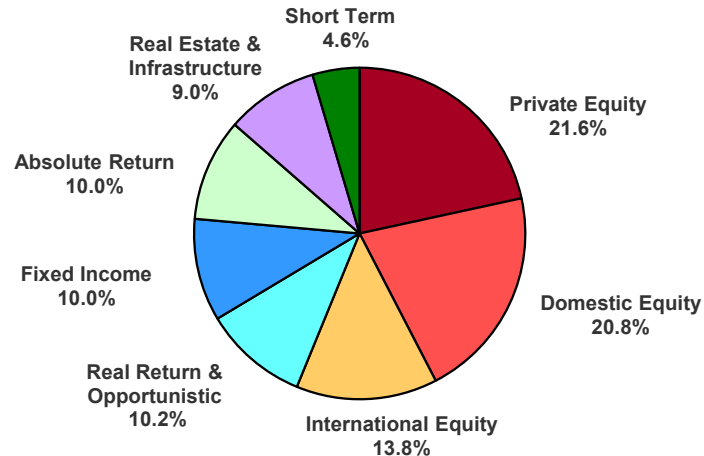
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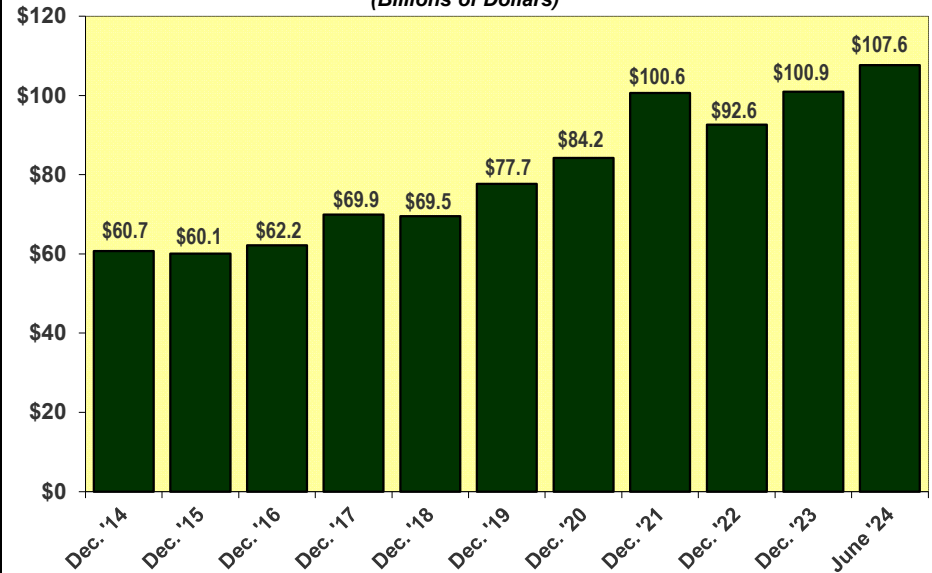
Gregory J. Parker, CFA  
Director of Investments – Public Markets  
Director of Asset Allocation  
Bureau of Investments

# STATE OF MICHIGAN RETIREMENT SYSTEM PROFILE - JUNE 2024

**Asset Allocation ~ 6/30/24**



**Market Value\***  
(Billions of Dollars)



**Asset Allocation By Market Value**  
(In Millions)

Investment Strategies	6/30/2024		6/30/2023	
Private Equity	\$23,274	21.6%	\$22,700	23.3%
Domestic Equity	22,357	20.8%	19,168	19.7%
International Equity	14,805	13.8%	12,959	13.3%
Real Return & Opportunistic	10,995	10.2%	10,250	10.5%
Fixed Income	10,759	10.0%	8,786	9.0%
Absolute Return	10,707	10.0%	9,605	9.9%
Real Estate & Infrastructure	9,716	9.0%	10,072	10.3%
Short Term	4,968	4.6%	3,901	4.0%
<b>TOTAL</b>	<b>\$107,581</b>	<b>100.0%</b>	<b>\$97,441</b>	<b>100.0%</b>

**Market Value By Plan ~ 6/30/24**  
(in Millions)

	Pension Plan Mkt. Value	OPEB** Mkt. Value	Combined Mkt. Value	%
MPERS	\$70,516	\$13,693	\$84,209	78.2%
MSERS - (closed)	14,287	6,321	20,608	19.2%
MSPRS	2,018	459	2,477	2.3%
MJRS - (closed)	273	14	287	0.3%
<b>TOTAL</b>	<b>\$87,094</b>	<b>\$20,487</b>	<b>\$107,581</b>	<b>100.0%</b>

MSERS includes the Military Pension Fund

**Short Term Equivalents** (in Billions)

Short Term Strategy	\$5.0	
Short Term in Other Inv. Strategies	1.2	
<b>TOTAL SHORT TERM</b>	<b>\$6.2</b>	<b>5.7% of Total Funds</b>

**12th Largest State Public Retirement System in the U.S.**

Pensions & Investments survey - February 12, 2024 issue

\*The combined net payout for the plans for FY 2022 was \$1.2 billion with \$25.6 billion paid out FY 2010 thru FY 2022 (Pension ACFRs). This represents the amount paid to beneficiaries in excess of employer and employee contributions.

\*\*OPEB - Other Post Employment Benefits

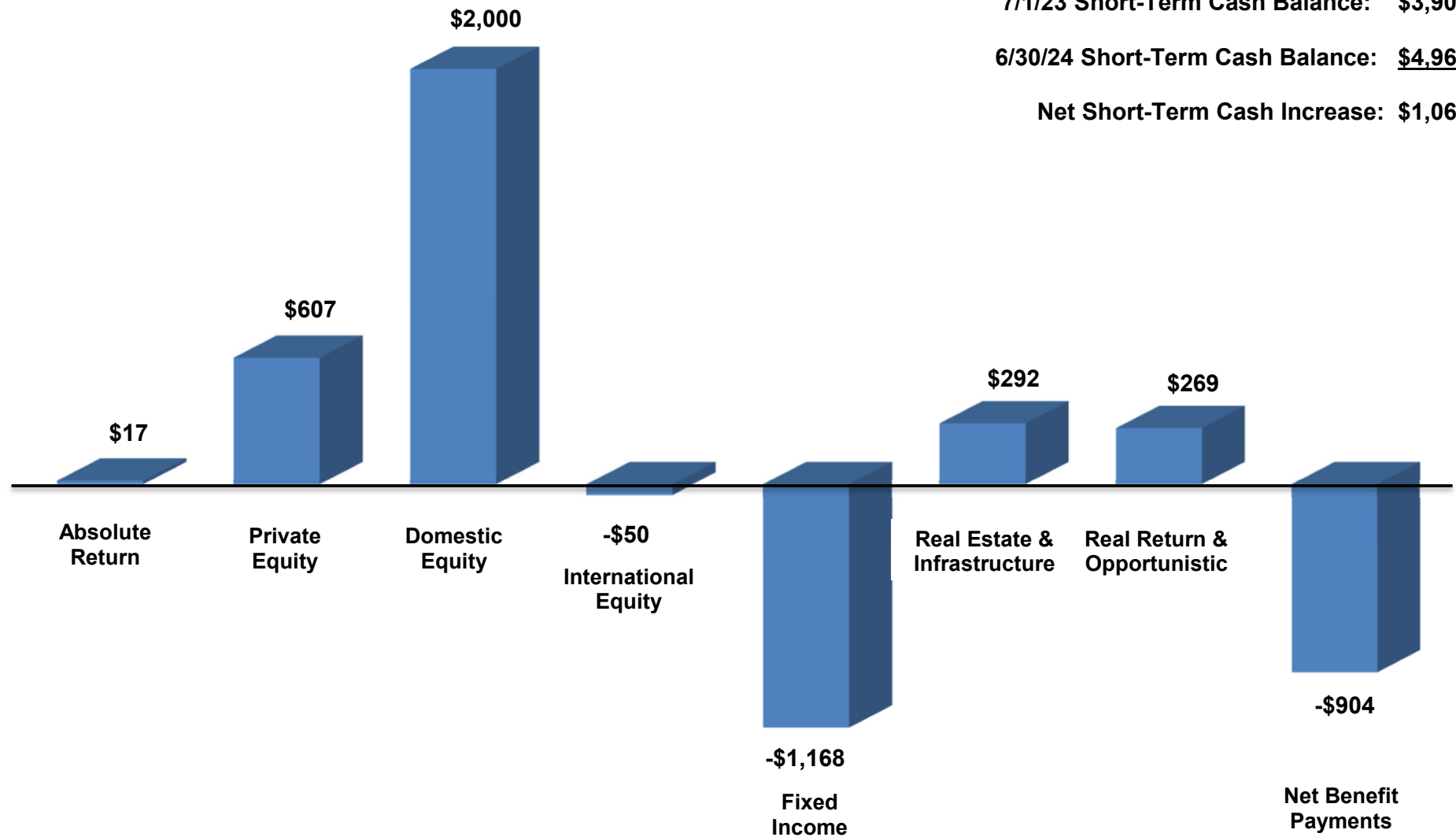
## Sources and Uses of Cash

July 2023 ~ June 2024

7/1/23 Short-Term Cash Balance: \$3,903

6/30/24 Short-Term Cash Balance: \$4,968

Net Short-Term Cash Increase: \$1,065



A negative number in an asset category indicates a use of cash, a positive number indicates a source of cash.

Dollars in millions



# Asset Allocation Targets

As of 6/30/24

	MPSERS		MSERS		MSPRS		MJRS		SMRS
<i>Asset Class</i>	<i>6/30/24</i>	<i>Target*</i>	<i>6/30/24</i>	<i>Target*</i>	<i>6/30/24</i>	<i>Target*</i>	<i>6/30/24</i>	<i>Target*</i>	<i>Ranges</i>
Private Equity	21.6%	16.0%	21.7%	16.0%	21.7%	16.0%	16.0%	16.0%	13% - 27%
Domestic Equity	20.8%	25.0%	20.9%	25.0%	20.9%	25.0%	20.9%	25.0%	17% - 32%
International Equity	13.8%	15.0%	13.8%	15.0%	13.8%	15.0%	13.9%	15.0%	12% - 22%
Real Return & Opportunistic	10.2%	10.0%	10.3%	10.0%	10.3%	10.0%	9.3%	10.0%	8% - 18%
Long Term Fixed Income	10.0%	13.0%	10.0%	13.0%	10.0%	13.0%	18.9%	13.0%	8% - 18%
Absolute Return	9.9%	9.0%	10.0%	9.0%	10.0%	9.0%	10.0%	9.0%	5% - 11%
Real Estate & Infrastructure	9.0%	10.0%	9.1%	10.0%	9.1%	10.0%	8.6%	10.0%	8% - 18%
Short Term Fixed Income	4.7%	2.0%	4.2%	2.0%	4.2%	2.0%	2.4%	2.0%	1% - 8%
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

\*Complies with basket clause and international restrictions.

State of Michigan Retirement System

# MARKETS REVIEW AND OUTLOOK

State of Michigan Investment Board Meeting

October 1, 2024



Gregory J. Parker, CFA

Director of Investments – Public Markets

Director of Asset Allocation

Bureau of Investments

## CAPITAL MARKETS

### Return and Risk Assumptions, Benchmark and Outlook

*A starting point.*

<b>MPSERS Plan</b>	<b>Assumed Return* (Arithmetic)</b>	<b>Standard Deviation*</b>	<b>Trailing 10-Year (Benchmark**)</b>
Private Equity	10.9%	20.0%	16.3%
Real Estate	9.6%	21.0%	4.7%
Real Ret / Opportunistic	9.3%	14.4%	7.3%
International Equity	8.4%	19.8%	3.8%
Domestic Equity	8.4%	19.1%	12.5%
Absolute Return	8.4%	11.5%	5.5%
Long-Term Fixed Income	5.0%	5.0%	1.4%
Short-Term	4.3%	1.4%	1.5%

\* Aon Investment Consultants 2024 Long-Term Return/Risk Assumptions

\*\* Investment Policy Statement; Annualized Returns

\*\*\* Actual investments may differ due to changing conditions and the availability of new information

### Overview

*A market update.*

- At the end of June 2024, the yield to maturity of the U.S. Aggregate index was 5%. These are some of the highest yields over the past ten years and rank in the second decile of yields over the past twenty years.
- Interest rates at both the short and long end are now finally earning more than the year-over-year increase in CPI. The U.S. Fed Funds rate is around 230 basis points above the year-over-year increase in CPI. The last time real yields were this high during an inflationary environment was from September 2006 through September 2007.
- Over the past ten years, international equities have underperformed domestic equities by approximately -8.7% annualized. There are two key variables that explain most of the under-performance of international vs. U.S. equities over the past decade: the appreciating value of the U.S. dollar (approximately 3.8% annualized) and the valuation multiple changes of the markets (approximately 3% annualized).
- Valuation metrics for the U.S. market are higher relative to historical averages, suggesting the market is priced to deliver marginally lower rates of return. A concern is that the risk of a potential recession is not priced in, and many strategists believe that if a recession were to materialize, valuations will continue to cheapen. Relative to bond yields, the S&P 500 yields are at a two-decade low.
- Fed policy is restrictive and while the inflation is coming down, it is still high by historical standards. The June 2024 reading for year-over-year CPI was 3.0% which was down from 3.5% the quarter prior. For comparison, the 20-year median CPI is 2.2%.

## **U.S. Fixed Income**

### *Positive real yields*

- At the end of June 2024, the yield to maturity of the U.S. Aggregate index was 5%. These are some of the highest yields over the past ten years and rank in the second decile of yields over the past twenty.
- The most recent change to the U.S. Federal Reserve Board policy interest rate was a 25 basis point hike in July 2023. By the end of the June 2024 quarter, the market was pricing in between one and two rate cuts through the remainder of the year.
- An inverted yield curve is often cited as having U.S. economic recession predictive power. However, at the end of June 2024, credit spreads were not pricing in economic worries. Both investment grade and high yield spreads were well below historical averages.
- Interest rates at both the short and long end are now finally earning more than the year-over-year increase in CPI. The U.S. Fed Funds rate is around 230 basis points above the year-over-year increase in CPI. The last time real yields were this high during an inflationary environment was from September 2006 through September 2007.

## **International Equity**

### *Good relative valuations.*

- The broad non-U.S. stock market return for the one year ending June 2024 was 11.6%, and 3.8% annualized over the past ten years.
- Over the past ten years, international equities have underperformed domestic equities by approximately -8.7% annualized. There are two key variables that explain most of the under-performance of international vs. U.S. equities over the past decade: the appreciating value of the U.S. dollar (approximately 3.8% annualized) and the valuation multiple changes of the markets (approximately 3% annualized).
- The DXY index is often referred to as a measure of U.S. dollar value relative to other developed nation currencies. At the end of September 2022, the index hit a value of 114, a twenty-year high, but has fallen over -7% since then.
- Based on a price-to-earnings valuation multiple, non-U.S. equities are trading at valuations below average. Relative to the U.S., developed international markets trade at approximately a 36% discount to U.S. counterparts while emerging markets are at a 43% discount.

## **Domestic Equity**

*Concentration in the domestic equity index.*

- The broad U.S. stock market return for the one year ending June 2024 was 23.5%, and 12.5% annualized over the past ten years. In contrast, U.S. small-cap stocks returned 10% for the year and 7% for the ten-year period ending June 2024 and are priced 16% below their all-time highs.
- Valuation metrics for the U.S. market are higher relative to historical averages, suggesting the market is priced to deliver marginally lower rates of return. A concern is that the risk of a potential recession is not priced in, and many strategists believe that if a recession were to materialize, valuations will continue to cheapen. Relative to bond yields, the S&P 500 yields are at a two-decade low.
- Fundamentally, the market's returns on equity continue to be historically higher than average and some of the largest companies in the market today are less cyclical (economically sensitive) than past market leaders. These facts lend support to the argument that higher valuations are justified, and therefore the market could perhaps continue to deliver historical average rates of return in the future.
- The S&P 500 has become very concentrated by weight, but also by returns, making it difficult for active managers to add value in this type of market. By weight, the largest seven companies make up more than 32.7% of the index weight.

## **Real Estate**

*Comparing public vs. private real estate.*

- Over the one year ending June 2024, the NAREIT index gained 5.8% including dividends, which was approximately 12.6% higher than their private market counterparts. Over the medium to longer-term, publicly traded REITs have earned 0.5% - 1.5% higher return than their private market counterparts but they are about three times more volatile.
- Dividend yields on REITs at the end of June were estimated to be around 3.8%, which is 24 bps lower than the yield of the 10-year U.S. Treasury. This metric is approximately 1.4% below the historical average.

## **Commodities**

*Inflation; supply and demand issues.*

- Fed policy is restrictive and while inflation is coming down, it is still high by historical standards. June 2024 reading for year-over-year CPI was 3.0% which was down from 3.5% the quarter prior. For comparison, the 20-year median CPI is 2.2%.
- The commodities prices broadly, as measured by the CRB index, are down -1.6% over the 12-month period ending June 2024. The price for crude oil was up 15.4% year-over-year and ended June 2024 at \$81.54 per barrel.
- An additional complication for assessing the inflation picture is the war between Russia and Ukraine which started on February 24, 2022.

# Annual Total Returns of Key Asset Classes 2004 - 2023

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	
Best ↑  ↓ Worst	Int'l Equity	Real Estate	Int'l Equity	Int'l Equity	Gov't Bonds	Int'l Equity	U.S. Equity	Real Estate	Int'l Equity	U.S. Equity	U.S. Equity	Real Estate	U.S. Equity	Int'l Equity	Real Estate	U.S. Equity	U.S. Equity	U.S. Equity	Infla- tion	U.S. Equity	Best
	20.90%	20.06%	26.65%	16.65%	12.38%	41.44%	16.38%	14.26%	16.83%	32.80%	13.08%	13.32%	11.93%	27.19%	6.71%	30.90%	17.92%	28.45%	6.50%	25.47%	
	Real Estate	Int'l Equity	Real Estate	Real Estate	Cash	U.S. Equity	Real Estate	Gov't Bonds	U.S. Equity	Int'l Equity	Real Estate	U.S. Equity	Real Estate	U.S. Equity	Infla- tion	Int'l Equity	Int'l Equity	Real Estate	Real Estate	Int'l Equity	
	14.48%	16.62%	16.59%	15.84%	2.05%	27.24%	13.11%	9.02%	16.17%	15.29%	11.81%	1.01%	7.97%	21.13%	1.91%	22.13%	10.65%	17.70%	5.50%	16.08%	
	U.S. Equity	U.S. Equity	U.S. Equity	Gov't Bonds	Infla- tion	Corp. Bonds	Int'l Equity	Corp. Bonds	Real Estate	Real Estate	Corp. Bonds	Gov't Bonds	Corp. Bonds	Real Estate	Cash	Corp. Bonds	Corp. Bonds	Int'l Equity	Cash	Corp. Bonds	
	11.78%	5.65%	15.34%	8.67%	0.10%	16.05%	11.15%	8.35%	10.54%	10.99%	7.53%	0.86%	5.63%	6.96%	1.88%	14.54%	9.89%	8.29%	1.46%	8.52%	
	Hedge Funds	Hedge Funds	Hedge Funds	Hedge Funds	Corp. Bonds	Hedge Funds	Corp. Bonds	Infla- tion	Corp. Bonds	Hedge Funds	Gov't Bonds	Infla- tion	Int'l Equity	Corp. Bonds	Gov't Bonds	Gov't Bonds	Gov't Bonds	Hedge Funds	Hedge Funds	Cash	
	5.83%	5.13%	9.21%	7.68%	-3.07%	9.65%	8.46%	2.96%	9.37%	7.70%	4.92%	0.66%	4.50%	6.42%	0.88%	6.83%	7.94%	7.56%	0.12%	5.13%	
	Corp. Bonds	Infla- tion	Cash	U.S. Equity	Real Estate	Infla- tion	Gov't Bonds	U.S. Equity	Hedge Funds	Infla- tion	Hedge Funds	Hedge Funds	Infla- tion	Hedge Funds	Hedge Funds	Real Estate	Hedge Funds	Infla- tion	Gov't Bonds	Hedge Funds	
	5.25%	3.42%	4.81%	5.47%	-6.46%	2.72%	5.52%	1.75%	4.22%	1.49%	3.14%	0.37%	2.09%	3.88%	-1.05%	6.42%	4.75%	7.12%	-12.32%	4.50%	
	Gov't Bonds	Cash	Corp. Bonds	Corp. Bonds	Hedge Funds	Cash	Hedge Funds	Cash	Gov't Bonds	Cash	Infla- tion	Cash	Hedge Funds	Gov't Bonds	Corp. Bonds	Hedge Funds	Real Estate	Cash	Int'l Equity	Gov't Bonds	
	3.48%	3.06%	4.27%	5.10%	-19.86%	0.19%	5.07%	0.10%	2.02%	0.07%	0.68%	0.01%	1.89%	2.30%	-2.51%	4.40%	1.60%	0.05%	-15.57%	4.09%	
	Infla- tion	Gov't Bonds	Gov't Bonds	Cash	U.S. Equity	Gov't Bonds	Infla- tion	Hedge Funds	Infla- tion	Corp. Bonds	Cash	Corp. Bonds	Gov't Bonds	Infla- tion	U.S. Equity	Infla- tion	Infla- tion	Corp. Bonds	Corp. Bonds	Infla- tion	
	3.25%	2.65%	3.46%	5.03%	-36.72%	-2.19%	1.50%	-3.55%	1.70%	-2.01%	0.04%	-0.77%	1.05%	2.12%	-4.96%	2.29%	1.40%	-1.04%	-15.76%	3.40%	
	Cash	Corp. Bonds	Infla- tion	Infla- tion	Int'l Equity	Real Estate	Cash	Int'l Equity	Cash	Gov't Bonds	Int'l Equity	Int'l Equity	Cash	Cash	Int'l Equity	Cash	Cash	Gov't Bonds	U.S. Equity	Real Estate	
	1.33%	1.95%	2.55%	4.06%	-45.52%	-16.86%	0.13%	-13.71%	0.11%	-2.60%	-3.87%	-5.67%	0.27%	0.84%	-14.20%	2.28%	0.45%	-2.28%	-17.78%	-7.94%	Worst

	Annualized Returns 2004 - 2023																			
Return Risk		Cash		Inflat.		Gov't.		Hedge		Corp.		Int'l.		R.E.		US Eq.				Return
		1.36%		2.58%		2.70%		3.04%		4.13%		5.92%		7.71%		9.75%				Risk
		0.85%		1.94%		5.04%		5.29%		6.71%		18.85%		5.31%		16.13%				

- Hedge Funds are represented by the HFRI FOF Conservative Index  
 - Inflation is represented by the U.S. Consumer Price Index (SA)  
 - International Equity is represented by the MSCI - AC World EX-USA Index  
 - Cash is represented by 30-day T-Bills

- U.S. Equity is represented by the S&P 1500 Index  
 - Real Estate is represented by the NCREIF National Property Index  
 - Corporate Bonds are represented by the BBG Barclays - U.S. Corp. Inv. Gd. Index  
 - Government Bonds are represented by the BBG Barclays - U.S. Government Index

State of Michigan Retirement System

# REAL RETURN & OPPORTUNISTIC REVIEW

State of Michigan Investment Board Meeting  
October 1, 2024



Daniel J. Quigley  
Senior Investment Manager  
Real, Opportunistic, and Absolute Return Division

## EXECUTIVE SUMMARY

### Performance

<b>MPSERS Plan (6/30/24)</b>	<b>1-Year</b>	<b>3-Years</b>	<b>5-Years</b>	<b>7-Years</b>	<b>10-Years</b>
Real & Opportunistic	10.5%	8.1%	11.4%	12.0%	10.8%
Custom Benchmark	6.5%	7.6%	7.4%	7.4%	7.3%

- The portfolio value is \$11.0 billion with a return of 10.5% for the past twelve-month period.
- Performance for the year has been positive for both the Real Asset and Opportunistic portfolio asset types. The portfolio outperformed the benchmark, primarily driven by income distributions and asset appreciation within the entertainment royalties and real assets strategies.

### Strategy Update

- The objective of the Real Return & Opportunistic portfolio is to provide an inflation hedge and/or to gain exposure to attractive opportunities that may not fit in another plan portfolio.
- During the quarter, the Real Return & Opportunistic portfolio continued to benefit from exposure to assets with low equity beta and diversity of strategy, industry, and geography.
- The Real Return & Opportunistic portfolio has approximately \$2.8 billion of unfunded commitments. No new commitments were closed during the quarter.
- In addition to monitoring opportunities in the private capital markets along with macroeconomic developments, staff remains focused on finding differentiated strategies that are additive to the current portfolio mix and continues to favor niche private markets strategies with some scalability. Opportunities that have defensible, contractual cash flows and offer structural downside protection, specifically those with experienced investment teams and proven track records, are preferred.

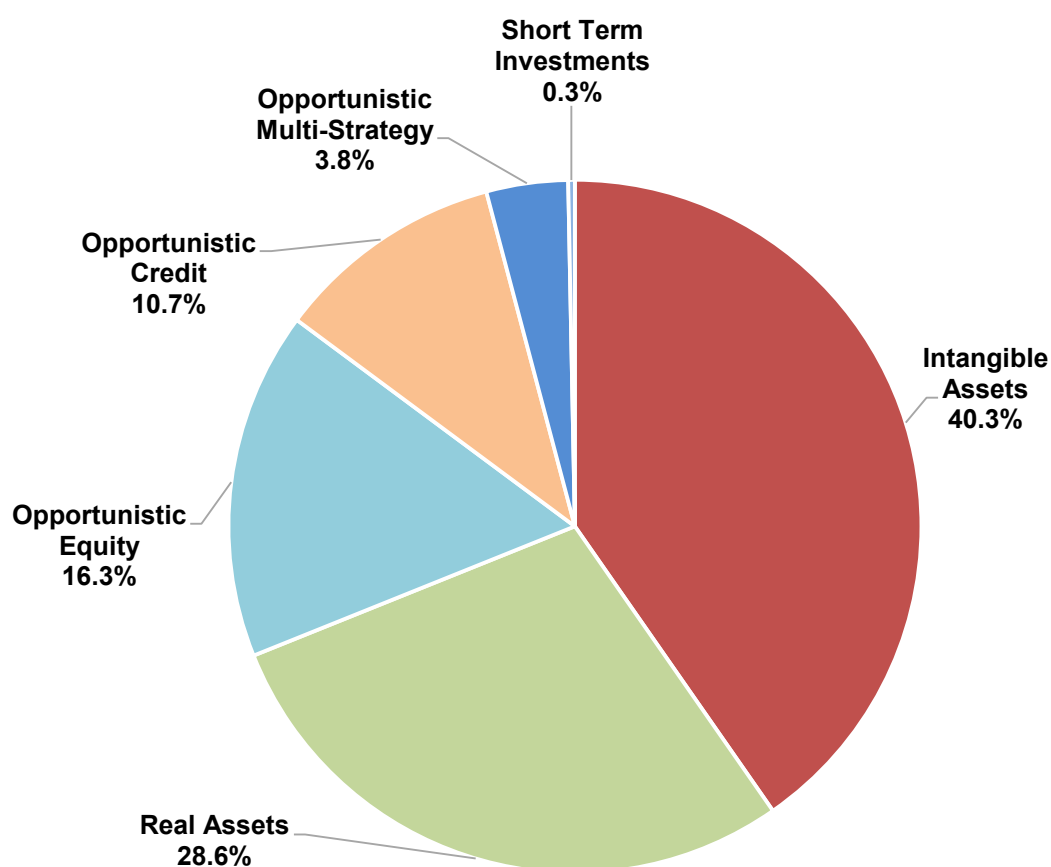


# SMRS

## Real Return and Opportunistic

6/30/24

### Investments By Strategy



#### Market Value in Millions

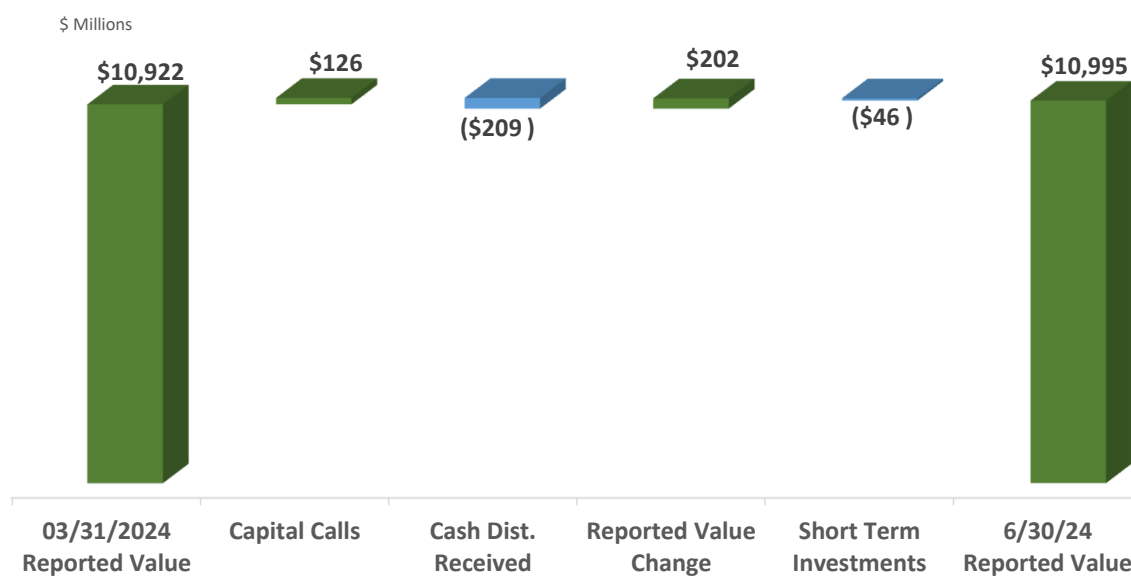
	<u>6/30/24</u>
Intangible Assets	\$4,433
Real Assets	3,144
Opportunistic Equity	1,787
Opportunistic Credit	1,177
Opportunistic Multi-Strategy	419
Short Term Investments	<u>35</u>
<b>Total Investments</b>	<b><u>\$10,995</u></b>

# SMRS

## Real Return and Opportunistic

6/30/24

### Invested Commitments



### Outstanding Commitments



\*Adjusted value due to new methodology

# SMRS

## Real Return and Opportunistic

6/30/24

### Net Market Value by Entity

	Net Market Value	Unfunded Commitment
* Abernathy Fund I, LLC	\$ 219,492,100	\$ 4,948,241
* Abernathy Fund II	21,763,590	27,036,675
American Industrial Partners Capital Fund VIII	10,363,901	89,636,099
American Industrial Partners VII, LP	98,441,707	17,836,827
Apollo Financial Credit Investments Fund II, LP	236,599,843	289,091,801
Apollo Financial Credit Investments Fund III, LP	181,166,216	250,871,434
Axton Holdings, LLC	3,849,952,555	0
Blackstone Strategic Capital Holdings (Side Car), LP	109,541,319	0
Blackstone Strategic Capital Holdings II, LP	147,851,641	95,734,038
Blackstone Strategic Capital Holdings, LP	120,023,138	16,281,188
Blue Peninsula Fund, LP	124,583,742	9,988,856
BroadRiver III, LP	147,160,706	59,487,103
BSCH Parallel (MLG) I, LP	335,584,331	-
Centerbridge Capital Partners III, LP	69,459,703	5,730,781
CircleUp Credit Fund I, LP	6,021,181	900,364
Clearlake Capital Partners VI, LP	119,344,904	3,718,307
Clearlake Opportunities Partners II, LP	47,391,125	28,259,580
Clearlake Opportunities Partners III, LP	22,779,267	77,006,311
Content Holdings, LLC	331,646,022	0
Dawson Partners GP Finance 2, LP	4,209,621	145,790,379
Energy Transition Holdings LLC	781,308,194	0
Green Range Holdings LLC	2,270,819,823	924,314,742
Hopen Life Sciences Fund II, LP	1,986,985	135,000
Nyanza I, LLC	0	2,222
Nyanza II, LLC	217,752,170	72,218,306
Origami Opportunities Fund V	34,852,677	67,447,717
Origami Opportunities Overflow Fund V, LP	18,041,577	0
* Renaissance Venture Cap Fund II, LP	20,056,960	0
* Renaissance Venture Cap Fund III, LP	29,610,992	1,500,000
Shamrock Capital Content Fund I, L.P	34,298,046	35,196,978
Sixth Street Agriculture Partners I	91,729,961	16,839,788
Sixth Street Growth Partners (A), LP	194,747,407	61,728,798
Sixth Street Growth Partners II (A), LP	72,568,225	132,107,851
Sixth Street TAO Partners (B), LP	253,396,880	101,872,577
* Social Network Holdings, LLC	411,908,586	0
Sycamore Partners III, LP	112,719,597	39,748,544
TPG Rise Climate, LP	129,814,097	139,074,945
Vida Insurance Credit Opportunity Fund II, LP	81,000,777	37,944,695
<b>Total Real Return and Opportunistic Strategies</b>	<b>\$ 10,959,989,565</b>	<b>\$ 2,752,450,148</b>
Short-Term Investments & Other	35,012,176	0
<b>Grand Total</b>	<b>\$ 10,995,001,741</b>	<b>\$ 2,752,450,148</b>

\* Fund of Funds

State of Michigan Retirement System

# PRIVATE EQUITY REVIEW

State of Michigan Investment Board Meeting  
October 1, 2024



Peter A. Woodford  
Senior Investment Manager  
Private Equity Division

## EXECUTIVE SUMMARY

### **Performance**

<b>MPSERS Plan (6/30/24)</b>	<b>1-Year</b>	<b>3-Years</b>	<b>5-Years</b>	<b>7-Years</b>	<b>10-Years</b>
Annualized Returns	6.2%	8.2%	14.4%	15.0%	13.5%
PE Benchmark Returns	33.7%	14.8%	18.5%	17.5%	16.3%
Peer Median Returns	6.8%	8.4%	9.9%	9.7%	9.1%

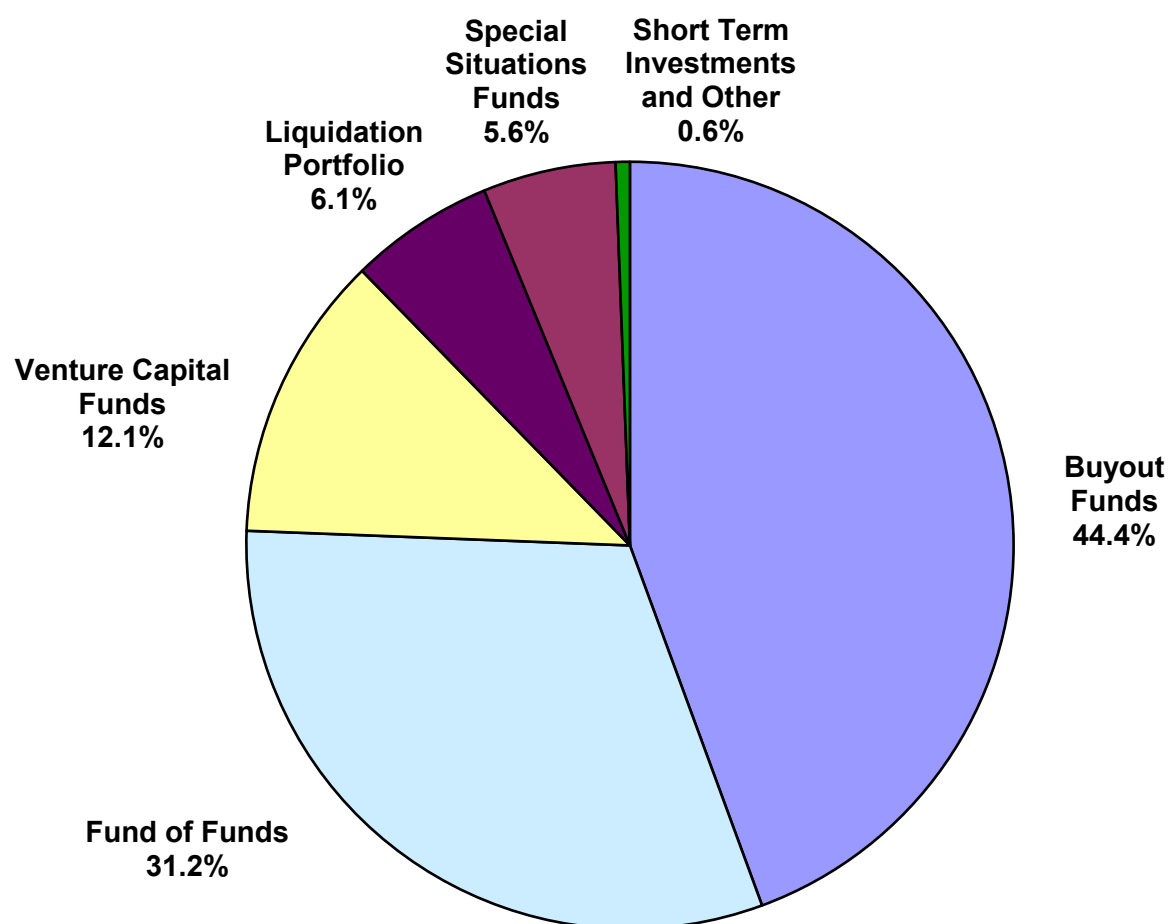
- It is not unusual for private equity returns to lag the public benchmark returns during periods of expansion and lead the public benchmark during periods of contraction. Over the last 10 years, the Private Equity Division outperformed the S&P by 0.6% (ten-year S&P 500 return 12.9%) and underperformed the benchmark by 2.8%.
- Private equity returns have been strong relative to peer median returns, ranking in the top 7.0% of peers over the past ten years. Outperformance to peers is attributable to strategy as well as fund and co-investment selectivity.
- Commitments closed during the quarter:
  - \$150 million to Veritas Capital Fund IX, LP, managed by Veritas Capital Partners IX, LLC focused on sectors influenced by government.
  - \$100 million to HarbourVest Co-Investment Fund VII Combined, LP, managed by HarbourVest Co-Investment VII Associates, LP focused on buyout and growth equity co-investments.
  - \$100 million to Thoma Bravo Discover Fund V, LP, managed by Thoma Bravo Discover Partners V, LP focused on software investments.
  - \$50 million to Thoma Bravo Fund XVI, LP, managed by Thoma Bravo Partners XVI, LP focused on software investments.
  - \$10 million to Accel London VIII, LP, managed by Accel London VIII Associates, LLC focused on European technology investments.

### **Strategy Update**

The strategy for the next twelve months will focus on existing sponsors raising successor funds. This may be a combination of buyout, venture capital, secondary, and growth equity funds seeking new commitments. Co-investments continue to play an important role in both averaging down costs and targeting specific investments with attractive risk/return characteristics.

# SMRS Private Equity

6/30/24



## Market Value in Millions

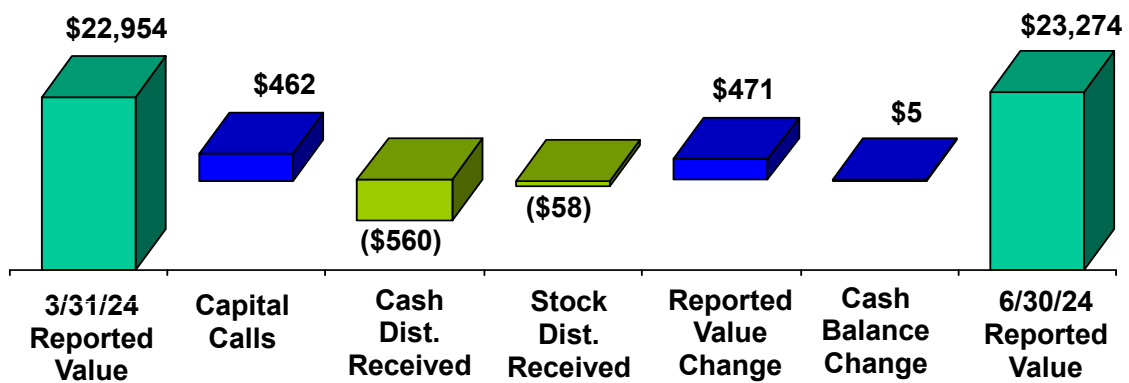
	6/30/24		6/30/23	
Buyout Funds	\$10,334	44.4%	\$9,996	44.0%
Fund of Funds	7,264	31.2%	6,637	29.3%
Venture Capital Funds	2,824	12.1%	2,729	12.0%
Liquidation Portfolio	1,419	6.1%	1,906	8.4%
Special Situations Funds	1,289	5.6%	1,336	5.9%
Short Term Investments and Other	144	0.6%	96	0.4%
<b>Total</b>	<b><u>\$23,274</u></b>	<b><u>100.0%</u></b>	<b><u>\$22,700</u></b>	<b><u>100.0%</u></b>

# SMRS

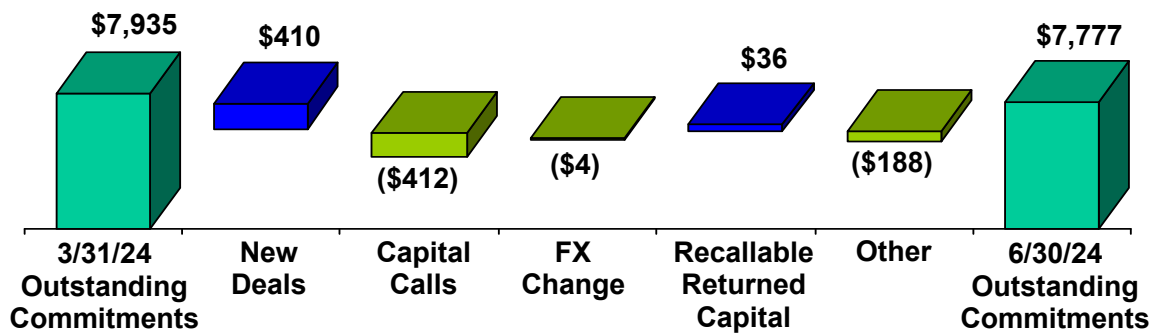
## Private Equity

6/30/24

### Invested Commitments



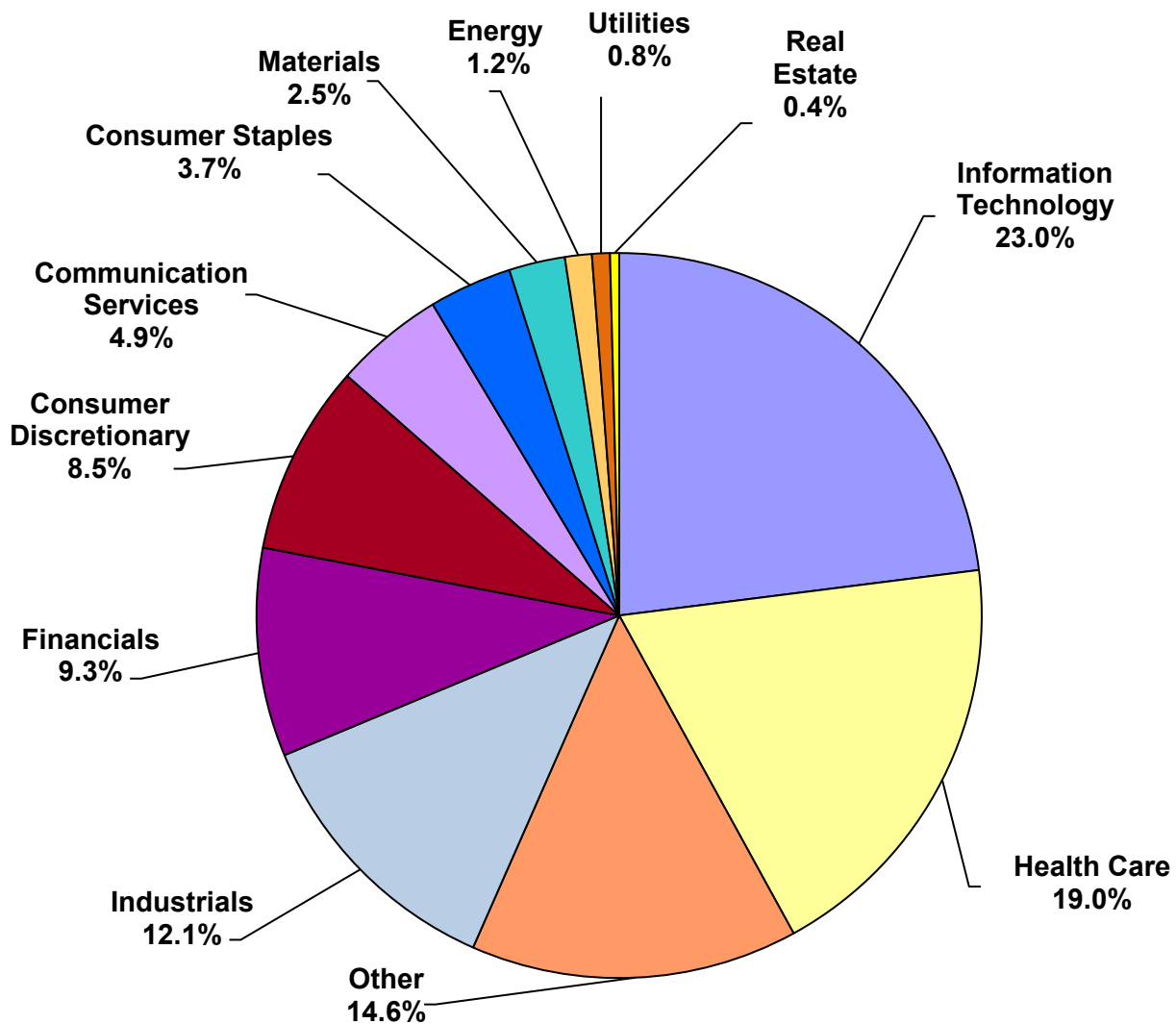
### Outstanding Commitments



# SMRS Private Equity

6/30/24

## Investments by Industry



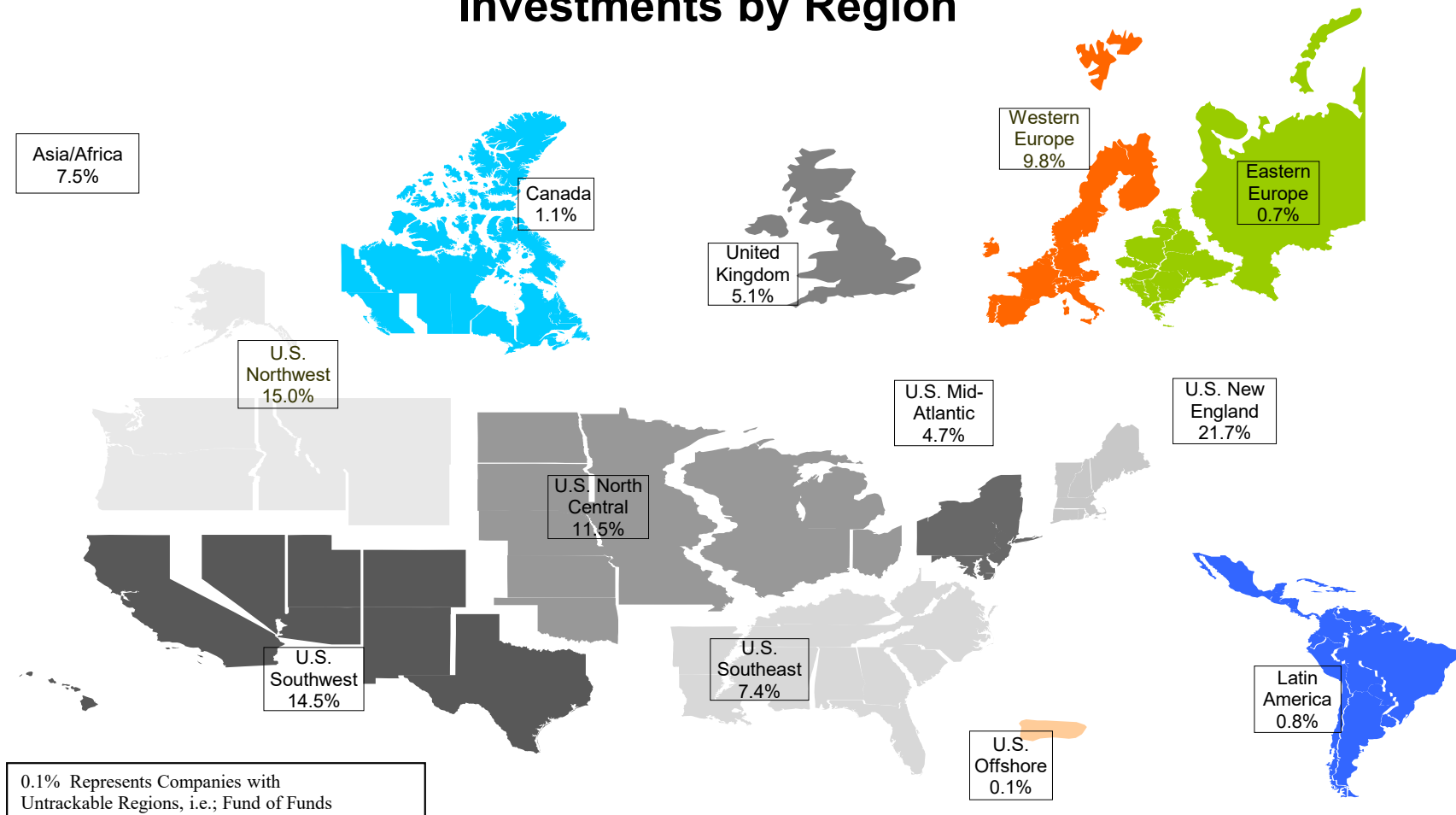
These numbers are based on the most recent available General Partner Data; primarily 3/31/2024 and are subject to change.



# SMRS Private Equity

6/30/24

## Investments by Region



Geographic Report: North America 76.0%, Europe 15.6%, Asia 7.5%, Other 0.1%, Latin America 0.8%

# SMRS Private Equity

6/30/24

## Portfolio by Vintage Year

(\$ in Millions)

<b>Asset Vintage</b>	<b>Reported Value</b>	<b>Outstanding Commitment</b>	<b>Total Exposure</b>
1986-2005	\$ 138	\$ 57	\$ 195
2006*	62	83	145
2007	45	40	85
2008	134	57	191
2009	4	0	4
2010	34	3	37
2011	274	40	314
2012	434	27	461
2013	138	33	171
2014	701	62	763
2015	7,869	941	8,810
2016	1,714	170	1,884
2017	1,926	204	2,130
2018	3,708	1,107	4,815
2019	2,222	316	2,538
2020	1,023	292	1,315
2021	1,835	1,169	3,004
2022	812	1,843	2,655
2023	39	742	781
2024	19	591	610
Income Accruals	0	0	0
Short Term Investments and Other	144	0	144
<b>Total</b>	<b>\$ 23,274</b>	<b>\$ 7,777</b>	<b>\$ 31,051</b>

\*Liquidation portfolio is 2006 vintage

## FX Exposure

(\$ in Millions)

	<b>Reported Value</b>	<b>Outstanding Commitment</b>	<b>Total Exposure</b>	<b>Total (USD)</b>
Euro (\$1.07/ €)	€ 524	€ 266	€ 790	\$847

# SMRS Private Equity

6/30/24

## Net Market Value by Entity

	Adjusted Reported Value	Unfunded Commitment
5AM Opportunities I, LP	\$ 7,636,123	\$ 0
5AM Opportunities II, LP	21,127,299	2,500,000
5AM Ventures VI, LP	18,443,908	750,000
5AM Ventures VII, LP	16,005,768	14,000,000
Accel Europe I, LP	1,086,330	1
Accel Europe II, LP	25,389,973	3,300,000
Accel Growth Fund II, LP	12,174,127	0
Accel Growth Fund III, LP	10,753,941	280,000
Accel Growth Fund IV, LP	23,562,694	0
Accel Growth Fund V, LP	37,745,489	0
Accel Growth Fund VI, LP	15,748,632	7,812,500
Accel India VII, LP	3,784,192	5,500,000
Accel IX, LP	611,710	3,000,000
Accel Leaders 4, LP	19,283,432	31,250,000
Accel Leaders Fund 3, LP	29,361,683	6,600,000
Accel Leaders Fund II, LP	106,400,404	0
Accel Leaders Fund, LP	18,146,624	0
Accel London V, LP	31,058,404	840,000
Accel London VI, LP	14,257,028	1,875,000
Accel London VII, LP	7,295,422	4,250,000
<b>** Accel London VIII, LP</b>	<b>0</b>	<b>10,000,000</b>
Accel VI-S	316,930	652,611
Accel VI, LP	466,199	0
Accel X, LP	2,863,155	0
Accel XI, LP	6,286,732	1,440,000
Accel XII, LP	22,746,341	980,000
Accel XIII, LP	17,165,002	1,000,000
Accel XIV LP	11,204,052	1,150,000
Accel XV, LP	5,441,255	4,000,000
Accel XVI, LP	0	10,000,000
Accel-KKR Growth Capital Fund IV, LP	18,239,562	21,144,115
Acorn Bioventures 2, LP	53,519,001	55,000,000
Acorn Bioventures, LP	87,037,327	10,000,000
Advent Global Private Equity V, LP	3,383,417	8,700,000
Advent International GPE IX, LP	323,992,756	16,234,015
Advent International GPE VI-A, LP	16,873,182	0
Advent International GPE VII-B, LP	21,753,934	8,000,000
Advent International GPE VIII-B, LP	205,474,129	0
Advent International GPE X, LP	156,051,988	204,707,652
Advent International LAPEF VII, LP	42,348,216	22,950,000
Advent Latin American Private Equity Fund VI, LP	27,681,898	2,450,000
Affinity Asia Pacific Fund III, LP	10,867,720	8,520,204
Affinity Asia Pacific Fund IV, LP	77,927,121	11,035,653
Affinity Asia Pacific Fund V, LP	101,688,622	80,133,837

	<b>Adjusted Reported Value</b>	<b>Unfunded Commitment</b>
Apax Digital II, LP	24,315,227	73,710,244
Apax Digital, LP	62,980,304	4,948,526
Apax Europe Fund VI, LP	7,122,334	2,266,535
Apax Europe VII, LP	1,620,394	1,596,244
Apax IX, LP	118,229,167	14,436,164
Apax US VII, LP	2,836,041	417,509
Apax VIII - B, LP	10,673,490	3,983,093
Apax X USD, LP	166,931,044	22,532,741
Apax XI USD, LP	405,815	146,729,692
Apollo Investment Fund IX, LP	96,350,487	27,537,059
Apollo Investment Fund VIII, LP	29,587,008	10,209,667
Arboretum Ventures II, LP	13,619	0
Arboretum Ventures III, LP	2,731,511	0
Arboretum Ventures IV, LP	9,530,493	4,860,001
Arboretum Ventures V, LP	25,153,940	7,280,000
Arboretum Ventures VI, LP	7,085,058	26,704,993
Ares Corporate Opportunities Fund II, LP	0	11,423,773
Ares Corporate Opportunities Fund III, LP	0	1,424,582
Ares Corporate Opportunities Fund IV, LP	16,444,791	1,688,819
ASF VIII B, LP	109,900,827	52,600,086
AXA ASF Miller Co-Investment, LP	128,998	0
Axiom Asia 6, LP	30,012,724	22,000,000
Axiom Asia Co-Investment Fund I, LP	46,936,614	4,831,107
Axiom Asia Co-Investment Fund II, LP	29,575,124	26,434,673
Axiom Asia IV, LP	53,585,909	5,747,811
Axiom Asia Private Capital Fund III, LP	38,345,409	5,250,002
Axiom Asia V, LP	51,335,867	10,500,000
BC European Capital VII, LP	591,210	0
Berkshire Fund IX Coinvestment Fund, LP	52,856,404	6,834,940
Berkshire Fund IX, LP	204,067,801	11,428,634
Berkshire Fund VI, LP	23,239,877	6,902,067
Berkshire Fund VII, LP	6,451,510	2,441,522
Berkshire Fund VIII, LP	36,801,194	11,832,732
Berkshire Fund X, LP	85,354,730	71,949,125
Blackstone Capital Partners IV, LP	147,025	4,413,477
Blackstone Capital Partners V, LP	1,057,932	13,069,138
Blackstone Capital Partners V-S	0	712,476
Blackstone Capital Partners VI, LP	76,761,818	32,926,549
Blackstone Capital Partners VII, LP	242,565,647	19,328,680
Blackstone Capital Partners VIII, LP	177,081,302	59,880,734
Blackstone Growth II, LP	0	100,000,000
Carlyle Europe Partners V, SCSp	108,765,086	35,235,606
Carlyle Partners Growth, LP	14,282,112	34,208,880
Carlyle Partners V LP	14,109,483	10,645,569
Carlyle Partners VI, LP	49,904,596	9,288,430
Carlyle Partners VII, LP	299,309,476	10,438,900
Carlyle Partners VIII, LP	103,594,281	102,572,327
Charlesbank Equity Fund IX, LP	120,114,022	12,457,457
Charlesbank Equity Fund X, LP	80,406,753	35,215,782
Charlesbank Equity Overage Fund X, LP	74,250,775	339,530
Charlesbank Fund IX Overage Allocation Program	41,140,479	11,038,842
Clearlake Capital Partners VII, LP	127,617,303	84,616,922
Clearlake Capital Partners VIII, LP	0	100,000,000

	<b>Adjusted Reported Value</b>	<b>Unfunded Commitment</b>
Coller International Partners V, LP	5,666	0
Coller International Partners VI, LP	9,258,523	5,000,000
Coller International Partners VII, LP	67,587,128	45,871,272
CVC Capital Partners Fund IX (A), LP	0	160,762,489
CVC Capital Partners VII, LP	227,292,357	8,964,041
CVC Capital Partners VIII, LP	94,509,959	18,602,770
Dover Street IX, LP	61,183,600	10,000,000
Dover Street X, LP	133,450,406	34,500,000
Dover Street XI, LP	19,000,000	81,000,000
FirstMark Capital I, LP	27,334,025	196,596
FirstMark Capital IV, LP	66,540,176	0
FirstMark Capital OF I, LP	8,420,125	0
FirstMark Capital OF II, LP	57639273	0
FirstMark Capital OF III, LP	30,113,348	0
FirstMark Capital OF IV, LP	3437552	30,975,000
FirstMark Capital V, LP	39,319,967	3,500,000
FirstMark Capital VI, LP	6,513,532	28,175,000
Flagship Pioneering Fund VII, LP	95,841,958	120,000,000
Flagship Pioneering Fund VIII, LP	7,706,846	192,000,000
Flagship Pioneering Special Opportunities Fund II, LP	93,703,670	6,000,000
Flagship Pioneering VI, LP	320,927,946	0
Flagship Ventures Fund 2004, LP	17,296	0
Flagship Ventures Fund 2007, LP	2,367,485	0
Flagship Ventures Fund IV, LP	17,100,073	0
Flagship Ventures Fund V, LP	58,739,587	0
Flagship Ventures Opportunities Fund I, LP	29,525,280	0
GCM Grosvenor Fund Investment Program I, LP	3,506,052	1,050,800
GCM Grosvenor Fund Investment Program II, LP	13,435,721	12,838,225
GCM Grosvenor Fund Investment Program III - 2004	20,866,768	3,958,803
GCM Grosvenor Fund Investment Program III - 2006	25,520,400	6,468,850
GCM Grosvenor Fund Investment Program V, LP	24,963,799	9,276,702
GCM Grosvenor Fund Investment Program VI, LP	16,447,133	1,148,909
GCM Grosvenor Fund Investment Program VIII, LP	104,138,946	8,714,847
GCM Grosvenor SeasPriFIP LP (PIS06-10)	16,998,952	9,930,885
GCM Grosvenor SeasPriFIP LP (PIS14)	207,112,028	25,668,981
GCM Grosvenor SeasPriFIP LP (Seed)	5,651,042	17,079,669
Genstar Capital Partners IX, LP	105,411,206	10,466,213
Genstar Capital Partners VIII, LP	85,456,285	4,125,594
Genstar Capital Partners X, LP	97,916,293	5,643,496
Genstar Capital Partners XI, LP	876,433	124,486,469
Genstar IX Opportunities Fund I, LP	62,655,569	7,449,557
Genstar VIII Opportunities Fund I, LP	59,816,763	3,231,676
Genstar X Opportunities Fund I, LP	23,959,500	2,901,350
Genstar XI Opportunities Fund I, LP (Priority Co-Investment Vehicle)	6,115,447	19,251,461
Golden Bell Azalea, LLC	0	0
Green Equity Investors IX, LP	93,730,351	196,046,612
Green Equity Investors V, LP	2,791,541	14,745,120
Green Equity Investors VI, LP	126850264	2,578,335
Green Equity Investors VII, LP	150,385,403	28,729,242
Green Equity Investors VIII, LP	283,136,495	33,368,793
Greenspring Master G, LP	632,055,501	458,000,000
Greenspring Micro II, LP	37,154,055	2,250,000
GTCR Fund XIII, LP	35,191,751	17,437,247

	Adjusted Reported Value	Unfunded Commitment
GTCR Fund XIV, LP	0	150,000,000
GTCR Strategic Growth Fund, LP	16,382,174	25,784,750
<b>** HarbourVest Co-Investment Fund VII, LP</b>	<b>0</b>	<b>100,000,000</b>
HarbourVest Dover Street VIII, LP	4,315,912	5,400,000
HarbourVest Int'l III Partnership, LP	133,700	1,200,000
Harbourvest Partners Co-Investment Fund IV, LP	78,444,610	19,107,835
HarbourVest Partners Co-Investment Fund V, LP	248,862,845	45,000,000
Harbourvest Partners Co-Investment Fund VI, LP	189,363,639	30,000,000
HarbourVest V Partnership, LP	95,104	300,000
HarbourVest VI - Direct Fund, LP	1,026,431	750,000
HarbourVest VI Partnership, LP	179,507	2,000,000
Harvest Partners IX, LP	31,020,188	67,347,584
Harvest Partners VII, LP	96,631,123	7,734,486
Harvest Partners VIII, LP	116,912,641	11,549,533
Hellman & Friedman Capital Partners X, LP	78,251,170	32,931,302
Hg Saturn 3 A, LP	40,779,323	61,053,610
Insight Partners Fund X Follow-On Fund, LP	39,848,545	5,850,000
Insight Partners XI, LP	147,831,483	2,992,458
Insight Partners XII, LP	121,986,053	22,650,000
Insight Partners XIII, LP	0	150,000,000
Insight Venture Partners GBCF, LP	105,194,986	4,252,493
Insight Venture Partners IX, LP	245,242,687	830,984
Insight Venture Partners X, LP	198,050,805	10,104,433
Jade Equity Investors II, LP	0	150,000,000
Jade Equity Investors, LP	108,782,263	27,922,427
Kelso Investment Associates IX, LP	55,441,497	10,611,715
Kelso Investment Associates VII, LP	139,629	0
Kelso Investment Associates VIII, LP	588,440	7,693,622
Kelso Investment Associates X, LP	141,602,741	16,341,249
Khosla Ventures III, LP	3,473,830	0
Khosla Ventures IV, LP	68,819,423	950,000
Khosla Ventures Opportunity I, LP	277,039,13	2,250,000
Khosla Ventures Opportunity II, LP	2,234,031	10,187,500
Khosla Ventures Seed D, LP	22,400,950	940,000
Khosla Ventures Seed E, LP	5,828,319	650,000
Khosla Ventures Seed F, LP	3,941,460	8,812,500
Khosla Ventures V, LP	86,202,061	1,750,000
Khosla Ventures VI, LP	156,269,527	3,750,000
Khosla Ventures VII, LP	54,763,535	10,600,000
Khosla Ventures VIII, LP	14,083,934	36,000,000
KKR 2006 Fund, LP	0	4,951,985
KKR Americas Fund XII, LP	233,504,077	23,084,307
KKR Asian, LP	0	0
KKR Asian Fund II, LP	20,727,074	0
KKR Asian Fund III, LP	125,532,421	14,720,463
KKR China Growth Fund, LP	2,551,492	3,306,040
KKR European Fund II, LP	0	0
KKR European Fund III, LP	0	4,394,157
KKR European Fund IV, LP	85,192,133	395,295
KKR European Fund V (USD) SCSp	129,677,640	14,791,832
KKR Millennium Fund, LP	0	0
KKR North America Fund XI, LP	45,093,918	225,237
KKR North America Fund XIII, SCSp	79,139,143	55,014,090

	<b>Adjusted Reported Value</b>	<b>Unfunded Commitment</b>
Lead Edge Capital IV, LP	29,232,633	9,521,879
Lead Edge Capital V, LP	32,620,127	4,180,330
Lead Edge Capital VI, LP	11,033,433	31,282,250
Lightspeed India Fund IV, LLC	2,128,912	5,137,500
Lightspeed Opportunity Fund II, LP	18,211,355	6,750,000
Lightspeed Opportunity Fund, LP	23,169,619	250,000
Lightspeed Venture Partners Select IV, LP	30,035,988	1,250,000
Lightspeed Venture Partners Select V, LP	14,535,784	9,250,000
Lightspeed Venture Partners VII, LP	4,444,679	0
Lightspeed Venture Partners XIII, LP	12,774,151	800,000
Lightspeed Venture Partners XIV-A, LP	7,641,705	4,050,000
Lightspeed Venture Partners XIV-B, LP	8,900,131	6,187,500
Menlo Special Opportunities Fund II, LP	42,250,098	900,000
Menlo Special Opportunities Fund III, LP	8,682,536	15,500,000
Menlo Ventures IX, LP	0	0
Menlo Ventures X, LP	1,159,603	0
Menlo Ventures XI, LP	122,911,011	0
Menlo Ventures XIV, LP	151,143,116	0
Menlo Ventures XV, LP	25,388,721	1,250,000
Menlo Ventures XVI, LP	4,254,549	10,500,000
Meritech Capital Partners Franchise Fund, LP	7,862,581	7,425,000
Meritech Capital Partners IV, LP	1,745,611	0
Meritech Capital Partners V, LP	13,261,597	400,000
Meritech Capital Partners VI, LP	42,243,308	1,700,000
Meritech Capital Partners VII, LP	38,183,868	6,906,250
Meritech Capital Partners VIII, LP	0	48,000,000
Meritech Capital Sidecar III, LP	0	12,000,000
Michigan Growth Capital Partners II, LP	93,494,842	2
Michigan Growth Capital Partners III, LP	99,740,098	10,999,781
Michigan Growth Capital Partners IV, LP	47,505,354	48,443,110
Michigan Growth Capital Partners, LP	12,249,845	5,013,283
Michigan SEMF Barings	91,530,378	73,674,001
Michigan SEMF Grosvenor	860,258,461	78,949,143
New Leaf Biopharma Opportunities II, LP	114,868,720	0
New Leaf Growth Fund I, LP	445,448	0
New Leaf Ventures II, LP	0	0
New Leaf Ventures III, LP	31,082,108	0
New Leaf Ventures IV, LP	65,190,951	2,250,000
Oak Investments Partners IX, LP	8,698	246,728
Ocqueoc Holdings, LLC	1,446,232	225,000
Odyssey Investment Partners Fund VI, LP	106,147,369	19,991,088
Permira Growth Opportunities I, LP 1	44,922,590	7,944,666
Permira Growth Opportunities II SCSp	13,178,947	33,356,595
Permira VII LP 1	89,709,458	8,179,566
Permira VIII, LP 2	32,191,305	49,766,063
Public Pension Capital, LLC	87,336,301	13,496,374
Renaissance Venture Capital Fund IV, LP	11,042,901	13,250,000
Renaissance Venture Capital Fund V, LP	216,766	19,600,000
Riverside Capital Appreciation Fund VI, LP	25,710,717	6,262,007
Riverside Capital Appreciation Fund VII, LP	85,288,405	16,250,050
Riverside Micro Cap Fund I, LP	3,112,644	4,096,758
Riverside Micro-Cap Fund II, LP	0	2,735,834
Riverside Micro-Cap Fund III, LP	42,578,775	4,823,424

	Adjusted Reported Value	Unfunded Commitment
Riverside Micro-Cap Fund IV, LP	70,557,725	6,709,650
Riverside Micro-Cap Fund IV B, LP	26,567,590	576,806
Riverside Micro-Cap Fund V, LP	135,374,868	8,151,007
Riverside Micro-Cap Fund VI, LP	49,981,787	72,097,726
Science Ventures Fund II, LP	49,261,956	1,000,000
Science Ventures Fund III, LP	18,930,176	6,250,000
Silver Lake Partners III, LP	6,539,160	11,910,583
Silver Lake Partners IV, LP	75,142,019	1,372,138
Silver Lake Partners V, LP	70,086,450	8,822,950
Silver Lake Partners VI, LP	84,567,948	5,584,319
Silver Lake SL SPV-2	48,058,337	0
SK Capital Partners V, LP	51,693,877	11,272,822
SKCP Catalyst Fund I-A, LP	38872804	7,423,199
SMRS - TOPE, LLC	5,368,953,139	411,551,571
SMRS-CAPP, LLC	418,719,502	248,831,651
SMRS-NCRP, LLC	1,189,544,483	391,158,994
Summit Partners Growth Equity Fund X, LP	113,515,537	27,129,778
Summit Partners Growth Equity Fund XI-A, LP	31,481,076	72,286,328
The Veritas Capital Fund VIII, LP	192,332,495	73,554,196
The Veritas Capital Vantage Fund, LP	31,489,029	33,661,452
Thoma Bravo Discover Fund II, LP	108,962,787	20,853,678
Thoma Bravo Discover Fund IV, LP	66,149,297	42,819,839
<b>** Thoma Bravo Discover Fund V, LP</b>	<b>0</b>	<b>100,000,000</b>
Thoma Bravo Explore II, LP	0	100,000,000
Thoma Bravo Fund XII, LP	188,117,723	36,904,285
Thoma Bravo Fund XIII, LP	181,935,278	10,504,042
Thoma Bravo Fund XV, LP	83415779	28,696,927
<b>** Thoma Bravo Fund XVI, LP</b>	<b>0</b>	<b>50,000,000</b>
Thoma Bravo XIV, LP	133,024,639	14,760,303
TI Platform BOV, LP	16,662,566	3,489,136
TI Platform Fund II, LP	17,591,862	1,348,628
TI Platform Fund III, LP	10,691,804	14,736,489
TI Platform SMRS SMA, LP	112,869,506	72,502,690
TPG Healthcare Partners II, LP	9,654,471	29,153,188
TPG Healthcare Partners, LP	25,623,726	3,484,810
TPG IV (Texas Pacific Group IV)	67,191	211,725
TPG Partners IX, LP	35,716,976	80,221,489
TPG Partners VI, LP	3,360,691	4,219,844
TPG Partners VIII, LP	150,648,648	16,867,688
TPG Partners, VII, LP	50,241,313	13,800,165
TPG V (Texas Pacific Group V)	304,416	1,947,170
TSG6, LP	285,597	11,725,177
TSG7 A, LP	91,539,540	18,418,907
TSG8, LP	124,706,951	12,378,162
TSG9, LP	39,330,418	130,670,622
<b>** Veritas Capital Fund IX, LP</b>	<b>0</b>	<b>150,000,000</b>
Veritas Capital Fund V, LP	47,472,308	1,508,273
Veritas Capital Fund VI, LP	69,256,324	14,826,993
Veritas Capital Fund VII, LP	131,846,358	4,717,193
Veritas V Co-Investors, LP	406,777	0
Warburg Pincus Global Growth, LP	176,774,571	8,700,000
Warburg Pincus Private Equity IX, LP	235,008	0
Warburg Pincus Private Equity X, LP	5,508,711	0



	<b>Adjusted Reported Value</b>	<b>Unfunded Commitment</b>
Warburg Pincus Private Equity XI, LP	56,357,591	0
Warburg Pincus Private Equity XII Secondary, LP	18,815,606	0
Warburg Pincus Private Equity XII, LP	131,720,498	0
<b>Total</b>	<b>\$ 23,130,478,552</b>	<b>\$ 7,777,130,894</b>
Short Term Investments and Other	143,533,151	0
Income Accruals	(3)	0
<b>Grand Total</b>	<b>\$ 23,274,011,700</b>	<b>\$ 7,777,130,894</b>

Total Private Equity amounts do not include Cash and Active Small Cap

\*\* New Commitments made during quarter reported

State of Michigan Retirement System

# REAL ESTATE AND INFRASTRUCTURE REVIEW

State of Michigan Investment Board Meeting  
October 1, 2024



Todd A. Warstler  
Senior Investment Manager  
Real Estate and Infrastructure Division

## EXECUTIVE SUMMARY

### Performance

<b>MPSERS Plan (6/30/24)</b>	<b>1-Year</b>	<b>3-Years</b>	<b>5-Years</b>	<b>7-Years</b>	<b>10-Years</b>
Annualized Returns	0.2%	11.0%	7.1%	7.8%	8.9%
NCREIF NPI	-6.8%	1.0%	2.1%	3.0%	4.7%
Peer Median Returns	-3.8%	3.7%	4.2%	5.3%	6.9%

\*State Street Universe greater than \$1 billion

- Outperformance relative to the one-year benchmark resulted primarily from the Real Estate and Infrastructure Division's (REID) strategy of being overweight in hospitality, underweight to office, and exposure to infrastructure and REIT sectors. Over the ten-year timeframe the REID is outperforming the benchmark by 420 basis points.

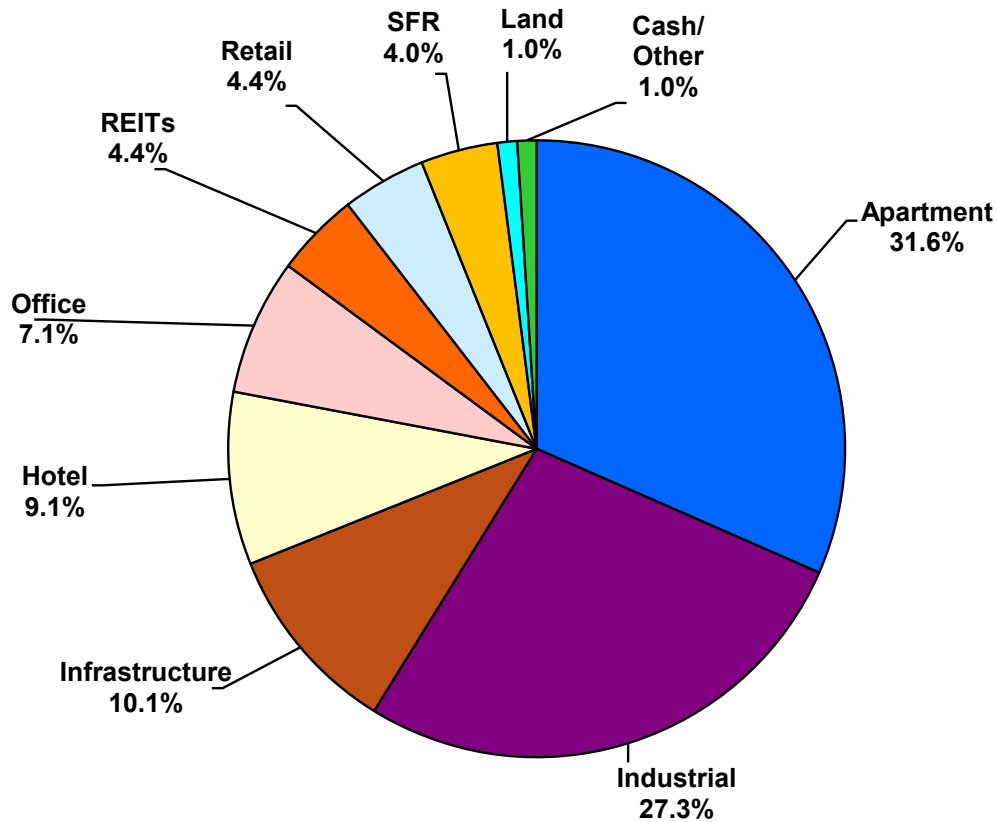
### Strategy Update

- Impacts to commercial markets from the global pandemic were uneven across the real estate and infrastructure sectors. There was a mix of negative and positive impacts with some transitory and others of a more lasting nature. New threats to markets have emerged and continued through the first half of 2024 including escalating geopolitical tensions, elevated levels of inflation and sharply higher interest rates. We continue to monitor, assess, and shift strategies, as necessary.
- In the real estate space, we are focused on sourcing off-market opportunities through our extensive network and where available reducing risk in the portfolio through early income-generating investments. We have selectively acquired properties where we can add value through management and leasing and have continued to develop properties at attractive risk-adjusted returns. The team continues to assemble portfolios in both traditional and non-traditional real estate sectors that we believe will become institutional property types, providing the potential for above market appreciation and total returns. In the infrastructure space, we continue to focus on diversified strategies and to identify those managers with top performing track records and best in class investment teams, who are pursuing opportunities in those sectors we have identified for allocation.
- We have been actively managing the portfolio with capital returned of approximately \$1.3 billion, and funding for new or existing investments of approximately \$1.4 billion the past 12 months.
- The REID has approximately \$2.8 billion in unfunded commitments. One new commitment was made during the quarter.
  - NOK 284.5 million (\$26.7 million) in BGO Europe IV King II/ King III Co-Investment, LP, a closed-end co-investment vehicle investing in a Norwegian data center company alongside our BentallGreenOak Europe IV, LP fund, managed by BentallGreenOak Europe IV GP, LP.

# SMRS

## Real Estate and Infrastructure

6/30/24



### Market Value in Millions

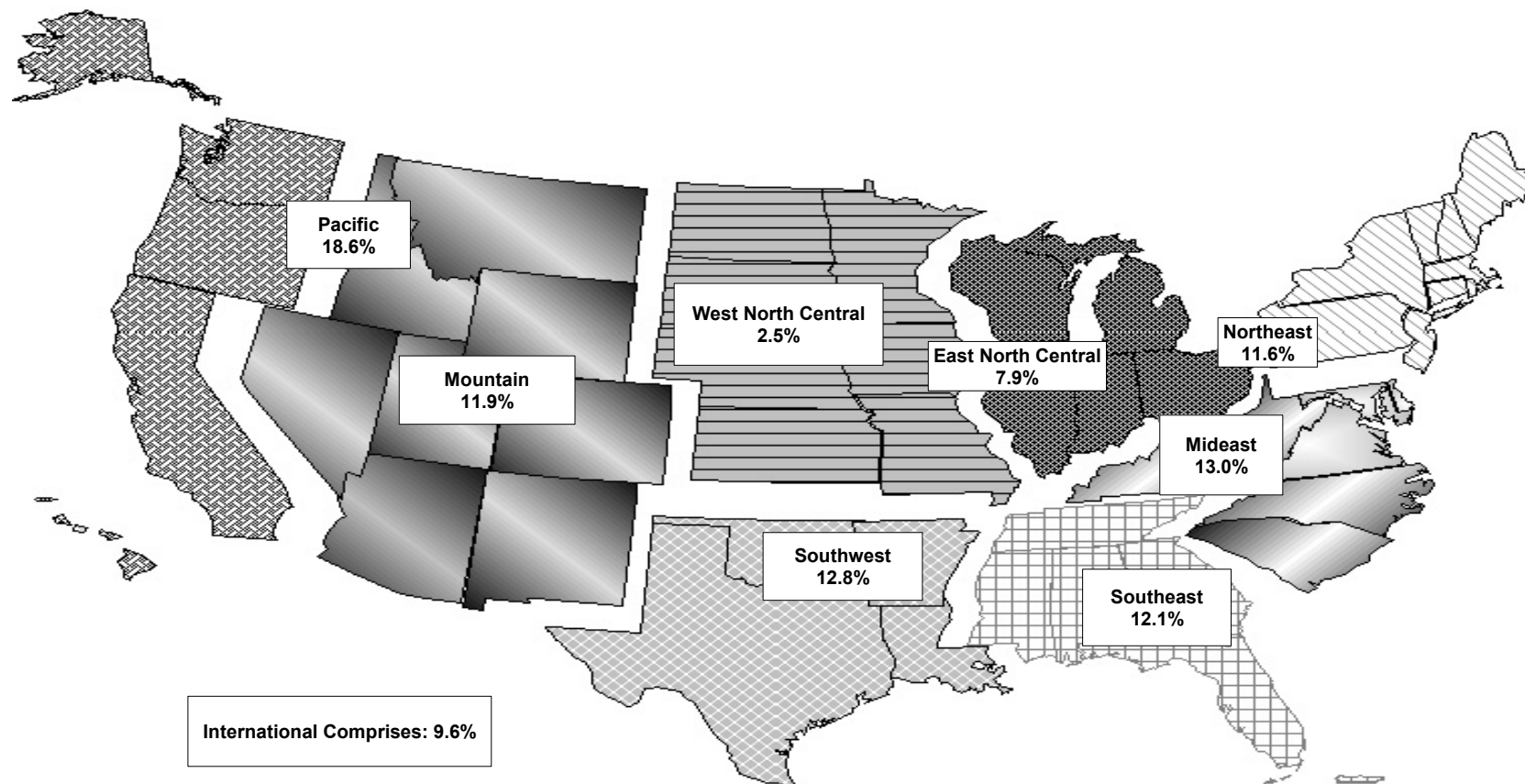
	6/30/24		6/30/23	
Apartment	\$3,068	31.6%	\$3,303	32.8%
Industrial	2,649	27.3%	2,998	29.8%
Infrastructure	979	10.1%	867	8.6%
Hotel	880	9.1%	805	8.0%
Office	694	7.1%	873	8.7%
REITs	429	4.4%	307	3.0%
Retail	428	4.4%	313	3.1%
SFR	393	4.0%	334	3.3%
Land	100	1.0%	53	0.5%
	<u>\$9,619</u>	<u>99.0%</u>	<u>\$9,855</u>	<u>97.8%</u>
Cash/Other	97	1.0%	217	2.2%
<b>Total Investments</b>	<b><u>\$9,716</u></b>	<b><u>100.0%</u></b>	<b><u>\$10,072</u></b>	<b><u>100.0%</u></b>

# SMRS

## Real Estate

6/30/24

**Investments by Region**  
(excludes public REITs & cash equivalents)



Geographic regions defined by NCREIF, whose property index composition is:

Pacific	Southeast	Southwest	Northeast	Midwest	East North Central	Mountain	West North Central
26.3%	17.2%	13.8%	12.7%	10.0%	9.0%	8.6%	2.3%

# SMRS

## Real Estate

6/30/24

### Market Values by Entity

	Market Value	Outstanding Commitment
801 Grand Avenue Capital, LLC	\$ 20,702,780	\$ 0
AEW Senior Housing Investors III, LP	3,397,948	258,896
AEW Senior Housing Investors IV, LP	34,886,448	7,068,219
Albertsons Companies, Inc.	46,617,090	0
Apollo Asia Real Estate Fund, LP	46,126,123	11,673,757
Asana Partners Fund I, LP	33,275,700	2,449,559
Asana Partners Fund II, LP	49,467,598	5,592,905
Asana Partners Fund III, LP	40,902,480	54,666,667
Avanath Affordable Housing III, LLC	58,043,394	990,001
Avanath Affordable Housing IV, LLC	29,961,176	52,292
Avanath Affordable Housing Renaissance Fund, LP	44,529,566	0
BentallGreenOak Asia (USD) IV, LP	0	100,000,000
BentallGreenOak Europe IV, LP	28,251,144	81,869,686
BentallGreenOak US Cold Storage, LP	30,391,322	43,693,309
BlackRock MiREIT Fund	160,932,111	0
BGO Europe III Co-Investment, LP	22,003,852	8,611,399
<b>BGO Europe IV King II/ King III Co-Investment, LP</b>	0	26,724,106
Blackstone Real Estate Partners IX, LP	222,688,505	31,744,637
Blackstone Real Estate Partners V.TE.2, LP	60,464	2,087,026
Blackstone Real Estate Partners VI, LP	55,743	3,680,930
Blackstone Real Estate Partners VIII, LP	52,422,512	9,593,278
Blackstone Real Estate Partners X, LP	49,114,657	152,911,716
Carlyle Realty Partners IX, LP	29,069,743	67,904,024
CIM Fund III, LP	19,090,614	0
CIM Fund VIII, LP	55,356,661	0
CIM VI (Urban REIT), LLC	10,985,579	0
Clarion Gables Multifamily Trust, LP	35,048,699	0
Columbus Circle Holdings, LLC	265,467,543	175,081,026
Crown Small Cap Real Estate Fund II-T, LP	7,252,736	3,280,000
DM2501, LLC	6,294,090	27,964,733
Domain GVA-1, LLC	8,154,148	0
Domain Hotel Properties, LLC	421,703,035	0
Eastport Properties, LLC	85,100,508	755,322
GreenOak Europe III, LP	53,171,092	21,326,296
Heitman Core Real Estate Debt Income Trust, LP	41,136,342	0
Heitman Global Real Estate Fund II, LP	54,670,914	40,774,049
Heitman MiREIT Fund	161,535,470	0
IDR Core Property Index Fund, LLC	106,287,667	0
India Property Fund II, LLC	6,732,030	5,897,418
Invesco Mortgage Recovery Fund II, LP	5,672,768	18,116,596
Invesco Strategic Opportunities III, LP	20,990,501	82,461,385
IPF II Co-Invest, LP	7,448,030	2,168,655
ISO III SMRS Sidecar, LP	12,084,380	51,086,951
JBC Funds 33 North LaSalle, LLC	24,000	0
KBS/SM Fund III, LP	171,602	0
KBS/SM Fund IV, LP	96,990,293	0
L&B Spartan Holdings, LP	183,927,515	81,458,467
Landmark Real Estate Partners V, LP	89,455	0
LaSalle Asia Opportunity Fund III, LP	386,267	1,732,325
Lion Industrial Trust	440,034,778	0
Lion Mexico Fund, LP	2,367,195	0
Lombard International Life Assurance Company GVA0016	347,023,798	1,907,506

	<b>Market Value</b>	<b>Outstanding Commitment</b>
Lone Star Fund X (U.S), LP	100,318,945	21,734,113
Lone Star Fund XI, LP	155,979,615	16,142,433
Lone Star Fund XII, LP	0	300,000,000
Lubert-Adler Real Estate Fund VII, LP	27,663,070	1,875,000
M1-Westgate Co-Investor, LLC	38,611	0
M-301W Co-Investor, LLC	346,120	0
MERS Acquisitions, Ltd	1,133,537	0
MIP Holdco, LLC	221,654,297	4,907,428
Morgan Stanley Real Estate Special Situations Fund III Institutional, LP	788,549	0
MWT Holdings, LLC	2,338,240,276	0
Northpark Land Associates, LLLP	36,784,054	4,665,441
Paladin Realty Brazil Investors III (US-A), LP	456,210	0
Paladin Realty Latin America Investors IV-CI, LP	27,181,780	0
Paladin Realty TB Co-Investment, LP	13,744,972	0
Penmain Office, LLC	24,948	0
Principal MiREIT	106,195,249	0
Principal Data Center Growth & Income Fund, LP	632,626,140	400,000,000
Principal Life Insurance Company GA4-43579	224,363,880	24,408,995
Proprium Real Estate Special Situations Fund Institutional, LP	124,583,408	0
Rialto Credit Partnership, LP	736,662	0
Rialto Real Estate Fund III-Debt, LP	39,207,419	0
Rialto Real Estate Fund III-Property, LP	18,481,691	0
Rialto Real Estate Fund IV - Debt, LP	77,115,497	9,531,172
Rialto Real Estate Fund V-Debt, LP	3,226,932	96,200,000
SFR CM, LP	104,681,382	4,950,495
SM Brell II, LP	125,665	0
SMP Data Center, LLC	283,834,549	0
Stockbridge Real Estate Fund II-C, LP	881,992	0
Strategic II, LLC	409,049,143	42,537,347
TPG RE Finance Trust Inc.	41,681,451	0
TPG Real Estate Partners II, LP	646,903	3,028,540
TPG Real Estate Partners III, LP	30,564,798	15,342,485
TPG Real Estate Partners IV, LP	23,970,817	121,033,359
Transwestern Strategic Partners Fund III, LP	55,367,556	18,417,125
True North Real Estate Fund III, LLC	16,136,854	5,000,000
TSP Value and Income Fund II, LP	6,368,848	6,790,952
Warwick UK Real Estate Fund I	58,297,817	0
	<b>\$ 8,640,597,704</b>	<b>\$ 2,224,300,606</b>
Short-Term Investments and Other	85,271,475	0
<b>Total Real Estate Investments</b>	<b>\$ 8,725,869,179</b>	<b>\$ 2,224,300,606</b>

# SMRS Infrastructure

6/30/24

## Market Values by Entity

	Market Value	Outstanding Commitment
ArcLight Energy Partners Fund VI, LP	\$ 15,317,752	\$ 7,004,763
ArcLight Energy Partners VII, LP	42,558,951	13,599,256
ASF Como Co-Investment, LP	1,033,943	1,491,925
ASF VI Infrastructure B, LP	9,304,120	4,919,972
ASF VII Infrastructure Fund B, LP	25,530,985	6,416,421
ASF VIII Infrastructure B, LP	31,043,044	70,967,756
Basalt Infrastructure Partners, LP	8,184,282	2,219,045
Blackstone Energy Partners II, LP	62,590,339	12,752,989
Blackstone Energy Partners, LP	9,718,900	4,728,291
Blackstone Energy Transition Partners IV, LP	0	100,000,000
Blackstone Green Private Credit Fund III, LP	11,946,835	87,999,999
Brookfield Infrastructure Fund II-B, LP	42,779,190	2,825,603
Customized Infrastructure Strategies, LP	9,508,368	4,394,416
Dalmore Capital Fund, LP	57,449,732	0
GCM Grosvenor Customized Infrastructure Strategies II, LP	29,585,788	6,240,942
GCM Grosvenor Customized Infrastructure Strategies III, LP	57,305,333	45,944,550
GCM Grosvenor Infrastructure Investment Program, LP	121,328,937	5,154,905
Global Energy & Power Infrastructure Fund II, LP	18,602,989	2,237,661
GSO Energy Select Opportunities Fund II, LP	8,022,854	34,657,205
GSO Energy Select Opportunities Fund, LP	2,878,906	22,445,163
Irradiant Renewable Opportunities Partners (TE), LP	67,628,309	33,163,375
KKR Eagle Co-Invest, LP	44,636,888	1,853,268
KKR Global Infrastructure Investors IV (USD) SCSp	68,062,274	41,127,916
KKR Global Infrastructure Investors, LP	18,514	2,943,773
Ridgewood Water & Infrastructure Fund, LP	47,915,176	8,089,746
Ridgewood Water & Strategic Infrastructure Fund II, LP	30,474,142	43,415,233
RPEP SMRS Infra II, LLC	13,335,164	0
StonePeak Infrastructure Fund, LP	31,532,976	7,420,096
TRG AIRRO Fund II, LLC	17,697,602	6,480,150
TRG AIRRO India SideCar Fund US, LLC	92,741,301	0
	\$ 978,733,593	\$ 580,494,419
Short-Term Investments and Other	11,878,741	0
<b>Total Infrastructure Investments</b>	<b>\$ 990,612,334</b>	<b>\$ 580,494,419</b>
<b>Total Real Estate &amp; Infrastructure Investments</b>	<b>\$ 9,716,481,513</b>	<b>\$ 2,804,795,025</b>



State of Michigan Retirement System

# ABSOLUTE RETURN REVIEW

State of Michigan Investment Board Meeting  
October 1, 2024



Daniel J. Quigley  
Senior Investment Manager  
Real, Opportunistic, and Absolute Return Division

## EXECUTIVE SUMMARY

### Performance

<b>MPSERS Plan (6/30/24)</b>	<b>1-Year</b>	<b>3-Years</b>	<b>5-Years</b>	<b>7-Years</b>	<b>10-Years</b>
Absolute Return	12.2%	7.7%	8.3%	7.3%	5.8%
HFRI FOF Conservative	7.7%	3.6%	5.0%	4.4%	3.6%

- The value of the Absolute Return portfolio is \$10.7 billion with a one-year return of 12.2%. The portfolio's performance was positive for both Private Credit and Hedge Funds.
- A contributor to Private Credit's positive performance this year has been the floating rate nature of the underlying investments, which allowed them to avoid price declines that were driven by rising interest rates during the Federal Reserve tightening cycle. Senior corporate credit, mortgage credit, and housing related exposures were all positive drivers of performance.
- In the Hedge Fund portfolio, core managers in the Credit and Multi-Strategy sleeves of the portfolio were the primary drivers of positive returns. Macro and Quant strategies exhibited outperformance versus our benchmark. Equity strategies were positive but underperformed.
- Hedge Fund Credit strategies focused on Special Situations and Mortgage Credit investments outperformed as managers were able to take advantage of market dislocations. This credit outperformance was primarily driven by mortgage servicing and specialty finance strategies.
- In total, Hedge Fund and Private Credit strategies have taken advantage of higher market volatility and higher interest rates to generate strong risk adjusted returns.

### Strategy Update

- The objective of the Absolute Return portfolio is to diversify the total plans' holdings, targeting returns above investment-grade fixed income with lower volatility than the equity portfolio. The portfolio utilizes a diverse mix of managers that invest both long and short to target specific exposures and seek to hedge out unwanted risk.
- Commitments closed during the quarter include:
  - \$300 million in Apollo Accord+ II Fund LP, a drawdown investment partnership managed by Apollo Accord+ Management, LP. The fund is designed to be a multi-asset credit strategy that will invest primarily in North America and Western Europe.

- \$150 million in AMG Comvest Senior Lending Feeder Fund II LP, a Business Development Company (“BDC”) structured investment managed by Comvest Credit Managers, LLC. The BDC primarily invests in first lien, senior secured loans to both private equity sponsor-backed and non-sponsored businesses.
- In terms of allocation priorities, we expect to maintain the current allocation to hedge funds and will review investments on a relative value basis. We will also review credit strategies on an opportunistic basis.

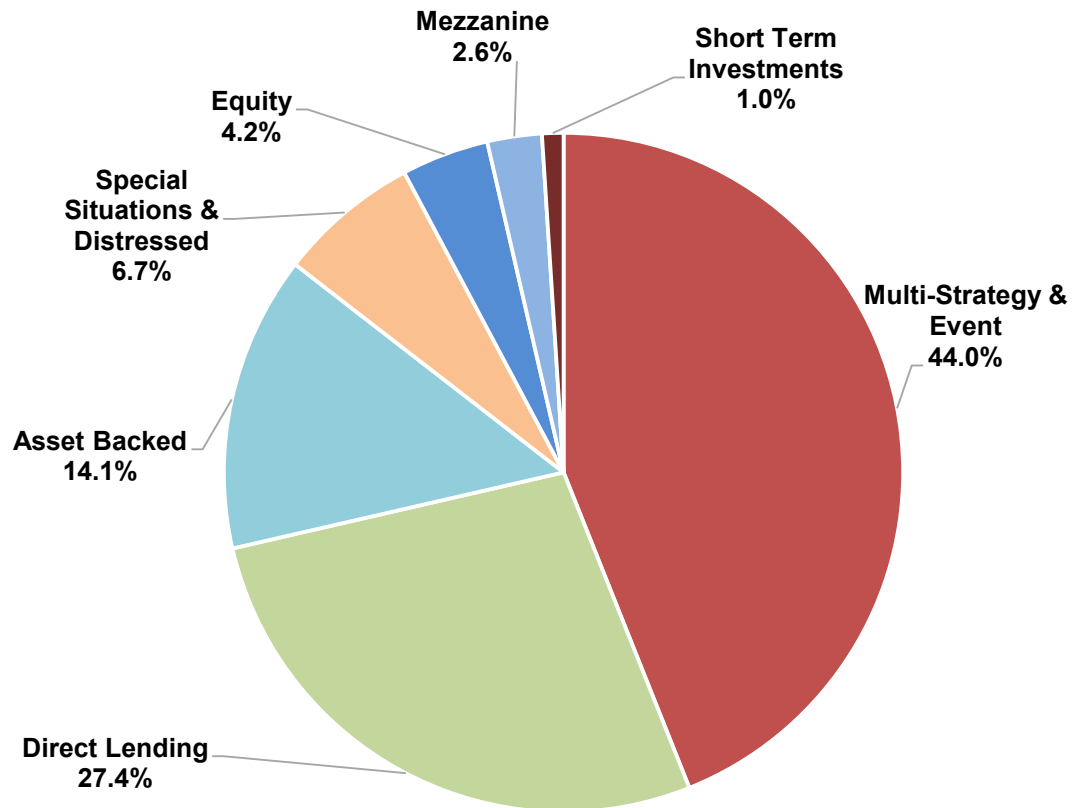
Overall, we will continue to focus on opportunities that seek to provide diversification, protect the downside, and deliver absolute return.

# SMRS

## Absolute Return

### 6/30/24

### Investments By Strategy



### Market Value in Millions

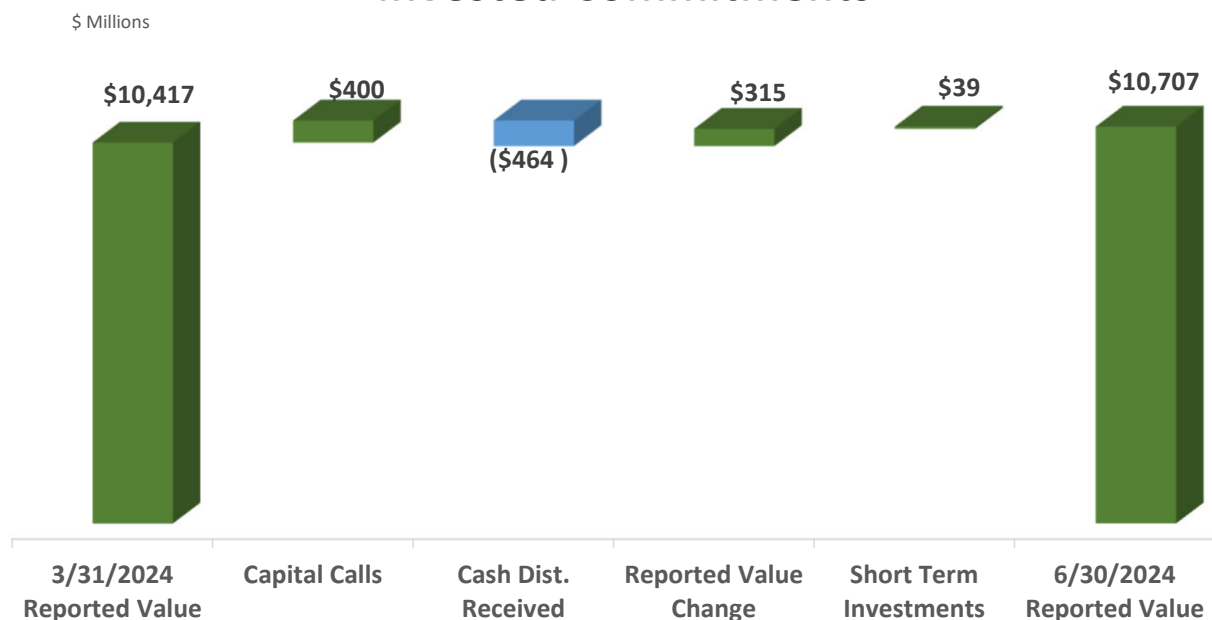
	<u>6/30/24</u>
Multi-Strategy & Event	\$ 4,706
Direct Lending	2,938
Asset Backed	1,509
Special Situations & Distressed	723
Equity	445
Mezzanine	278
Short Term Investments	108
<b>Total Investments</b>	<b>\$ <u>10,707</u></b>

# SMRS

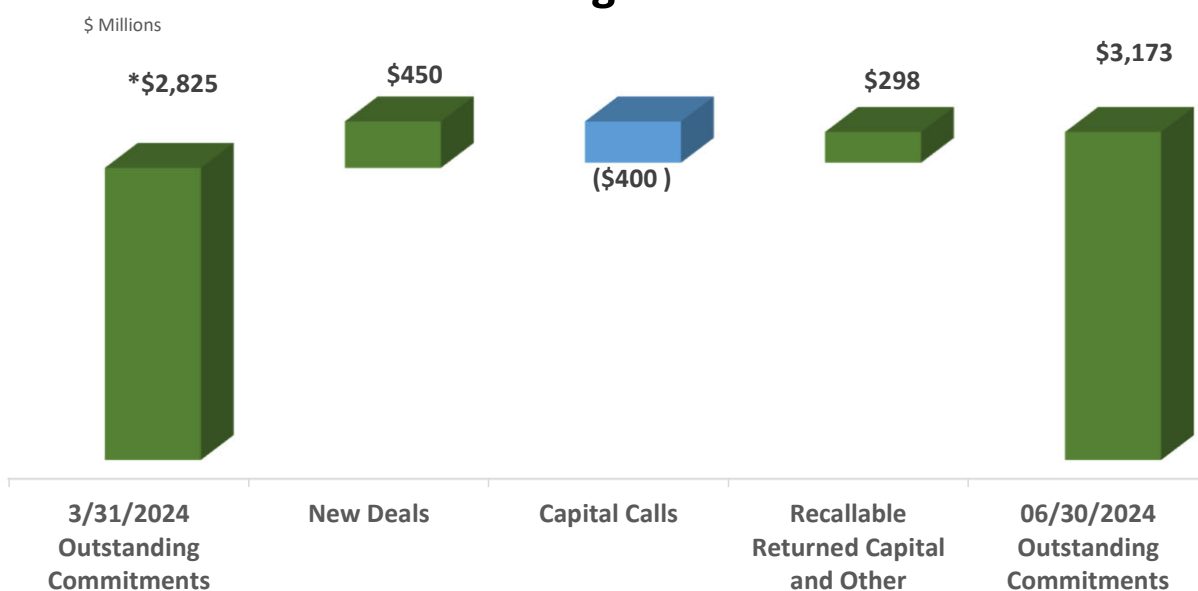
## Absolute Return

### 6/30/24

### Invested Commitments



### Outstanding Commitments



\*Adjusted due to new methodology

# Absolute Return

6/30/24

## Net Market Value by Entity

	Net Market Value	Unfunded Commitment
Acacia Co-Invest, LP	\$ 339,789,789	\$ 0
AG Essential Housing, LP	7,431,940	58,000,000
<b>** AMG Comvest Senior Lending Feeder Fund II, LP</b>	18,450,000	132,000,000
Angelo Gordon Credit Solutions Fund II, LP	75,435,008	24,458,905
Angelo Gordon Credit Solutions Fund, LP	44,140,239	4,325,340
<b>** Apollo Accord+ II Fund, LP</b>	0	300,000,000
Apollo Accord+, LP	258,642,180	84,701,134
Apollo MidCap FinCo Holdings, LTD	370,686,128	0
Apollo SCRF IV, LP	8,195,480	147,742,521
Blackstone Capital Opportunities Fund IV Co-Invest, LP	28,225,291	5,165,882
Blackstone Capital Opportunities Fund IV, LP	88,446,485	69,366,014
Blue Range Holdings, LLC	617,557,630	213,549,470
Castle Credit SMRS Holdings, LLC Series A	149,160,444	79,980,818
Castle Credit SMRS Holdings, LLC Series C	98,607,932	3,726,605
Cerberus Manitou Residential Loan Fund, LP	299,615,732	96,214,615
Cerberus SMRS Partners, LP	9,269,920	23,304,657
EnTrust White Pine Partners, LP	1,177,150	0
Farallon Special Situations Fund II, LP	72,576,618	33,581,112
Fortress FCO MA MI, LP	102,565,404	24,929,297
Fortress MSR Opportunities Fund I A, LP	5,864,929	15,662,214
GSO Capital Opportunities Fund III, LP	16,023,485	26,504,994
GSO COF III Co-Investment Fund, LP	3,066,362	13,491,407
HarbourVest Credit Opportunities Fund II, LP	72,065,992	2,250,000
HarbourVest Credit Opportunities Fund III, LP	0	75,000,000
Harbourvest Direct Lending Fund, LP	102,667,988	12,500,000
HarbourVest Direct Lending II, LP	0	60,000,000
HarbourVest Partners Mezzanine Income Fund, LP	27,035,681	16,310,000
HPS Mezzanine Partners 2019, LP	43,281,466	10,219,633
HPS Red Cedar Fund, LP	310,049,819	123,740,787
Irradiant CLO Partners Fund II, LP (fka Kayne CLO Partners FD II)	54,369,819	21,383,431
Irradiant CLO Partners III, LP	66,337,729	45,236,693
Irradiant Solutions Fund II, LP	242,506,331	161,405,135
Irradiant Solutions Fund, LP (fka Kayne)	110,213,142	130,474,690
Jana Strategic Investment Fund IV, LP	105,092,065	486,018
Kayne Anderson BDC, LLC (KABDC)	112,420,568	0
Lone Star Residential Mortgage Fund III, LP	13,291,122	89,926,656
Marathon CLO Equity Fund, LP	9,000,424	0
Monument Park, LLC	85,948,095	0
MP Securitized Credit Fund, LP	466,767	0
Oaktree Opportunities Fund VIII, LP	125,789	0
OCM Opportunities Fund VIIb, LP	0	0
Owl Rock Technology Finance Corp II (ORTF II), LLC	89,573,633	112,081,921
Owl Rock Technology Holdings II (ORTH II)	1,321,641	23,201,285
PIMCO Aviation Co-Invest Vehicle Onshore Feeder, LP	15,185,057	37,440,206

	<b>Net Market Value</b>	<b>Unfunded Commitment</b>
PIMCO Private Income Fund Onshore Feeder, LLC	95,217,291	0
Redding Ridge Holdings, LP	135,364,545	17,163,814
Sixth Street CLO Equity Fund IV, LP	22,490,713	77,754,088
Sixth Street Lending Partners, LP	207,358,083	331,288,286
Sixth Street Opportunities Partners IV (A), LP	74,302,476	13,327,566
Sixth Street Opportunities Partners V (A), LP	81,132,599	47,087,365
Sixth Street Specialty Lending Europe II (USD Feeder), LP	69,840,756	72,243,817
SJC DLF IV 10 YEAR-J, LLC	12,622,832	5,000,000
SJC Onshore Direct Lending Fund IV-SMRS, LP	323,461,131	118,909,895
SMRS-HVDL, LLC	91,205,125	16,100,000
Suttons Bay Fund, LP	485,940,766	88,892,707
* Tahquamenon Fund, LP	4,705,297,459	0
TCW/Crescent Mezzanine Partners V, LP	27,891	12,395,466
TICP CLO Partners II, LP	27,509,436	18,199
TICP CLO Partners III, LP	68,485,302	4,411,277
Turning Rock Fund I, LP	31,372,703	16,319,293
Turning Rock Fund II, LP	68,569,297	6,932,538
Turning Rock Fund III, LP	23,346,600	66,653,400
* Visium Balanced Fund, LP	2	0
<b>Total Absolute Return Strategies</b>	<b>\$ 10,599,426,279</b>	<b>\$ 3,172,859,152</b>
Short-Term Investments & Other	107,945,619	0
<b>Grand Total</b>	<b>\$ 10,707,371,898</b>	<b>\$ 3,172,859,152</b>

\* Fund of Funds

\*\* New Commitments made during quarter reported

State of Michigan Retirement System

# DEFINED CONTRIBUTION REVIEW

State of Michigan Investment Board Meeting  
October 1, 2024



Lan Hue Chen, CFA, CAIA  
Senior Investment Manager  
Defined Contribution, Trusts & Agencies Division



## EXECUTIVE SUMMARY

### **Market Environment and Outlook**

U.S. stocks advanced during the second quarter on continued strength in the labor market and several key economic measures. The S&P 500 Index rose 4.28% during the quarter, and the Nasdaq Composite grew 8.26%. The information technology and communication services sectors led, while energy and materials lagged. Large-cap stocks outperformed small-caps, and growth significantly beat value. The Federal Open Market Committee held interest rates steady throughout the quarter. Fed Chair Powell acknowledged modest progress on taming inflation at the central bank's June meeting, yet, he emphasized the need for more confidence about the inflation situation before making any changes to rates.

U.S. bond performance was essentially flat during the quarter. The Bloomberg U.S. Aggregate Bond Index inched up 0.07%, and the 10-year U.S. Treasury yield rose from 4.33% at the start of April to 4.36% by quarter end.

The resilience of the U.S. economy persists. Despite the effects from continued monetary tightness, economic growth remains strong, driven by gains in payrolls and productivity. Consumer spending is stable, supported by a significant increase in household net worth. However, consumer confidence remains below average due to the lasting impact of higher prices. While inflation has fallen to more manageable levels, concerns about overheating persist. While core inflation has declined for 14 consecutive months, core services prices are still rising. A downshift in growth and loosening of the labor market may be necessary to maintain inflation near the Fed's 2% target. This does not imply significant economic weakness, but it may keep rates higher for longer than expected.

### **Regulatory Update**

**Health Savings Account (HSA) contribution limits rise for 2025.** Individuals with self-only coverage under a high deductible health plan will be able to contribute \$4,300 in 2025, a 3.6% increase from the 2024 limit of \$4,150. The adjustment follows an increase of more than 7% from 2023 to 2024.

# SMRS

## Defined Contribution Strategies

**6/30/24**

Markets	Amount		% of Total	Fee per \$1,000
QDIA (\$ in Millions)				
Total Target Date Fund	6/30/24 \$5,249	6/30/23 \$4,087	34.7%	\$0.55
Tier I Index Funds				
State Street S&P 500 Index Fund	\$2,347	\$1,907		\$0.13
State Street Bond Market Index Fund	1,212	1,069		0.20
State Street Global All Cap Equity ex-U.S. Index Fund	1,037	847		0.45
State Street S&P Mid Cap Index Fund	845	765		0.20
BlackRock Government Short-Term Investment CL F	296	265		0.56
BlackRock S&P Small Cap 600 Equity Index CL F	172	170		0.25
BlackRock Emerging Markets Index CL F	115	107		0.75
Total Tier I Index	\$6,024	\$5,130	39.9%	\$0.25
Tier II Active Funds				
Stable Value Fund	\$1,114	\$1,214		\$2.16
Dodge & Cox Stock Fund	722	655		4.10
Jennison Large Cap Growth Fund	667	492		2.76
American Funds EuroPacific Growth R6	255	258		4.70
T. Rowe Price Mid-Cap Value Fund	177	154		5.12
Voya Small Cap Growth Equity Fund	155	132		3.33
Artisan Mid Cap Fund	136	131		6.80
PIMCO Total Return I Fund	106	101		4.90
Ceredex Small-Cap Value Eq I	73	71		4.91
Prudential High Yield Fund	44	39		3.60
Total Tier II Active	\$3,449	\$3,247	22.8%	\$3.42
Tier III				
Total Self Directed Brokerage Account	\$385	\$283	2.6%	NA
Total Defined Contribution Assets	\$15,107	\$12,747	100.0%	\$1.07

\*Loan Fund \$210M as of 6/30/24

NOTE: Totals may not be exact due to rounding.

## Defined Contribution Performance by Fund

### 6/30/24

<u>Fund Name</u>	<u>Market Value</u>	<u>1-Year</u>	<u>3-Years</u>	<u>5-Years</u>	<u>10-Years</u>	<u>Since Inc</u>
<b>State Street Target Retirement Income Fund</b>	<b>\$ 111,095,087</b>	<b>8.4</b>	<b>1.2</b>	<b>4.5</b>	<b>4.0</b>	<b>N/A</b>
State Street Income Custom Index		8.4	1.2	4.5	3.9	N/A
Morningstar Target-Date Retirement		7.9	0.4	3.5	3.5	N/A
Variance State Street Income Custom Index		0.0	0.0	0.0	0.1	N/A
Variance Morningstar Target-Date Retirement		0.5	0.8	1.0	0.5	N/A
<b>State Street Target Retirement 2020 Fund</b>	<b>\$130,119,873</b>	<b>8.6</b>	<b>1.2</b>	<b>5.2</b>	<b>5.0</b>	<b>N/A</b>
State Street 2020 Custom Index		8.6	1.2	5.2	4.9	N/A
Morningstar Target-Date 2020		9.4	0.8	4.9	5.0	N/A
Variance State Street 2020 Custom Index		0.0	0.0	0.0	0.1	N/A
Variance Morningstar Target-Date 2020		(0.8)	0.4	0.3	0.0	N/A
<b>State Street Target Retirement 2025 Fund</b>	<b>\$305,835,875</b>	<b>10.3</b>	<b>1.4</b>	<b>6.4</b>	<b>6.0</b>	<b>N/A</b>
State Street 2025 Custom Index		10.3	1.3	6.4	5.9	N/A
Morningstar Target-Date 2025		10.0	1.0	5.4	5.4	N/A
Variance State Street 2025 Custom Index		0.0	0.1	0.0	0.1	N/A
Variance Morningstar Target-Date 2025		0.3	0.4	1.0	0.6	N/A
<b>State Street Target Retirement 2030 Fund</b>	<b>\$447,792,743</b>	<b>11.9</b>	<b>1.7</b>	<b>7.4</b>	<b>6.6</b>	<b>N/A</b>
State Street 2030 Custom Index		11.9	1.7	7.3	6.6	N/A
Morningstar Target-Date 2030		11.5	1.6	6.5	6.1	N/A
Variance State Street 2030 Custom Index		0.0	0.0	0.1	0.0	N/A
Variance Morningstar Target-Date 2030		0.4	0.1	0.9	0.5	N/A
<b>State Street Target Retirement 2035 Fund</b>	<b>\$566,328,125</b>	<b>12.7</b>	<b>1.9</b>	<b>7.9</b>	<b>7.0</b>	<b>N/A</b>
State Street 2035 Custom Index		12.7	1.8	7.8	6.9	N/A
Morningstar Target-Date 2035		13.2	2.4	7.6	6.8	N/A
Variance State Street 2035 Custom Index		0.0	0.1	0.1	0.1	N/A
Variance Morningstar Target-Date 2035		(0.5)	(0.5)	0.3	0.2	N/A
<b>State Street Target Retirement 2040 Fund</b>	<b>\$595,760,928</b>	<b>13.4</b>	<b>2.1</b>	<b>8.4</b>	<b>7.3</b>	<b>N/A</b>
State Street 2040 Custom Index		13.5	2.1	8.3	7.2	N/A
Morningstar Target-Date 2040		14.8	3.1	8.5	7.4	N/A
Variance State Street 2040 Custom Index		(0.1)	0.0	0.1	0.1	N/A
Variance Morningstar Target-Date 2040		(1.4)	(1.0)	(0.1)	(0.1)	N/A
<b>State Street Target Retirement 2045 Fund</b>	<b>\$665,972,933</b>	<b>14.1</b>	<b>2.3</b>	<b>8.8</b>	<b>7.6</b>	<b>N/A</b>
State Street 2045 Custom Index		14.2	2.3	8.7	7.5	N/A
Morningstar Target-Date 2045		16.0	3.6	9.1	7.7	N/A
Variance State Street 2045 Custom Index		(0.1)	0.0	0.1	0.1	N/A
Variance Morningstar Target-Date 2045		(1.9)	(1.3)	(0.3)	(0.1)	N/A
<b>State Street Target Retirement 2050 Fund</b>	<b>\$875,216,438</b>	<b>14.7</b>	<b>2.5</b>	<b>9.1</b>	<b>7.7</b>	<b>N/A</b>
State Street 2050 Custom Index		14.8	2.5	9.0	7.7	N/A
Morningstar Target-Date 2050		16.6	3.9	9.4	7.9	N/A
Variance State Street 2050 Custom Index		(0.1)	0.0	0.1	0.0	N/A
Variance Morningstar Target-Date 2050		(1.9)	(1.4)	(0.3)	(0.2)	N/A
<b>State Street Target Retirement 2055 Fund</b>	<b>\$937,473,762</b>	<b>14.8</b>	<b>2.6</b>	<b>9.1</b>	<b>7.7</b>	<b>N/A</b>
State Street 2055 Custom Index		14.9	2.5	9.1	7.7	N/A
Morningstar Target-Date 2055		16.8	4.0	9.5	7.9	N/A
Variance State Street 2055 Custom Index		(0.1)	0.1	0.0	0.0	N/A
Variance Morningstar Target-Date 2055		(2.0)	(1.4)	(0.4)	(0.2)	N/A
<b>State Street Target Retirement 2060 Fund</b>	<b>\$509,407,503</b>	<b>14.8</b>	<b>2.6</b>	<b>9.1</b>	<b>N/A</b>	<b>8.0</b>
State Street 2060 Custom Index		14.9	2.5	9.1	N/A	8.0
Morningstar Target-Date 2060		17.0	4.0	9.6	N/A	8.5
Variance State Street 2060 Custom Index		(0.1)	0.1	0.0	N/A	0.0
Variance Morningstar Target-Date 2060		(2.2)	(1.4)	(0.5)	N/A	(0.5)

<u>Fund Name</u>	<u>Market Value</u>	<u>1-Year</u>	<u>3-Years</u>	<u>5-Years</u>	<u>10-Years</u>	<u>Since Inc</u>
<b>State Street Target Retirement 2065 Fund</b>	<b>\$104,059,149</b>	<b>14.8</b>	<b>2.6</b>	<b>N/A</b>	<b>N/A</b>	<b>8.3</b>
State Street 2065 Custom Index		14.9	2.5	N/A	N/A	8.2
Morningstar Target-Date 2065+		17.1	4.1	N/A	N/A	11.3
Variance State Street 2065 Custom Index		(0.1)	0.1	N/A	N/A	0.0
Variance Morningstar Target-Date 2065+		(2.3)	(1.5)	N/A	N/A	(3.0)
<b>TIER 1</b>						
<b>State Street S&amp;P 500 Index Fund</b>	<b>\$2,347,475,257</b>	<b>24.6</b>	<b>10.0</b>	<b>15.0</b>	<b>12.8</b>	<b>N/A</b>
S&P 500 Index		24.6	10.0	15.0	12.9	N/A
Morningstar Large Blend		21.4	8.0	13.3	11.2	N/A
Variance S&P 500 Index		0.0	0.0	0.0	(0.1)	N/A
Variance Morningstar Large Blend		3.2	2.0	1.7	1.6	N/A
<b>State Street US Bond Index Fund</b>	<b>\$1,211,862,503</b>	<b>2.7</b>	<b>(3.0)</b>	<b>(0.2)</b>	<b>1.3</b>	<b>N/A</b>
Bloomberg U.S. Aggregate Bond Index		2.6	(3.0)	(0.2)	1.3	N/A
Morningstar Intermediate Core Bond		3.1	(3.0)	(0.2)	1.3	N/A
Variance Bloomberg U.S. Aggregate Bond Index		0.1	0.0	0.0	0.0	N/A
Variance Morningstar Intermediate Core Bond		(0.4)	0.0	0.0	0.0	N/A
<b>State Street Global All Cap Equity ex-U.S. Index Fund</b>	<b>\$1,037,338,958</b>	<b>11.6</b>	<b>0.4</b>	<b>5.9</b>	<b>4.1</b>	<b>N/A</b>
MSCI ACWI ex USA IMI (Net)		11.6	0.2	5.6	3.9	N/A
Morningstar Foreign Large Blend		10.6	1.2	5.9	4.2	N/A
Variance MSCI ACWI ex USA IMI (Net)		0.0	0.2	0.3	0.2	N/A
Variance Morningstar Foreign Large Blend		1.0	(0.8)	0.0	(0.1)	N/A
<b>State Street S&amp;P Mid Cap Index Fund</b>	<b>\$844,934,360</b>	<b>13.7</b>	<b>4.5</b>	<b>10.3</b>	<b>9.1</b>	<b>N/A</b>
S&P 400 Index		13.6	4.5	10.3	9.1	N/A
Morningstar Mid-Cap Blend		13.2	3.4	9.4	8.2	N/A
Variance S&P 400 Index		0.1	0.0	0.0	0.0	N/A
Variance Morningstar Mid-Cap Blend		0.5	1.1	0.9	0.9	N/A
<b>BlackRock Government Short-Term Investment Fund</b>	<b>\$295,539,928</b>	<b>5.4</b>	<b>3.1</b>	<b>2.2</b>	<b>1.5</b>	<b>N/A</b>
FTSE Treasury Bill 1 Mon USD		5.6	3.1	2.1	1.5	N/A
Variance FTSE Treasury Bill 1 Mon USD		(0.2)	0.0	0.1	0.0	N/A
<b>BlackRock S&amp;P Small Cap 600 Equity Index Fund</b>	<b>\$171,721,153</b>	<b>8.9</b>	<b>(0.1)</b>	<b>8.2</b>	<b>N/A</b>	<b>N/A</b>
S&P SmallCap 600 Index		8.7	(0.3)	8.1	N/A	N/A
Morningstar Small Blend		10.4	0.9	8.1	N/A	N/A
Variance S&P SmallCap 600 Index		0.2	0.2	0.1	N/A	N/A
Variance Morningstar Small Blend		(1.5)	(1.0)	0.1	N/A	N/A
<b>BlackRock Emerging Markets Index Fund</b>	<b>\$114,634,078</b>	<b>11.2</b>	<b>(5.5)</b>	<b>2.8</b>	<b>2.6</b>	<b>N/A</b>
MSCI Emerging Market (Net)		12.5	(5.1)	3.1	2.8	N/A
Morningstar Diversified Emerging Mkts		12.3	(4.3)	3.8	2.7	N/A
Variance MSCI Emerging Market (Net)		(1.3)	(0.4)	(0.3)	(0.2)	N/A
Variance Morningstar Diversified Emerging Mkts		(1.1)	(1.2)	(1.0)	(0.1)	N/A
<b>TIER 2</b>						
<b>Stable Value Fund</b>	<b>\$1,113,554,012</b>	<b>2.4</b>	<b>2.0</b>	<b>2.1</b>	<b>2.2</b>	<b>N/A</b>
BofA Merrill Lynch US 3-Month Treasury Bill Index		5.4	3.0	2.2	1.5	N/A
Hueler Universe		3.0	2.4	2.3	2.1	N/A
Variance BofA Merrill Lynch US 3-Month Treasury Bill Index		(3.0)	(1.0)	(0.1)	0.7	N/A
Variance Hueler Universe		(0.6)	(0.4)	(0.2)	0.1	N/A
<b>Dodge &amp; Cox Stock Fund</b>	<b>\$721,656,000</b>	<b>19.2</b>	<b>7.5</b>	<b>12.9</b>	<b>10.6</b>	<b>N/A</b>
Russell 1000 Value Index		13.1	5.5	9.0	8.2	N/A
Morningstar Large Value		14.8	6.5	9.9	8.4	N/A
Variance Russell 1000 Value Index		6.1	2.0	3.9	2.4	N/A
Variance Morningstar Large Value		4.4	1.0	3.0	2.2	N/A

<u>Fund Name</u>	<u>Market Value</u>	<u>1-Year</u>	<u>3-Years</u>	<u>5-Years</u>	<u>10-Years</u>	<u>Since Inc</u>
<b>Jennison Large Cap Growth Equity Fund</b>	<b>\$667,275,184</b>	<b>35.3</b>	<b>6.0</b>	<b>17.3</b>	<b>16.0</b>	<b>15.9</b>
<i>Russell 1000 Growth Index</i>		33.5	11.3	19.3	16.3	16.5
<i>Morningstar Large Growth</i>		29.1	6.1	15.1	13.4	13.0
<i>Variance Russell 1000 Growth Index</i>		1.8	(5.3)	(2.0)	(0.3)	(0.6)
<i>Variance Morningstar Large Growth</i>		6.2	(0.1)	2.2	2.6	2.9
<b>American Funds EuroPacific Growth R6 Fund</b>	<b>\$254,673,904</b>	<b>10.8</b>	<b>(2.5)</b>	<b>6.1</b>	<b>5.2</b>	<b>N/A</b>
<i>MSCI ACWI Ex USA NR USD</i>		11.6	0.5	5.5	3.8	N/A
<i>Morningstar Foreign Large Growth</i>		9.9	(2.3)	6.2	5.4	N/A
<i>Variance MSCI ACWI Ex USA NR USD</i>		(0.8)	(3.0)	0.6	1.4	N/A
<i>Variance Morningstar Foreign Large Growth</i>		0.9	(0.2)	(0.1)	(0.2)	N/A
<b>T. Rowe Price Mid-Cap Value Fund</b>	<b>\$177,227,350</b>	<b>18.4</b>	<b>8.8</b>	<b>12.5</b>	<b>9.5</b>	<b>N/A</b>
<i>Russell Midcap Value Index</i>		12.0	3.7	8.5	7.6	N/A
<i>Morningstar Mid-Cap Value</i>		11.7	5.0	9.3	7.3	N/A
<i>Variance Russell Midcap Value Index</i>		6.4	5.1	4.0	1.9	N/A
<i>Variance Morningstar Mid-Cap Value</i>		6.7	3.8	3.2	2.2	N/A
<b>Voya Small Cap Growth Equity Fund</b>	<b>\$155,204,118</b>	<b>20.5</b>	<b>0.5</b>	<b>7.5</b>	<b>7.4</b>	<b>N/A</b>
<i>Russell 2000 Growth Index</i>		9.1	(4.9)	6.2	7.4	N/A
<i>Morningstar Small Growth</i>		9.1	(4.4)	7.5	8.5	N/A
<i>Variance Russell 2000 Growth Index</i>		11.4	5.4	1.3	0.0	N/A
<i>Variance Morningstar Small Growth</i>		11.4	4.9	0.0	(1.1)	N/A
<b>Artisan Mid Cap Fund</b>	<b>\$135,605,350</b>	<b>10.7</b>	<b>(5.3)</b>	<b>8.3</b>	<b>9.5</b>	<b>N/A</b>
<i>Russell Midcap Growth Index</i>		15.1	(0.1)	9.9	10.5	N/A
<i>Morningstar Mid-Cap Growth</i>		12.5	(2.4)	8.6	9.4	N/A
<i>Variance Russell Midcap Growth Index</i>		(4.4)	(5.2)	(1.6)	(1.0)	N/A
<i>Variance Morningstar Mid-Cap Growth</i>		(1.8)	(2.9)	(0.3)	0.1	N/A
<b>PIMCO Total Return I Fund</b>	<b>\$106,299,206</b>	<b>4.3</b>	<b>(2.8)</b>	<b>0.2</b>	<b>1.6</b>	<b>N/A</b>
<i>Bloomberg U.S. Aggregate Bond Index</i>		2.6	(3.0)	(0.2)	1.3	N/A
<i>Morningstar Intermediate Core-Plus Bond</i>		3.8	(2.8)	0.2	1.5	N/A
<i>Variance Bloomberg U.S. Aggregate Bond Index</i>		1.7	0.2	0.4	0.3	N/A
<i>Variance Morningstar Intermediate Core-Plus Bond</i>		0.5	0.0	0.0	0.1	N/A
<b>Virtus Ceredex Small-Cap Value Eq I Fund</b>	<b>\$72,980,120</b>	<b>11.8</b>	<b>5.0</b>	<b>7.6</b>	<b>6.8</b>	<b>N/A</b>
<i>Russell 2000 Value Index</i>		10.9	(0.5)	7.1	6.2	N/A
<i>Morningstar Small Blend</i>		10.4	0.9	8.1	7.1	N/A
<i>Variance Russell 2000 Value Index</i>		0.9	5.5	0.5	0.6	N/A
<i>Variance Morningstar Small Blend</i>		1.4	4.1	(0.5)	(0.3)	N/A
<b>Prudential High Yield Fund</b>	<b>\$44,343,706</b>	<b>9.7</b>	<b>1.0</b>	<b>3.8</b>	<b>N/A</b>	<b>4.6</b>
<i>Bloomberg U.S. Corp. HY 1% Issuer Cap Index</i>		10.5	1.7	3.8	N/A	<b>4.5</b>
<i>Morningstar High Yield Bond</i>		9.9	1.6	3.5	N/A	<b>3.5</b>
<i>Variance Bloomberg U.S. Corp. HY 1% Issuer Cap Index</i>		(0.8)	(0.7)	0.0	N/A	<b>0.2</b>
<i>Variance Morningstar High Yield Bond</i>		(0.2)	(0.6)	0.3	N/A	<b>1.1</b>

### TIER 3

<b>Self Directed</b>	<b>\$385,445,576</b>
<b>TOTAL</b>	<b>\$15,106,833,179</b>
<b>Loan Fund:</b>	<b>\$210,204,977</b>

State of Michigan Retirement System

# DOMESTIC EQUITY REVIEW

State of Michigan Investment Board Meeting  
October 1, 2024



Jack A. Behar, CFA  
Senior Investment Manager  
Domestic Equity Division

# EXECUTIVE SUMMARY

## Performance

<b>MPSERS Plan (6/30/24)</b>	<b>1-Year</b>	<b>3-Years</b>	<b>5-Years</b>	<b>7-Years</b>	<b>10-Years</b>
Annualized Returns	29.0%	8.5%	13.9%	13.9%	12.3%
S&P 1500	23.5%	9.4%	14.6%	13.8%	12.5%
Peer Median Return	17.8%	5.2%	10.7%	11.0%	9.0%

\*State Street Universe greater than \$1 billion

- For the year ended June 30, 2024, the Domestic Equity Division (DED) outperformed its peer group over all time periods, including by 1120 bps over the past twelve months. This performance beat the median larger sized pension fund equity portfolio by a cumulative 38%, or 330 bps annualized, over the past decade.
- DED also outperformed the S&P 1500 by 550 bps over the past year and by 10 bps over the last 7 years, while underperforming the market over other time periods.
- The division continued to benefit from its investments in technology related communication services companies, as well as from investments in the likes of Nvidia, American Express, Apollo Global Management and Spotify.
- Performance was especially strong across our internal manager lineup, with five of our six portfolio managers outperforming the S&P 1500. As of June 30, 2024, our internal management group is outperforming the S&P 1500 over one, three, five and seven years.
- On the external manager side:
  - LA Capital had a strong year, continuing its run of outstanding performance, beating both the S&P 1500 and its S&P Growth benchmark. Over the past decade LA Capital has compounded returns at nearly 13%, net of fees, with an approach that is both different and diversifying to the division.
  - Bivium Capital, one of our emerging manager of managers, edged out the S&P 1500.
  - Patient Capital beat its value benchmark and small cap benchmarks by over 7% and nearly outperformed the S&P 1500 despite its investing style being out of favor.
  - Michigan based Ancora Small Cap and Seizert Capital beat their benchmarks by over 400 bps and nearly 300 bps respectively.
  - Other managers in our lineup underperformed, primarily due to investments in younger, smaller companies, defensive positioning (including holds high levels of cash) and company specific events.

## **Asset Class Goal**

To provide the SMRS with long-term domestic equity market returns or better, by investing in a diversified and attractively valued portfolio of companies at an index fund-like cost.

## **Strategy Update**

- The Domestic Equity Division's portfolio trades at a slight discount to the S&P 1500 on this year's earnings, while being more profitable and growing faster than the market. This means that it has the capacity to pay more dividends than the market, while also growing those payouts faster.
- While it's possible that the Fed's aggressive rate hikes over the past year could send the economy into recession, we believe the market is nevertheless poised to return from 8%-9% over the next decade from current levels.
- DED is overweight technology related communication services companies, healthcare and financials.
- The beta of the division has been reduced since the end of the second quarter, given potential headwinds on the horizon, but remains above 1.0. Over time and most often the market appreciates alongside economic growth.

## **Market Environment and Outlook**

- At ~22x forward earnings, equity markets trade at an earnings yield (earnings/price) of 4.5%, in line with 10-year treasury bonds.
- Historically, stocks have traded at earnings yield approximately 125 bps higher than bonds, suggesting that stocks are expensive relative to bonds.
  - One could also argue that the market deserves to trade at a higher multiple than it has historically given its larger concentration of dominant and fast-growing technology companies relative to the past.
- Over time we calculate the market's go forward return at roughly 8.4% - below its historical average of 10% - driven by a dividend yield of 1.4% and dividend per share growth of 7.0%.
  - Dividends per share driven by capital reinvestment rate of 5.0% and further 2.0% growth via share buybacks.



# SMRS

## Domestic Equity Strategies

6/30/24

Markets	Amount	Total	% of Total
<b>Internal Indexed</b> (\$ in Millions)			
Indexed Portfolios	\$14,530		
<b>Total Indexed</b>		<b>\$14,530</b>	<b>65.0%</b>
<b>Internal Active</b>			
Active Portfolios	\$5,627		
<b>Total Internal Active</b>		<b>\$5,627</b>	<b>25.2%</b>
<b>External Active</b>			
Martin Currie US LT Unconstrained	\$460		
Los Angeles Capital	308		
ARK Investments	255		
Bivium Capital	203		
Clarkston Capital Partners	196		
Seizert Capital Partners	185		
Patient Capital	182		
Attucks Asset Management	173		
Ancora	123		
Managed Asset Portfolios	115		
<b>Total External Active</b>		<b>\$2,200</b>	<b>9.8%</b>

**Total Domestic Equity**

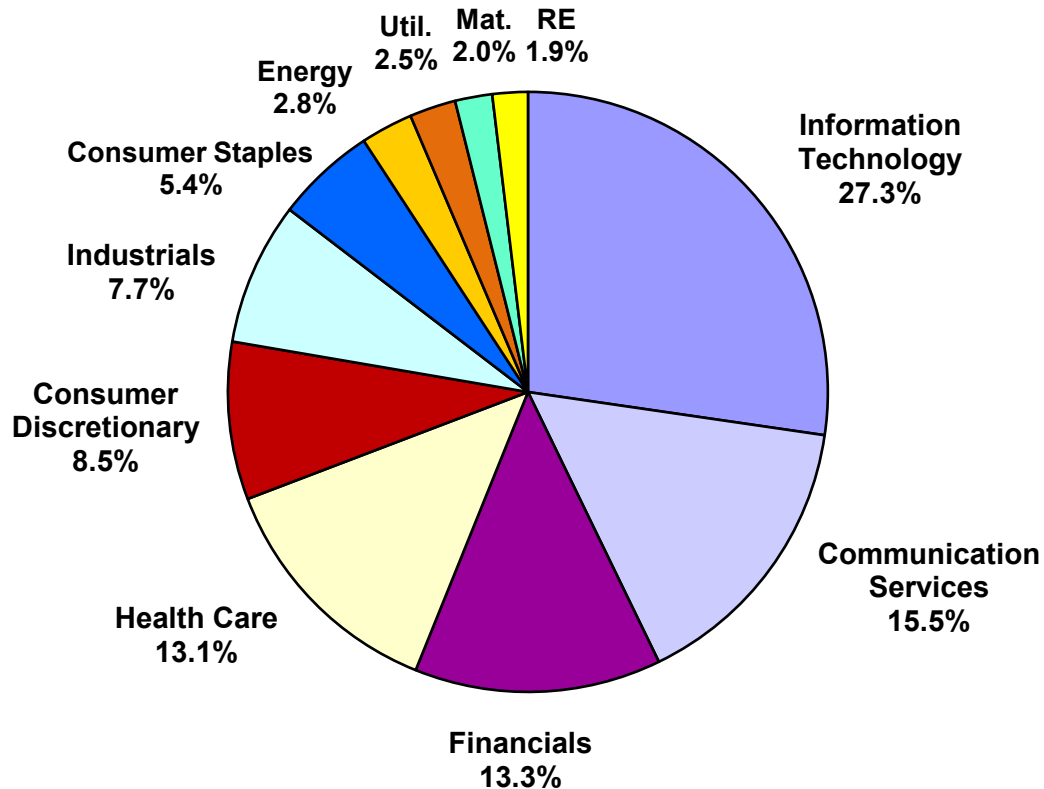
**\$22,357**

**100.0%**

# SMRS

## Domestic Equity By Sector

6/30/24



Market Value in Millions				
	6/30/24			
	Assets	Percent	Benchmark	Difference
Information Technology	\$6,109	27.3%	30.8%	-3.5%
Communication Services	3,462	15.5%	8.8%	6.7%
Financials	2,981	13.3%	12.7%	0.6%
Health Care	2,916	13.1%	11.6%	1.5%
Consumer Discretionary	1,908	8.5%	10.3%	-1.8%
Industrials	1,721	7.7%	9.1%	-1.4%
Consumer Staples	1,212	5.4%	5.6%	-0.2%
Energy	631	2.8%	3.8%	-1.0%
Utilities	555	2.5%	2.3%	0.2%
Materials	444	2.0%	2.5%	-0.5%
Real Estate	418	1.9%	2.5%	-0.6%
<b>Total</b>	<b>\$22,357</b>	<b>100.0%</b>	<b>100.0%</b>	

Benchmark: S&P 1500

# SMRS

## Domestic Equities Composite

### 6/30/24

	<u>6/30/24</u>	<u>3/31/24</u>	<u>12/31/23</u>	<u>9/30/23</u>
Assets (\$ in Millions):	\$22,357	\$22,527	\$19,730	\$18,565
Number of Securities:	1,959	2,043	1,696	1,954
Active Share:	31%	35%	27%	27%

Description: The Domestic Equities Composite seeks to deliver excess returns through a blend of index investing and active management with value-added, but diverse strategies. While the goal is for most managers to outperform in the long run, the composite is designed such that they do so during differing parts of the business cycle.

	<u>SMRS</u>	<u>S&amp;P 1500</u>
<b>Characteristics:</b>		
Market Cap. (\$ in Billions)	\$1,035.7	\$932.7
FY1 P/E	21.9	22.0
P/E upside to S&P 1500	0.6%	0.0
Return on Equity	27.0%	19.9%
<b>Risk Metrics</b>		
Beta	1.08	1.00
Tracking Error	2.8%	0.0%
<b>Projected Returns</b>		
Dividend Yield	1.6%	1.3%
Buyback Yield	2.1%	2.1%
Reinvestment Rate	<u>5.4%</u>	<u>5.0%</u>
<b>Projected Investment Return</b>	9.1%	8.4%

#### TOP TEN EXPOSURES - Domestic Equities vs S&P 1500

<u>Domestic Equity Portfolio</u>		<u>S&amp;P 1500</u>	
<u>Company Name</u>	<u>Portfolio Weight</u>	<u>Company Name</u>	<u>Market Weight</u>
NVIDIA Corporation	7.0%	Microsoft Corporation	6.7%
Microsoft Corporation	5.9%	NVIDIA Corporation	6.1%
Alphabet Inc. Class A	5.8%	Apple Inc.	6.1%
Meta Platforms Inc. Class A	5.6%	Amazon.com Inc.	3.6%
Apple Inc.	4.8%	Meta Platforms Inc. Class A	2.2%
Amazon.com Inc.	3.1%	Alphabet Inc. Class A	2.2%
Cash and Equivalents	2.9%	Alphabet Inc. Class C	1.8%
UnitedHealth Group Incorporated	2.7%	Berkshire Hathaway Inc. Cl. B	1.5%
AT&T Inc.	1.8%	Eli Lilly and Company	1.5%
Apollo Global Management Inc	<u>1.7%</u>	Broadcom Inc.	<u>1.4%</u>
<b>TOTAL</b>	<b><u>41.3%</u></b>	<b>TOTAL</b>	<b><u>33.0%</u></b>

# Domestic Equity Performance - Net of Fees

6/30/24

<u>Fund Name</u>	<u>Market Value</u>	<u>1-Year</u>	<u>3-Years</u>	<u>5-Years</u>	<u>7-Years</u>	<u>Incept.</u>	<u>Incept. Date</u>
<b>SMRS S&amp;P 500 Index</b>	<b>\$13,768,921,845</b>	<b>24.5%</b>	<b>10.0%</b>	<b>15.0%</b>	<b>14.2%</b>	<b>--</b>	<b>N/A</b>
S&P 500		24.6%	10.0%	15.0%	14.3%	--	
Style & Risk Adj Benchmark		24.6%	10.0%	15.0%	14.3%	--	
Lipper Lg-Cap Core		23.7%	8.8%	14.0%	13.4%	--	
Excess Return		0.0%	0.0%	0.0%	0.0%	--	
Alpha		0.0%	0.0%	0.0%	0.0%	--	
Pct. Rank vs Lipper LI-Cap Core		47	31	32	30	--	
<b>SMRS Large-Cap Core</b>	<b>\$2,094,133,171</b>	<b>79.3%</b>	<b>29.5%</b>	<b>27.8%</b>	<b>24.3%</b>	<b>14.0%</b>	<b>8/31/07</b>
S&P 500		24.6%	10.0%	15.0%	14.3%	10.3%	
Style & Risk Adj Benchmark		23.0%	11.1%	15.6%	18.7%	12.1%	
Lipper Large-Cap Core		23.7%	8.8%	14.0%	13.4%	9.7%	
Excess Return		54.8%	19.5%	12.8%	10.0%	3.7%	
Alpha		56.3%	18.3%	12.2%	5.6%	1.9%	
Pct Rank vs Lipper Lg-Cap Core		1	1	1	1	1	
<b>SMRS All-Cap Garp</b>	<b>\$955,768,913</b>	<b>32.0%</b>	<b>4.5%</b>	<b>8.3%</b>	<b>8.5%</b>	<b>11.0%</b>	<b>4/30/11</b>
S&P 1500 Super Composite		23.5%	9.4%	14.6%	13.8%	13.1%	
Style & Risk Adj Benchmark		30.3%	11.3%	16.0%	15.1%	13.9%	
Lipper Multi-Cap Core		18.8%	5.9%	11.8%	11.3%	11.0%	
Excess Return		8.4%	-4.9%	-6.3%	-5.3%	-2.1%	
Alpha		1.6%	-6.7%	-7.7%	-6.6%	-2.9%	
Pct. Rank vs Lipper Multi-Cap Core		2	72	89	87	58	
<b>Large-Cap Consistent Growth</b>	<b>\$802,835,799</b>	<b>51.2%</b>	<b>9.6%</b>	<b>14.1%</b>	<b>17.1%</b>	<b>14.4%</b>	<b>3/1/15</b>
S&P 500		24.6%	10.0%	15.0%	14.3%	12.8%	
Style & Risk Adj Benchmark		44.3%	10.1%	18.5%	17.6%	15.4%	
Lipper Large-Cap Core		23.7%	8.8%	14.0%	13.4%	11.8%	
Excess Return		26.7%	-0.4%	-0.9%	2.9%	1.6%	
Alpha		6.9%	-0.6%	-4.4%	-0.5%	-1.1%	
Pct. Rank vs Lipper Lg-Cap Core		1	36	57	1	3	
<b>SMRS Large-Cap Growth</b>	<b>\$771,887,889</b>	<b>30.8%</b>	<b>9.5%</b>	<b>17.1%</b>	<b>17.5%</b>	<b>12.0%</b>	<b>5/31/05</b>
S&P 500 Growth		32.5%	9.4%	16.9%	16.7%	12.1%	
Style & Risk Adj Benchmark		33.8%	9.0%	15.8%	16.1%	11.9%	
Lipper Large-Cap Growth		32.3%	7.9%	16.5%	16.4%	11.7%	
Excess Return		-1.7%	0.1%	0.2%	0.9%	-0.1%	
Alpha		-3.0%	0.5%	1.3%	1.5%	0.1%	
Pct Rank vs Lipper Lg-Cap Growth		65	34	40	26	34	
<b>SMRS Mid-Cap Index</b>	<b>\$761,093,624</b>	<b>13.8%</b>	<b>4.6%</b>	<b>10.3%</b>	<b>9.5%</b>	<b>0.0%</b>	<b>N/A</b>
S&P 400		13.6%	4.5%	10.2%	9.4%	0.0%	
Style & Risk Adj Benchmark		13.5%	4.5%	11.7%	10.2%	0.0%	
Lipper Mid-Cap Core		12.6%	4.0%	9.4%	8.7%	0.0%	
Excess Return		0.2%	0.1%	0.0%	0.1%	0.0%	
Alpha		0.2%	0.1%	0.1%	0.1%	0.0%	
Pct. Rank vs Lipper Mid-Cap Core		36	41	28	35	0	
<b>Value, Quality, Momentum Composite</b>	<b>\$754,587,171</b>	<b>25.7%</b>	<b>6.2%</b>	<b>--</b>	<b>--</b>	<b>12.7%</b>	<b>10/1/20</b>
S&P 1500		23.5%	9.4%	--	--	15.5%	
Style & Risk Adj Benchmark		23.7%	9.4%	--	--	15.5%	
Lipper Multi-Cap Core		18.8%	5.9%	--	--	12.7%	
Excess Return		2.2%	-3.3%	--	--	-2.8%	
Alpha		1.9%	-3.2%	--	--	-2.8%	
Pct. Rank vs Lipper Multi-Cap Core		14	55	--	--	58	
<b>Martin Currie</b>	<b>\$460,454,629</b>	<b>16.4%</b>	<b>0.1%</b>	<b>--</b>	<b>--</b>	<b>7.3%</b>	<b>11/1/20</b>
S&P 1500 Growth		31.3%	8.9%	--	--	15.5%	
Style & Risk Adj Benchmark		28.4%	10.0%	--	--	17.7%	
Lipper Multi-Cap Growth		23.7%	0.8%	--	--	8.3%	
Excess Return		-14.9%	-8.9%	--	--	-8.2%	
Alpha		-11.9%	-9.9%	--	--	-10.4%	
Pct. Rank vs Lipper Multi-Cap Growth		74	62	--	--	66	

<u>Fund Name</u>	<u>Market Value</u>	<u>1-Year</u>	<u>3-Years</u>	<u>5-Years</u>	<u>7-Years</u>	<u>Incept.</u>	<u>Incept.</u>
						<u>Date</u>	
<b>LA Capital All-Cap Growth</b>	<b>\$308,471,517</b>	<b>31.5%</b>	<b>11.0%</b>	<b>15.0%</b>	<b>15.1%</b>	<b>12.9%</b>	<b>5/31/05</b>
S&P 1500 Growth		31.3%	8.9%	16.3%	16.1%	11.9%	
Style & Risk Adj Benchmark		30.8%	8.6%	15.5%	15.2%	12.1%	
Lipper Multi-Cap Growth		23.7%	0.8%	12.2%	13.4%	10.6%	
Excess Return		0.1%	2.0%	1.3%	-1.0%	1.0%	
Alpha		0.6%	2.3%	-0.5%	-0.1%	0.8%	
Pct. Rank vs Lipper Multi-Cap Growth		26	3	30	36	10	
<b>Ark Investments</b>	<b>\$255,487,659</b>	<b>4.5%</b>	<b>-31.6%</b>	<b>-5.6%</b>	<b>3.4%</b>	<b>8.5%</b>	<b>3/1/16</b>
S&P 1500 Growth		31.3%	8.9%	16.3%	16.1%	16.9%	
Style & Risk Adj Benchmark		33.0%	-1.8%	11.2%	11.4%	26.2%	
Lipper Multi-Cap Growth		23.7%	0.8%	12.2%	13.4%	14.6%	
Excess Return		-26.8%	-40.6%	-21.9%	-12.7%	-8.4%	
Alpha		-28.5%	-29.8%	-16.7%	-8.0%	-17.7%	
Pct. Rank vs Lipper Multi-Cap Growth		98	100	100	95	96	
<b>Bivium Capital Partners</b>	<b>\$203,156,583</b>	<b>23.6%</b>	<b>6.9%</b>	<b>9.5%</b>	<b>8.9%</b>	<b>7.2%</b>	<b>11/30/07</b>
S&P 1500 Value		14.6%	9.0%	11.6%	10.5%	7.7%	
Style & Risk Adj Benchmark		23.5%	9.2%	14.3%	13.8%	10.1%	
Lipper Multi-Cap Value		14.6%	6.1%	9.8%	8.9%	6.8%	
Excess Return		9.1%	-2.1%	-2.2%	-1.6%	-0.5%	
Alpha		0.1%	-2.3%	-4.8%	-4.8%	-2.9%	
Pct. Rank vs Lipper Multi-Cap Value		3	43	56	53	38	
<b>Clarkston Capital Small/Mid-Cap</b>	<b>\$196,113,463</b>	<b>5.0%</b>	<b>1.2%</b>	<b>9.5%</b>	<b>9.0%</b>	<b>10.1%</b>	<b>1/1/14</b>
S&P 400		12.1%	3.0%	9.6%	8.9%	9.1%	
Style & Risk Adj Benchmark		14.0%	4.3%	7.6%	6.6%	6.6%	
Lipper Mid-Cap Core		12.6%	4.0%	9.4%	8.7%	8.1%	
Excess Return		-7.1%	-1.8%	-0.1%	0.1%	1.1%	
Alpha		-9.0%	-3.1%	1.9%	2.4%	3.5%	
Pct. Rank vs Lipper Mid-Cap Core		95	90	44	44	3	
<b>Seizert Capital Partners</b>	<b>\$185,218,259</b>	<b>17.4%</b>	<b>6.5%</b>	<b>12.7%</b>	<b>11.1%</b>	<b>12.9%</b>	<b>11/30/09</b>
S&P 1500 Value		14.6%	9.0%	11.6%	10.5%	12.0%	
Style & Risk Adj Benchmark		11.7%	4.4%	8.3%	10.4%	12.0%	
Lipper Multi-Cap Value		14.6%	6.1%	9.8%	8.9%	10.5%	
Excess Return		2.9%	-2.5%	1.1%	0.5%	0.9%	
Alpha		5.8%	2.2%	4.4%	0.7%	0.9%	
Pct. Rank vs Lipper Multi-Cap Value		26	48	9	10	4	
<b>Patient Capital</b>	<b>\$181,615,228</b>	<b>21.7%</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>-3.4%</b>	<b>10/1/21</b>
S&P 1500 Value		14.6%	--	--	--	10.3%	
Style & Risk Adjusted Benchmark		13.2%	--	--	--	4.2%	
Lipper Multi-Cap Value		14.6%	--	--	--	7.1%	
Excess Return		7.1%	--	--	--	-13.7%	
Alpha		8.5%	--	--	--	-7.7%	
Pct. Rank vs Lipper Multi-Cap Value		5	--	--	--	100	
<b>Attucks Asset Management</b>	<b>\$172,694,861</b>	<b>16.0%</b>	<b>6.9%</b>	<b>9.7%</b>	<b>9.5%</b>	<b>7.6%</b>	<b>11/30/07</b>
S&P 1500		23.5%	9.4%	14.6%	13.8%	9.9%	
Style & Risk Adj Benchmark		13.9%	9.0%	11.4%	10.2%	7.2%	
Lipper Multi-Cap Core		18.8%	5.9%	11.8%	11.3%	8.2%	
Excess Return		-7.5%	-2.5%	-4.9%	-4.3%	-2.4%	
Alpha		2.1%	-2.0%	-1.7%	-0.7%	0.4%	
Pct. Rank vs Lipper Multi-Cap Core		68	47	78	82	72	
<b>Disruptive Innovation Momentum</b>	<b>\$158,989,674</b>	<b>19.3%</b>	<b>-24.7%</b>	<b>--</b>	<b>--</b>	<b>-5.8%</b>	<b>9/1/20</b>
MSCI Momentum Index		36.0%	5.3%	--	--	7.6%	
Style & Risk Adj Benchmark		45.0%	11.5%	--	--	13.7%	
Lipper Multi-Cap Growth		23.7%	0.8%	--	--	6.7%	
Excess Return		-16.7%	-30.0%	--	--	-13.5%	
Alpha		-25.6%	-36.2%	--	--	-19.6%	
Pct. Rank vs Lipper Multi-Cap Growth		64	100	--	--	94	

<u>Fund Name</u>	<u>Market Value</u>	<u>1-Year</u>	<u>3-Years</u>	<u>5-Years</u>	<u>7-Years</u>	<u>Incept.</u>	<u>Incept.</u>
							<u>Date</u>
<b>Ancora</b>	<b>\$123,450,354</b>	<b>16.6%</b>	<b>3.3%</b>	<b>10.3%</b>	--	<b>8.5%</b>	<b>10/1/17</b>
S&P 1000		12.1%	3.0%	9.6%	--	8.6%	
Style & Risk Adj. Benchmark		13.0%	3.0%	8.9%	--	7.8%	
Lipper Mid-Cap Core		12.6%	4.0%	9.4%	--	8.5%	
<i>Excess Return</i>		4.6%	0.3%	0.7%	--	-0.1%	
<i>Alpha</i>		3.7%	0.2%	1.4%	--	0.7%	
<i>Pct. Rank vs Lipper Mid-Cap Core</i>		14	61	27	--	51	
<b>Managed Asset Portfolios</b>	<b>\$114,735,639</b>	<b>12.2%</b>	<b>4.2%</b>	<b>8.3%</b>	<b>9.0%</b>	<b>10.9%</b>	<b>2/29/16</b>
S&P 1500 Value		14.6%	9.0%	11.6%	10.5%	12.2%	
Style & Risk Adj. Benchmark		12.1%	7.9%	9.7%	8.6%	9.6%	
Lipper Multi-Cap Value		14.6%	6.1%	9.8%	8.9%	10.6%	
<i>Excess Return</i>		-2.3%	-4.8%	-3.3%	-1.5%	-1.2%	
<i>Alpha</i>		0.2%	-3.7%	-1.4%	0.5%	1.3%	
<i>Pct. Rank vs Lipper Multi-Cap Value</i>		75	82	80	49	42	
<b>All-Cap Core</b>	<b>\$66,125,085</b>	<b>28.6%</b>	--	--	--	<b>20.1%</b>	<b>5/1/22</b>
S&P 1500		23.5%	--	--	--	15.0%	
Style & Risk Adj. Benchmark		28.7%	--	--	--	18.1%	
Lipper Multi-Cap Core		18.8%	--	--	--	11.4%	
<i>Excess Return</i>		5.1%	--	--	--	5.1%	
<i>Alpha</i>		-0.1%	--	--	--	2.1%	
<i>Pct. Rank vs Lipper Multi-Cap Core</i>		5	--	--	--	1	

State of Michigan Retirement System

# INTERNATIONAL EQUITY REVIEW

State of Michigan Investment Board Meeting

October 1, 2024



Patrick M. Moraniec, CFA  
Senior Investment Manager  
International Equity Division

# EXECUTIVE SUMMARY

## Performance

MPSERS Plan (6/30/24)	1-Year	3-Years	5-Years	7-Years	10-Years
Annualized Returns	14.5%	0.5%	6.6%	6.0%	5.0%
MSCI ACWI ex USA Returns	11.6%	0.5%	5.6%	5.2%	3.8%
Peer Median Returns	12.5%	1.3%	6.7%	6.1%	4.8%

\*Source: State Street Universe greater than \$1 billion

- The IED portfolio outperformed the benchmark by 2.9% over the last twelve months.
- The outperformance was driven by the IED's core strategy of quality, value, and momentum (QVM) which outperformed the MSCI ACWI ex USA index by 4.6% over the last twelve months.
- Within the core strategy all three factors outperformed the benchmark over the last twelve months. The quality factor led with excess returns of 5.9%, the value factor 5.7%, and the momentum factor outperformed the index by 4.6%.

## Asset Class Goals

- Construct a non-U.S. equity-focused portfolio to generate, on a consistent basis, ten-year returns that exceed the MSCI ACWI ex USA by 1.0%.
- Perform in the top half of the public plan peer universe percentile rankings.
- Advance people, processes, and systems to continuously improve investment decisions.

## Strategy

- The division allocates capital with the intention of persistent exposure to the quality factor, momentum factor, and value factor.
- Persistent factor exposures create consistent, transparent, low-cost, efficient returns.
  - Current portfolio drivers of risk and return. The tracking error of the portfolio is approximately 1.9%, which is below the division's risk budget of 3.0%.
- Quarterly changes to International Equity Division allocation.
  - Rebalanced \$1.0 billion of equity swaps to match the division's long-term equity factor strategy.



## **Market Environment and Outlook**

### Market Environment

- International stock markets were up 11.6% over the last twelve months. Earnings per share (EPS) over the same period were down -0.8%.
- Emerging markets outperformed the MSCI ACWI ex USA by 0.9% over the last year. Developed markets underperformed the broader index by -0.4%.
- The U.S. dollar has gained 2.9% over the last year relative to a basket of developed market currencies.
- The Bloomberg Commodity Index return was flat over the last year. Oil increased 15.4%, gold increased 21.3%, and copper, a barometer for the economic cycle, gained 16.8% over the last twelve months.
- Global government interest rates (index-weighted) remained low by historical standards at 2.9%.

### Outlook

- Commodities, based on broad indexes such as the Bloomberg Commodity Index, are trading above the 200-day moving average for the first time since last fall when the narrative that “inflation is subsiding” began. It is worth noting higher commodity prices may nullify the consensus in the market that inflation will return to 2.0%. Central banks cannot control commodity prices.
- Major central banks around the world are cutting monetary policy rates except for the Federal Reserve. However, the Fed appears ready to adopt an accommodative policy stance at the September 2024 meeting.
- Over the next year, the IED expects short-term interest around the world to decrease but not at the same rate as the long end of the curve which is less influenced by central bank policy. We expect the long end of the interest curves to decrease by 100 basis points but to remain stubbornly high relative to the last decade’s average.
- Commodity inflation appears set to return in 2025. Gold, a general barometer for inflation will continue to make new all-time highs throughout 2025 on its way to a price between \$3,500-\$4,000 over the next three years.
- Equity market returns will struggle during these next few years plagued by structurally higher long-term interest rates, higher starting valuation multiples, slowing economic growth, and increased bankruptcies in lower quality companies. These forces will be offset by accommodative central bank policies.
- Europe’s sales per share year-over-year were essentially flat. The earnings per share increased 0.7%. Forward-looking sales per share are expected to be up over the next 12 months, 1.7% and earnings are expected to increase 7.1%.

- Japan's sales per share decreased year-over-year by -4.4% while earnings per share increased by 2.0%. Forward-looking sales per share growth is expected to increase by 0.4% and earnings are expected to grow by 6.4% over the next twelve months.
- Analysts' forward-looking one-year estimates for the MSCI ACWI ex USA index sales and earnings per share growth are 2.7% and 9.5% respectively.
- Go-forward returns for the MSCI ACWI ex USA index on an annualized basis are estimated at 8.5%. This rate is based on the current price and actual fundamentals over multiple periods to remove fundamental variability, and better estimate the earnings power of the index.
- A ten-year blended international government yield of 2.9% implies an international equity risk premium of 5.6%. The equity risk premium remained unchanged during the quarter.

### **Conclusion**

International stocks are expected to grow earnings per share by 9.5% in the next twelve months. The market on a forward basis trades at 13.4x price to earnings, which is below its twenty-three-year average of 15.9x but questions remain if earnings will be impacted by higher interest rates and inflation. The annualized go-forward return of 8.5% is still a widespread relative to global risk-free rates.

# SMRS

## International Equity Strategies

6/30/24

Markets	Amount	Total	% of Total
<b>Active</b> (\$ in Millions)			
BlackRock MSCI	\$2,559		
IED Quality Equity	1,111		
Martin Currie	380		
AQR	265		
Wellington	234		
LSV	199		
WCM	186		
UBS	138		
Brown	126		
Baillie Gifford	119		
Vontobel	115		
Morgan Stanley	96		
Baron	64		
<b>Total Active</b>		<b>\$5,594</b>	<b>37.8%</b>
<b>Stock Plus</b>			
Internal Swaps	\$3,844		
PIMCO	2,440		
<b>Total Stock Plus</b>		<b>\$6,284</b>	<b>42.4%</b>
<b>Indexed</b>			
SSGA	\$1,577		
BlackRock	1,350		
<b>Total Indexed</b>		<b>\$2,927</b>	<b>19.8%</b>

**TOTAL**

**\$14,805**

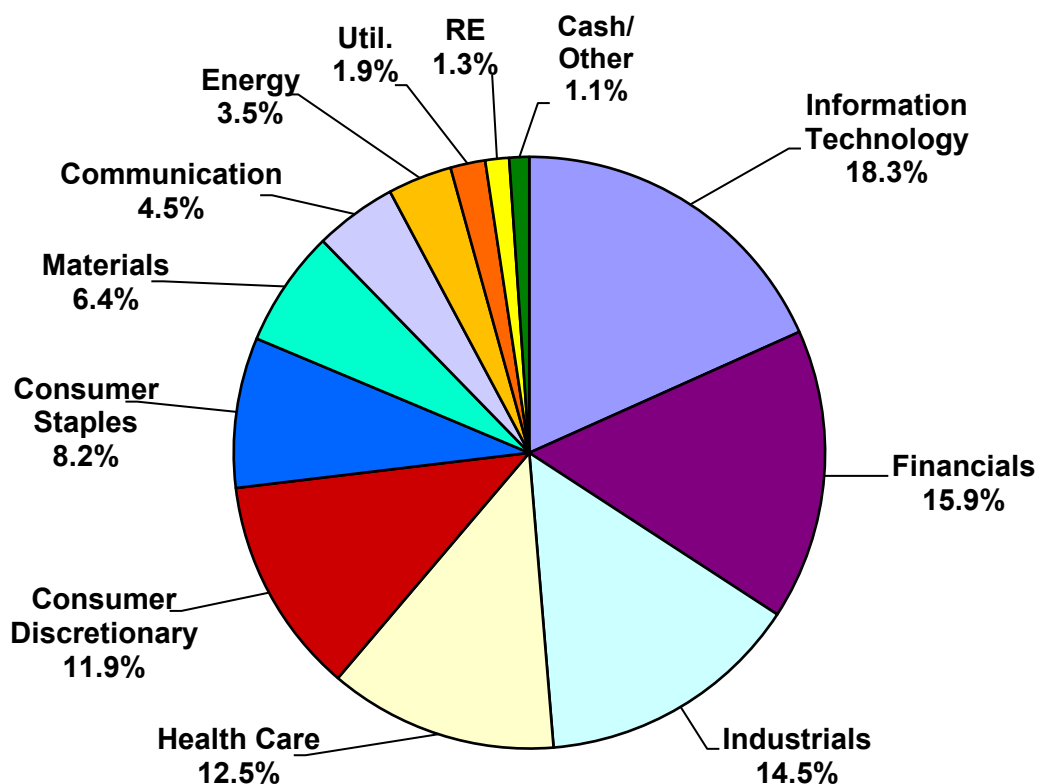
**100.0%**

\*Includes cash balance of \$2.7M

# SMRS

## International Equity By Sector

6/30/24



Market Value in Millions				
6/30/24				
	Assets	Percent	Benchmark	Difference
Information Technology	\$2,708	18.3%	14.3%	4.0%
Financials	2,352	15.9%	21.7%	-5.8%
Industrials	2,145	14.5%	13.7%	0.8%
Health Care	1,848	12.5%	9.4%	3.1%
Consumer Discretionary	1,758	11.9%	11.0%	0.9%
Consumer Staples	1,219	8.2%	7.2%	1.0%
Materials	956	6.4%	7.1%	-0.7%
Communication Services	665	4.5%	5.3%	-0.8%
Energy	519	3.5%	5.4%	-1.9%
Utilities	275	1.9%	3.1%	-1.2%
Real Estate	190	1.3%	1.8%	-0.5%
<b>Total Investments</b>	<b>\$14,635</b>	<b>98.9%</b>	<b>100.0%</b>	
Cash/Other	170	1.1%	0.0%	1.1%
<b>Total</b>	<b>\$14,805</b>	<b>100.0%</b>	<b>100.0%</b>	

Benchmark: MSCI ACWI ex USA

# SMRS

## International Equities

### 6/30/24

<b>Date:</b>	<b><u>6/30/24</u></b>	<b><u>3/31/24</u></b>	<b><u>12/31/23</u></b>	<b><u>9/30/23</u></b>
Assets (\$ in Millions):	\$14,805	\$14,555	\$13,708	\$12,498
Number of Securities:	2,567	2,597	2,630	2,607
Active Share:	35%	36%	36%	36%

Benchmark: MSCI ACWI ex USA

Description: The International Equities Composite represents all International Equity Division investments.

<b>Portfolio Characteristics:</b>	<b>SMRS</b>		<b>MSCI ACWI ex USA</b>	
	<b><u>LTM</u></b>	<b><u>Normalized</u></b>	<b><u>LTM</u></b>	<b><u>Normalized</u></b>
<b>Return:</b>				
Annualized Total Return	9.6%	9.5%	8.8%	8.5%
Sustainable Growth Rate	6.0%	6.4%	5.6%	5.8%
Dividend Yield	2.6%	2.3%	2.5%	2.3%
Buyback Yield	0.7%	0.4%	0.7%	0.4%
Collateral Yield	0.4%	0.4%	--	--
<b>Risk:</b>				
Beta	1.08	--	1.00	--
Volatility	15.4%	--	15.3%	--
Tracking Error	1.9%	--	0.0%	--
Information Ratio	0.4	0.5	--	--
<b>Fundamental:</b>				
Average Capitalization (\$ in Billions)	132.1	--	118.0	--
Price/Earnings	16.5	18.6	16.5	18.6
Price/Book	2.0	2.2	2.0	2.2
ROE	12.5%	11.9%	12.0%	11.6%

#### TOP TEN HOLDINGS

(\$ in Billions\* - \$ in Millions\*\*)

	<b><u>Portfolio Weight</u></b>	<b><u>Market Capitalization*</u></b>	<b><u>FY1 P/E</u></b>	<b><u>Market Value**</u></b>
ASML Holding NV.	2.5%	\$385.0	47.2	\$358.7
Taiwan Semiconductor Manufacturing Co., Ltd.	2.3%	631.3	19.9	341.3
Novo Nordisk A/S Class B	2.1%	439.2	37.7	307.7
Samsung Electronics Co., Ltd.	1.2%	407.0	17.9	179.8
Toyota Motor Corp.	1.2%	408.8	11.2	170.5
LVMH Moet Hennessy Louis Vuitton	1.1%	451.5	25.8	159.8
Nestle S.A.	1.1%	283.8	19.2	153.3
Novartis AG	0.9%	212.4	13.7	130.8
AstraZeneca PLC	0.9%	209.1	16.6	124.5
Tencent Holdings Ltd.	<u>0.8%</u>	<u>367.3</u>	14.7	<u>113.5</u>
<b>TOTAL</b>	<b><u>14.0%</u></b>	<b><u>\$3,795.4</u></b>		<b><u>\$2,039.8</u></b>

# International Equity Performance - Net of Fees

6/30/24

<u>Fund Name</u>	<u>Market Value</u>	<u>1-Year</u>	<u>3-Years</u>	<u>5-Years</u>	<u>7-Years</u>	<u>Incept.</u>	<u>Incept. Date</u>
<b>Total International Equity</b>	<b>\$14,804,717,904</b>	<b>14.3%</b>	<b>0.3%</b>	<b>6.4%</b>	<b>5.8%</b>	<b>5.8%</b>	<b>1/1/04</b>
MSCI ACWI ex USA		11.6%	0.5%	5.6%	5.2%	5.8%	
Lipper Int'l Multi-Cap Core		10.6%	1.3%	5.8%	5.1%	5.7%	
Excess Return		2.6%	-0.2%	0.7%	0.6%	0.0%	
Pct Rank vs. Lipper Int'l Multi-Cap Core		15	71	34	21	29	
<b>Total International Active Strategy*</b>	<b>\$5,593,797,510</b>	<b>11.3%</b>	<b>-1.8%</b>	<b>5.5%</b>	<b>4.8%</b>	<b>5.0%</b>	<b>5/1/05</b>
MSCI ACWI ex USA		11.6%	0.5%	5.6%	5.2%	5.3%	
Lipper Int'l Multi-Cap Core		10.6%	1.3%	5.8%	5.1%	5.3%	
Excess Return		-0.3%	-2.2%	-0.1%	-0.3%	-0.4%	
Pct Rank vs Lipper Int'l Multi-Cap Core		39	96	65	65	67	
<b>BlackRock MSCI Systematic Return</b>	<b>\$2,558,881,189</b>	<b>16.0%</b>	<b>2.3%</b>	<b>8.3%</b>	<b>--</b>	<b>9.2%</b>	<b>12/1/18</b>
MSCI ACWI ex USA		11.6%	0.5%	5.6%	--	6.5%	
Lipper Int'l Multi-Cap Core		10.6%	1.3%	5.8%	--	6.5%	
Excess Return		4.4%	1.8%	2.7%	--	2.7%	
Pct Rank vs Lipper Int'l Multi-Cap Core		10	27	3	--	2	
<b>IED Quality Equity</b>	<b>\$1,110,514,934</b>	<b>6.7%</b>	<b>-1.9%</b>	<b>--</b>	<b>--</b>	<b>6.4%</b>	<b>2/1/20</b>
MSCI ACWI ex USA		11.6%	0.5%	--	--	5.3%	
Lipper Int'l Multi-Cap Core		10.6%	1.3%	--	--	5.5%	
Excess Return		-4.9%	-2.4%	--	--	1.0%	
Pct Rank vs Lipper Int'l Multi-Cap Core		82	96	--	--	29	
<b>Martin Currie International Long-Term</b>	<b>\$380,182,637</b>	<b>3.8%</b>	<b>-5.6%</b>	<b>5.6%</b>	<b>6.3%</b>	<b>7.9%</b>	<b>2/1/17</b>
MSCI ACWI ex USA		11.6%	0.5%	5.6%	5.2%	6.3%	
Lipper Int'l Multi-Cap Core		10.6%	1.3%	5.8%	5.1%	6.2%	
Excess Return		-7.8%	-6.1%	0.0%	1.1%	1.6%	
Pct Rank vs Lipper Int'l Multi-Cap Core		97	99	56	9	7	
<b>AQR Enhanced Value</b>	<b>\$264,622,290</b>	<b>16.5%</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>14.4%</b>	<b>N/A</b>
MSCI ACWI ex USA		11.6%	--	--	--	9.0%	
Lipper International Large-Cap Core		10.6%	--	--	--	9.0%	
Excess Return		4.9%	--	--	--	5.4%	
Pct Rank vs Lipper Int'l Large-Cap Core		7	--	--	--	4	
<b>LSV Int'l Concentrated Value Fund</b>	<b>\$199,165,048</b>	<b>15.7%</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>16.5%</b>	<b>4/1/23</b>
MSCI ACWI ex USA		11.6%	--	--	--	11.1%	
Lipper Int'l Lg-Cap Core		10.6%	--	--	--	11.0%	
Excess Return		4.1%	--	--	--	5.4%	
Pct Rank vs Lipper Int'l Lg-Cap Core		10	--	--	--	1	
<b>WCM Focused Growth International</b>	<b>\$185,625,851</b>	<b>12.9%</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>-0.5%</b>	<b>10/1/21</b>
MSCI ACWI ex USA		11.6%	--	--	--	1.6%	
Lipper Int'l Lg-Cap Core		10.6%	--	--	--	2.1%	
Excess Return		1.3%	--	--	--	-2.2%	
Pct Rank vs Lipper Int'l Lg-Cap Core		23	--	--	--	94	
<b>UBS China A Opportunity Fund</b>	<b>\$137,533,206</b>	<b>-4.6%</b>	<b>-17.0%</b>	<b>--</b>	<b>--</b>	<b>-3.4%</b>	<b>5/1/20</b>
MSCI ChinaOn shore		-10.6%	-14.9%	--	--	-1.6%	
Lipper Emerging Markets		12.3%	12.3%	--	--	8.1%	
Excess Return		6.0%	-2.2%	--	--	-1.8%	
Pct Rank vs. Lipper Emerging Markets		99	100	--	--	100	
<b>Brown Capital Int'l Small Company Fund</b>	<b>\$125,762,864</b>	<b>6.2%</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>0.8%</b>	<b>3/1/22</b>
MSCI ACWI ex USD		11.6%	--	--	--	3.6%	
Lipper Int'l Lg-Cap Core		10.6%	--	--	--	4.4%	
Excess Return		-5.4%	--	--	--	-2.8%	
Pct Rank vs. Lipper Int'l Lg-Cap Core		85	--	--	--	98	
<b>Baillie Gifford Int'l Concentrated Growth</b>	<b>\$119,106,023</b>	<b>10.1%</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>-10.7%</b>	<b>11/1/21</b>
S&P 1500 Value		11.6%	--	--	--	2.6%	
Style & Risk Adj Benchmark		10.6%	--	--	--	3.1%	
Excess Return		-1.5%	--	--	--	-13.3%	
Pct. Rank vs Lipper Multi-Cap Value		61	--	--	--	100	

<u>Fund Name</u>	<u>Market Value</u>	<u>1-Year</u>	<u>3-Years</u>	<u>5-Years</u>	<u>7-Years</u>	<u>Incept.</u>	<u>Incept. Date</u>
<b>Vontobel Int'l Quality Growth Fund</b>	<b>\$114,525,061</b>	<b>6.7%</b>	--	--	--	<b>7.5%</b>	<b>5/1/2022</b>
S&P 1500 Growth		11.6%	--	--	--	7.0%	
Style & Risk Adj Benchmark		10.6%	--	--	--	8.0%	
Lipper Multi-Cap Growth		-5.0%	--	--	--	0.5%	
<i>Pct. Rank vs Lipper Multi-Cap Growth</i>		81	--	--	--	59	
<b>Wellington Int'l Contrarian Value Fund</b>	<b>\$113,662,912</b>	<b>13.3%</b>	--	--	--	<b>16.6%</b>	<b>5/1/23</b>
MSCI ACWI ex USA		11.6%	--	--	--	15.3%	
Lipper Int'l Lg-Cap Core		10.6%	--	--	--	14.3%	
<i>Excess Return</i>		1.6%	--	--	--	1.4%	
<i>Pct Rank vs Lipper Int'l Lg-Cap Core</i>		21	--	--	--	18	
<b>Wellington Select China Equity</b>	<b>\$120,630,080</b>	<b>-3.6%</b>	<b>-20.8%</b>	--	--	<b>0.1%</b>	<b>9/1/19</b>
MSCI ChinaOn shore		-10.6%	-14.9%	--	--	0.1%	
Lipper Emerging Markets		12.3%	-4.1%	--	--	5.1%	
<i>Excess Return</i>		7.0%	-5.9%	--	--	0.0%	
<i>Pct Rank vs Lipper Emerging Markets</i>		99	100	--	--	95	
<b>Morgan Stanley Int'l Opportunity Fund</b>	<b>\$96,437,722</b>	<b>9.5%</b>	--	--	--	<b>-6.0%</b>	<b>2/1/22</b>
MSCI ACWI ex USA		11.6%	--	--	--	2.7%	
Lipper International Large-Cap Core		10.6%	--	--	--	2.9%	
<i>Excess Return</i>		-2.1%	--	--	--	-8.6%	
<i>Pct Rank vs Lipper Int'l Lg-Cap Core</i>		63	--	--	--	100	
<b>Baron Global Advantage</b>	<b>\$64,433,955</b>	<b>20.5%</b>	--	--	--	<b>-11.6%</b>	<b>1/1/22</b>
MSCI ACWI ex USA		11.6%	--	--	--	1.0%	
Lipper Int'l Lg-Cap Core		10.6%	--	--	--	1.4%	
<i>Excess Return</i>		8.9%	--	--	--	-12.7%	
<i>Pct Rank vs Lipper Int'l Lg-Cap Core</i>		1	--	--	--	100	
<b>Total Int'l Stock Plus Strategy**</b>	<b>\$6,283,913,049</b>	<b>18.3%</b>	<b>2.1%</b>	<b>7.5%</b>	<b>6.8%</b>	<b>7.4%</b>	<b>1/1/09</b>
MSCI ACWI ex USA		11.6%	0.5%	5.6%	5.2%	6.9%	
Lipper Int'l Multi-Cap Core		10.6%	1.3%	5.8%	5.1%	7.1%	
<i>Excess Return</i>		6.7%	1.7%	1.9%	1.6%	0.5%	
<i>Pct Rank vs Lipper Int'l Multi-Cap Core</i>		3	32	9	5	28	
<b>Internal Stock Plus</b>	<b>\$3,844,018,767</b>	<b>18.8%</b>	<b>2.5%</b>	<b>7.2%</b>	<b>6.6%</b>	<b>6.3%</b>	<b>9/1/11</b>
MSCI ACWI ex USA		11.6%	0.5%	5.5%	5.2%	5.2%	
Lipper Int'l Multi-Cap Core		10.6%	1.3%	5.8%	5.1%	6.0%	
<i>Excess Return</i>		7.2%	2.1%	1.6%	1.5%	1.2%	
<i>Pct Rank vs Lipper Int'l Multi-Cap Core</i>		3	26	18	6	39	
<b>PIMCO StocksPLUS</b>	<b>\$2,439,894,282</b>	<b>17.5%</b>	<b>1.5%</b>	<b>8.0%</b>	--	<b>8.2%</b>	<b>4/1/19</b>
MSCI ACWI ex USA		11.6%	0.5%	5.5%	--	5.9%	
Lipper Int'l Multi-Cap Core		10.6%	1.3%	5.8%	--	6.0%	
<i>Excess Return</i>		5.8%	1.0%	2.5%	--	2.3%	
<i>Pct Rank vs Lipper Int'l Multi-Cap Core</i>		4	46	4	--	4	
<b>Total Int'l Index Strategy</b>	<b>\$2,927,007,345</b>	<b>11.7%</b>	<b>0.7%</b>	<b>5.8%</b>	<b>5.7%</b>	<b>7.1%</b>	<b>7/1/09</b>
MSCI ACWI ex USA		11.6%	0.5%	5.6%	5.2%	6.2%	
Lipper Int'l Multi-Cap Core		10.6%	1.3%	5.8%	5.1%	6.8%	
<i>Excess Return</i>		0.1%	0.2%	0.2%	0.5%	0.9%	
<i>Pct Rank vs Lipper Int'l Multi-Cap Core</i>		29	62	49	21	31	
<b>SSGA MSCI ACWI ex USA Index</b>	<b>\$1,576,766,016</b>	<b>11.7%</b>	<b>0.6%</b>	<b>5.9%</b>	--	<b>4.5%</b>	<b>11/1/17</b>
MSCI ACWI ex USA		11.6%	0.5%	5.5%	--	4.2%	
Lipper Int'l Multi-Cap Core		10.6%	1.3%	5.8%	--	4.2%	
<i>Excess Return</i>		0.1%	0.2%	0.4%	--	0.3%	
<i>Pct Rank vs Lipper Int'l Multi-Cap Core</i>		29	62	47	--	42	
<b>Blackrock ACWI ex USA Index</b>	<b>\$1,350,241,329</b>	<b>11.7%</b>	<b>0.7%</b>	<b>5.8%</b>	--	<b>4.1%</b>	<b>3/1/18</b>
MSCI ACWI ex USA		11.6%	0.5%	5.5%	--	4.3%	
Lipper Int'l Multi-Cap Core		10.6%	1.3%	5.8%	--	4.0%	
<i>Excess Return</i>		0.1%	0.2%	0.2%	--	-0.2%	
<i>Pct Rank vs Lipper Int'l Multi-Cap Core</i>		29	62	50	--	50	

\* The total includes the cash balance of closed funds, a total of \$1.7 million

\*\*Includes \$1,219 transition account

State of Michigan Retirement System

# FIXED INCOME REVIEW

State of Michigan Investment Board Meeting  
October 1, 2024



LeAnn L. Auer  
Senior Investment Manager  
Fixed Income Division



## EXECUTIVE SUMMARY

### Performance

<b>MPSERS Plan (6/30/24)</b>	<b>1-Year</b>	<b>3-Years</b>	<b>5-Years</b>	<b>7-Years</b>	<b>10-Years</b>
Annualized Returns	5.6%	-0.6%	1.4%	2.4%	2.9%
Bloomberg Barclays U.S. Agg	2.6%	-3.0%	-0.2%	0.9%	1.4%
Peer Median Returns	3.5%	-2.3%	0.5%	1.4%	1.8%

- Across all time periods, the fixed income portfolio outperformed its benchmark and peer group. The portfolio also benefited from an overweight to structured fixed income and high yield bonds during these periods.
- Fixed Income performance during the second quarter was mostly flat against a macro-economic backdrop of easing inflation and a cooling labor market. The yield on the 10-year Treasury peaked at 4.7% in April but then gradually decreased to end the quarter at 4.4%. The yield curve inversion also persisted, but modestly flattened by 6 bps during the quarter. Investment grade and high yield credit spreads widened slightly (4 and 8 bps, respectively), yet remain at historical tights. Spreads across securitized were mostly unchanged.
- Total Return performance of the U.S. Aggregate Bond Index was primarily driven by both CMBS and ABS securitized sectors, government-related securities, as well as intermediate duration and higher credit quality securities.
- CLO and CMBS were the best performing portfolios for the past year, returning 16.8% and 16.2% respectively.

### Strategy Update

- The objective of the Fixed Income Division portfolio is to meet or exceed the returns of the Bloomberg U.S. Aggregate Bond Index while satisfying the overall characteristics of a core fixed income portfolio. The portfolio has a higher yield-to-maturity (YTM) than the benchmark, 5.9% versus 5.0%. Further, the portfolio exhibits risk characteristics that are in line with the historical volatility of traditional fixed income benchmarks.

- The portfolio characteristics are:
  - **Income:** The return coupon of the portfolio is 4.3% and is approximately 110 bps higher than the benchmark.
  - **Liquidity:** The portfolio has 38.2% invested in U.S. Treasuries, TIPS, government-related securities, and cash. These investments can typically be liquidated within one trading day.
  - **Principal preservation:** The portfolio has a large allocation to U.S. Treasuries (32.9%). The average credit rating of the portfolio is investment grade.
  - **Diversification from equity market risk:** The estimated equity beta of the portfolio is 0.15 and aligned with the U.S. Aggregate benchmark.
- The Fixed Income portfolio “Core-Plus” strategy relied on out-of-benchmark assets to generate returns given the low yield environment of the prior decade. During the years between 2010 through 2021, the yield to maturity of the benchmark U.S. Aggregate index averaged between 2-3%. Although this strategy is still important to overall performance, higher yields within the core fixed income sectors are compelling.
- The Core-Plus strategy implemented to achieve the goals includes:
  - Core: As of June 30, 2024, the portfolio’s allocation to U.S. Treasuries, Investment Grade Corporate Bonds, government-guaranteed U.S. Agency Debentures, Agency MBS, ABS, and CMBS was 75%. This includes a 38.2% allocation to U.S. Treasuries, TIPS, government-related securities, and cash.
  - Plus: The portfolio maintains a strategic out-of-benchmark allocation to High-yield corporate bonds, securitized credit, and global fixed income strategies as market opportunities allow. This allocation increases the portfolio yield and total return potential but results in lower liquidity and higher volatility. As of June 30, 2024, the allocation to the Plus portfolio was 23%.

## **Market Environment and Outlook**

- The case for traditional fixed income investing is the strongest it has been in two decades. However, as the changing macro-economic landscape shifts, certain risks are present.
  - The yield to maturity of the U.S. Aggregate Index as of June 2024 was 5.0% which ranks in the second decile for yields over the past twenty years.
  - While U.S. equities are still expected to return a higher rate of return over the long term vs. bonds, the difference in return is at or near the lowest spread in over two decades. Thus, fixed income offers a good risk-adjusted rate of return relative to U.S. equities.

- Among the core fixed income sectors, Agency MBS offers compelling yields and opportunity for carry. The 30-year Mortgage Basis spread to U.S. Treasuries is historically cheap on 5-year and 10-year basis, and performance should be defensive as the Fed cuts interest rates and the yield curve steepens.
- The yield curve, as measured by the 10-year and 2-year U.S. Treasury rates, remains inverted. Inversions have historically signaled future economic weakening.
- Interest rate volatility remains elevated as the market discerns macro-economic data, Federal Reserve narratives, and the forward path of interest rates.
- Investment grade and high yield credit spreads remain at their historical tight. As of June 30, 2024, investment grade credit spreads were 93 bps, and high yield spreads were 310 bps, -30 bps and -112 bps below their 10-year average OAS, respectively. Credit fundamentals remain strong, however, spread risk may rise with any deterioration of the economy.

## **Conclusion**

- The market for traditional fixed income securities is very attractive on a 20-year historical basis. Relative to U.S. equities, fixed income offers opportunity for good risk-adjusted rates of return. Out-of-benchmark securities continue to add to the return potential of the portfolio, however in-benchmark securities now offer better return potential. The inverted yield curve has historically suggested future economic weakening and the portfolio will be defensively positioned.

# SMRS

## Fixed Income Holdings

### Portfolio Characteristics

Benchmark: Barclays Aggregate

**6/30/24**

<b>Characteristic</b>	<b>Portfolio</b>	<b>Benchmark</b>
Average Maturity (Yrs)	9.8	8.4
Duration (Yrs)	6.4	6.1
Spread Duration (Yrs)	6.1	6.0
Coupon (%)	4.3	3.2
Yield to Maturity (%)	5.9	5.0
Credit Rating	A+	AA-
Tracking Error (%)	1.1	N/A
Beta (vs S&P 500)	0.15	0.12

### **Commentary**

#### **Objectives**

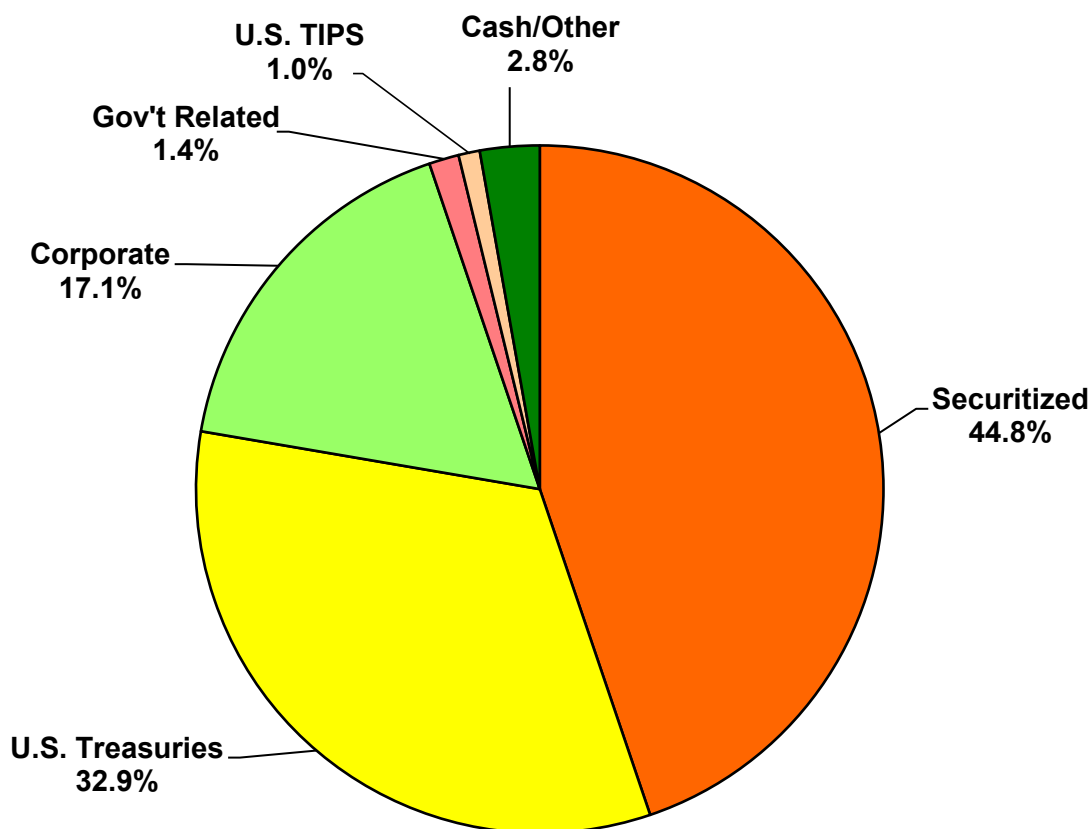
#### **Highlights**

Income:	The coupon of the portfolio is approximately 110bps higher than the benchmark. Coupon interest is an important component of total returns along with price returns.
Liquidity:	38.2% of the portfolio is invested in U.S. Treasuries, TIPS, government guaranteed agency debentures, and cash. These investments can typically be liquidated within one trading day.
Principal Preservation:	The portfolio has a large allocation to U.S. Treasuries (32.9%) and carries an investment grade rating.
Diversification:	The equity beta of the portfolio is approximately 0.15, meaning that the portfolio has a low correlation with Equity market movements.

# SMRS

## Fixed Income By Asset Type

6/30/24



### Market Value in Millions

6/30/24

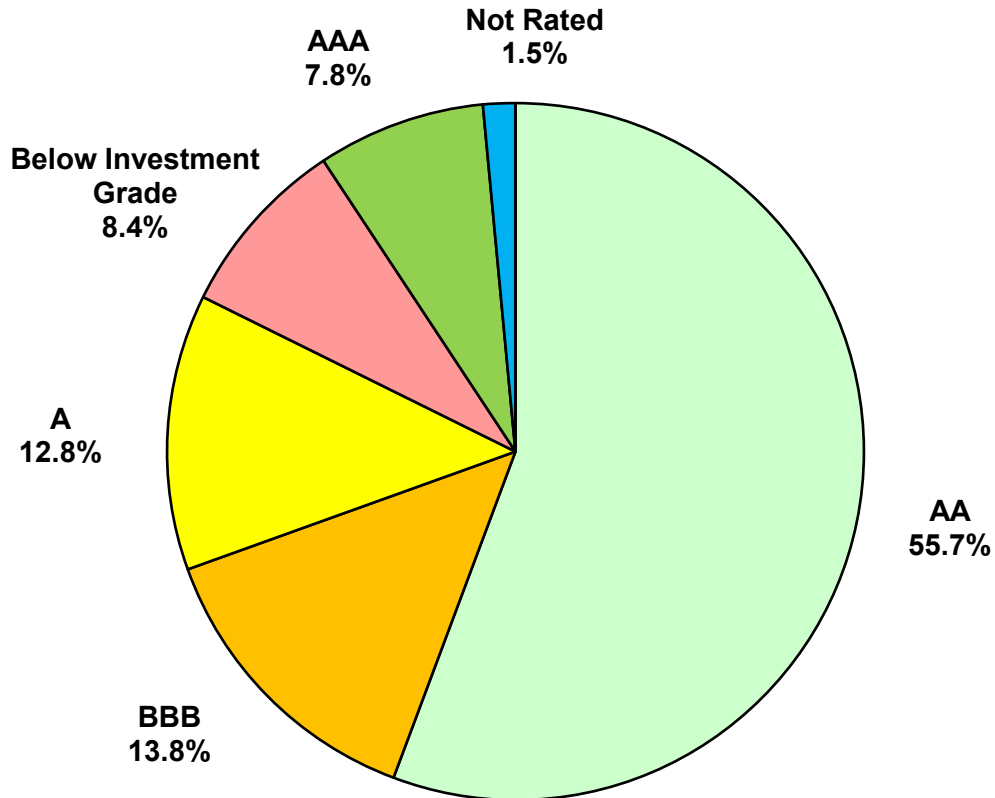
	Assets	Percent	Benchmark	Difference
Securitized	\$4,817	44.8%	27.6%	17.2%
U.S. Treasuries	3,547	32.9%	43.5%	-10.6%
Corporate	1,837	17.1%	25.4%	-8.3%
Government Related	150	1.4%	3.0%	-1.6%
U.S. TIPS	110	1.0%	0.0%	1.0%
Cash/Other	298	2.8%	0.5%	2.3%
<b>Total Investments</b>	<b>\$10,759</b>	<b>100.0%</b>	<b>100.0%</b>	

Benchmark: Barclays US Aggregate

# SMRS

## Fixed Income By Rating

6/30/24



### Market Value in Millions

6/30/24

	Assets	Percent	Benchmark	Difference
AAA	\$845	7.8%	3.5%	4.3%
AA	5,992	55.7%	71.8%	-16.1%
A	1,375	12.8%	12.1%	0.7%
BBB	1,488	13.8%	12.6%	1.2%
* Below Investment Grade	899	8.4%	0.0%	8.4%
Not Rated	160	1.5%	0.0%	1.5%
<b>Total Investments</b>	<b>\$10,759</b>	<b>100.0%</b>	<b>100.0%</b>	

\* Comprised of approximately 3.9% High Yield Credit and 4.5% High Yield RMBS/ABS

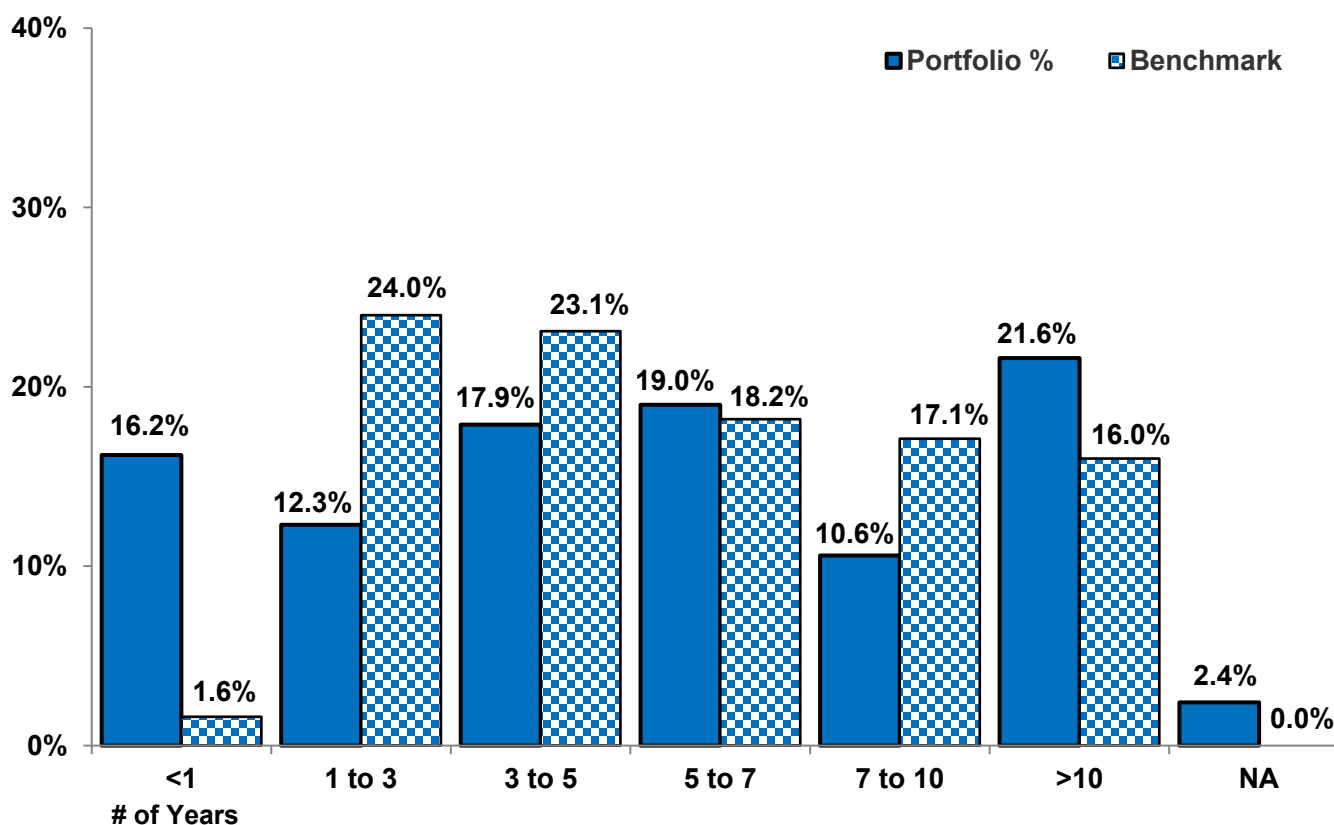
Benchmark: Barclays US Aggregate

# SMRS

## Duration Distribution

### Fixed Income Composite Versus Benchmark

6/30/24



Source: Factset

Market Value in Millions					
Duration	Assets	Portfolio Weight	Benchmark Weight	Portfolio Duration*	Benchmark Duration*
<1	\$1,741	16.2%	1.6%	0.1	0.6
1 to 3	1,319	12.3%	24.0%	2.2	2.0
3 to 5	1,926	17.9%	23.1%	4.0	4.0
5 to 7	2,049	19.0%	18.2%	6.2	6.0
7 to 10	1,146	10.6%	17.1%	7.9	7.8
>10	2,319	21.6%	16.0%	14.9	14.3
NA	259	2.4%	0.0%	NA	NA
<b>Total</b>	<b>\$10,759</b>	<b>100.0%</b>	<b>100.0%</b>	<b>6.3</b>	<b>6.2</b>

\* Effective Duration

Benchmark: Barclays US Aggregate

# Fixed Income Performance - Net of Fees

## (MPSERS)

### 6/30/24

	<u>Market Value</u>	<u>1-Year</u>	<u>3-Years</u>	<u>5-Years</u>	<u>7-Years</u>	<u>10-Years</u>
<b>Total Fixed Income</b>	<b>\$10,727,641,584</b>	<b>5.88%</b>	<b>-0.81%</b>	<b>1.21%</b>	<b>2.19%</b>	<b>2.69%</b>
<i>Bloomberg Aggregate Bond Index</i>	<i>N/A</i>	<i>2.63%</i>	<i>-3.02%</i>	<i>-0.23%</i>	<i>0.86%</i>	<i>1.35%</i>
<b>Internal Core Fixed Income</b>	<b>\$5,668,537,398</b>	<b>2.55%</b>	<b>-2.39%</b>	<b>0.28%</b>	<b>1.54%</b>	<b>2.16%</b>
<b>Externally Managed Fixed Income</b>	<b>\$5,059,104,186</b>	<b>8.05%</b>	<b>0.79%</b>	<b>2.07%</b>	<b>2.82%</b>	<b>3.20%</b>
<b>External Core Fixed Income</b>	<b>\$869,848,392</b>	<b>2.25%</b>	<b>-2.89%</b>	<b>-0.64%</b>	<b>0.47%</b>	<b>1.25%</b>
PIMCO Mortgage Fund	869,848,392	2.25%	-2.89%	-0.64%		
<i>Bloomberg US MBS Agy Fixed Indx</i>	<i>N/A</i>	<i>2.12%</i>	<i>-2.92%</i>	<i>-0.76%</i>		
<b>Investment Grade Credit</b>	<b>\$213,460,557</b>	<b>5.53%</b>	<b>-2.81%</b>	<b>1.13%</b>	<b>2.15%</b>	<b>2.68%</b>
PGIM Investment Grade	213,460,557	5.53%	-2.81%	1.13%	2.15%	2.68%
<i>Bloomberg Credit Index</i>	<i>N/A</i>	<i>4.42%</i>	<i>-2.94%</i>	<i>0.54%</i>	<i>1.71%</i>	<i>2.21%</i>
<b>Tactical Fixed Income</b>	<b>\$1,399,478,932</b>	<b>3.87%</b>	<b>-1.34%</b>	<b>1.72%</b>	<b>2.56%</b>	<b>2.91%</b>
Fidelity Tactical Bond Fund	509,925,826	4.05%	-1.08%	1.93%	2.86%	3.45%
Guggenheim Core Plus	483,137,976	4.67%				
TCW Core Plus	406,415,130	2.82%				
<i>Bloomberg Aggregate Bond Index</i>	<i>N/A</i>	<i>2.63%</i>	<i>-3.02%</i>	<i>-0.23%</i>	<i>0.86%</i>	<i>1.35%</i>
<b>High Yield Fixed Income</b>	<b>\$400,536,072</b>	<b>10.55%</b>	<b>2.17%</b>	<b>4.32%</b>	<b>4.58%</b>	<b>4.73%</b>
PGIM High Yield	373,616,760	9.87%	1.29%	4.30%	4.69%	4.82%
Crescent Direct Lending	26,919,312	20.17%	10.04%	8.67%		
<i>Bloomberg US HY BA/B 1% Cap</i>	<i>N/A</i>	<i>10.04%</i>	<i>1.64%</i>	<i>3.84%</i>	<i>4.22%</i>	<i>4.27%</i>
<b>Structured Fixed Income</b>	<b>\$1,908,047,946</b>	<b>12.98%</b>	<b>3.40%</b>	<b>3.12%</b>	<b>3.67%</b>	
TICP CLO Debt	706,160,509	16.30%	6.67%	7.05%	5.88%	
MetWest Securitized Opportunities	643,604,213	8.09%	1.56%	2.49%	3.15%	3.22%
Principal CMBS	544,485,347	15.77%	-0.34%	1.28%	2.70%	3.04%
Napier Park ABS Income	7,117,316	-14.53%	-5.21%	0.80%	3.02%	
Napier Park Strategic Loan LP	6,680,560	-31.12%	-8.68%	-4.33%	-1.38%	
<i>Bloomberg Aggregate Bond Index</i>	<i>N/A</i>	<i>2.63%</i>	<i>-3.02%</i>	<i>-0.23%</i>	<i>0.86%</i>	<i>1.35%</i>
<i>Blended CMBS Benchmark</i>	<i>N/A</i>	<i>6.00%</i>	<i>-1.78%</i>	<i>0.66%</i>	<i>1.71%</i>	<i>2.35%</i>
<b>Global Fixed Income</b>	<b>\$267,732,288</b>	<b>8.99%</b>	<b>0.26%</b>	<b>1.93%</b>	<b>2.51%</b>	
T. Rowe Global Multi-Sector	267,732,288	8.99%	25.00%	2.10%	2.76%	
<i>Custom GMS Benchmark</i>	<i>N/A</i>	<i>7.55%</i>	<i>-0.31%</i>	<i>1.39%</i>		



# Disclaimer



**This presentation was given solely for the purpose of explaining the structure, investment process, and returns for the State of Michigan Retirement System. It should not be interpreted in any way as financial advice.**