

# INVESTMENT ADVISORY COMMITTEE MEETING

## September 13, 2018

### State of Michigan Retirement Systems

#### Quarterly Investment Review



Nick A. Khouri, State Treasurer

Prepared by Bureau of Investments  
Michigan Department of Treasury

# INVESTMENT ADVISORY COMMITTEE MEETING

SEPTEMBER 13, 2018

## Agenda



- 9:30 a.m. Call to Order and Opening Remarks
- 9:40 a.m. Approval of the 6/14/18 IAC Meeting Minutes
- 9:45 a.m. Executive Summary & Performance for Periods Ending 6/30/18
- 10:00 a.m. Current Asset Allocation Review  
Markets Review and Outlook
- 10:15 a.m. Review of Investment Reports
- Real Estate & Infrastructure
  - Private Equity
  - Real, Opportunistic, & Absolute Return
  - Domestic Equity
  - Fixed Income
  - International Equity
- Basket Clause – *Receive and File*
- 11:00 a.m. Closing Remarks ~ Adjournment



### 2018 Meeting Schedule

Tuesday, December 11, 2018

All meetings start at 9:30 a.m.

### 2019 Meeting Schedule

Thursday, March 7, 2019

Thursday, June 6, 2019

Thursday, September 12, 2019

Thursday, December 12, 2019

All meetings start at 9:30 a.m.

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# State of Michigan Retirement Systems

## MINUTES

Investment Advisory Committee Meeting

September 13, 2018



Jon M. Braeutigam  
Chief Investment Officer  
Bureau of Investments

## INVESTMENT ADVISORY COMMITTEE

The Investment Advisory Committee (IAC) held its quarterly meeting on Thursday, June 14, 2018, at the Bureau of Investments, Great Lakes Conference Room, 2501 Coolidge Road, Suite 400, East Lansing, Michigan.

### Members Present:

James Nicholson, Chairman  
Reginald G. Sanders  
Dina Richard  
Allan Pohl, LARA  
John Walsh, DTMB

### In attendance from the Department of Treasury:

Treasurer Nick Khouri  
Gregory Parker  
Jack Behar  
Dan Quigley  
Todd Warstler  
Ann Storberg  
Mark Porrell  
Janet Sudac  
Ryan Rathman  
Dave Klauka

Jon Braeutigam  
Jim Elkins  
Brian Liikala  
Travis Haney  
Semone James  
Karen Stout  
Annette Russell  
Jennifer Yeung  
Lan Chen  
Matt Hutson

Robert Brackenbury  
Woody Tyler  
Patrick Moraniec  
Andrew Fillmore  
Marge McPhee  
Lee Logan  
Lori Barrett  
Pavel Stolarczyk  
Jamie Prevo  
Karl Borgquist

### Others in attendance:

Max Kotary  
Molly Jason  
Chuck Abshagen  
Tyler Dziendcicl

Tim McEnery  
Richard Holcomb  
Kerrie VandenBosch  
Erika Spitzer

John Danhaki  
Paul Lerg  
Brendan Gutenschwager  
Parham Javaheri

### **Call to Order**

Chairman James Nicholson called the IAC Meeting to order at 9:30 a.m. on June 14, 2018. He opened the meeting welcoming new board member Dina Richard.

### **Approval of the March 8, 2018, Minutes**

- Chairman Nicholson asked for a motion to approve the minutes of the March 8, 2018, IAC meeting. Mr. Allan Pohl so moved, the motion was seconded by Ms. Dina Richard, there were no objections – motion carried. Chairman Nicholson then recognized Marge McPhee by honoring her with a resolution signed by himself and Treasurer Khouri, as she will be retiring.

## **Executive Summary Tab** – Performance Review – Mr. Jon Braeutigam

- Mr. Braeutigam stated that over the past one, three, five, seven, and ten years, returns are substantially higher than peer median returns. The ten-year annualized return of 7.1% compared to the 6.3% peer median return would add approximately \$10 billion of value to SMRS' assets over a ten-year period, if the same outperformance is achieved going forward. This added value accrues to the benefit of Michigan taxpayers and to the participants of the retirement systems.
- Mr. Braeutigam explained that the one-year return was 13.8% versus 11% peer returns, which is top decile versus peer groups. Kudos to staff for their excellent work.
- Mr. Braeutigam further explained that much of the added value comes from selectivity. For example, SMRS bought and sold a real estate medical office portfolio that was built up over a twelve-year period. This was an investment of \$186 million which sold for over \$500 million. This is the kind of transaction that generates value.
- Mr. Braeutigam stated that much of the responsibility for choosing investments is that of first line staff. The type of people who work here want that responsibility and like it and they step into it full force. This is across the Bureau, across all asset classes. He is very grateful for this staff and for these return numbers.

## **Performance and Asset Allocation Tabs** – Mr. Greg Parker

- Mr. Parker mentioned some observations stating earnings are growing and rates are increasing. Rates at the short end are back to where they were ten years ago. Ten years ago, inflation was 5% measured by CPI and today it's around 2.8%. Eleven years ago, short-term rates were about 3% higher than they are today. Rates are also back to where they were in 2004. In 2004 the Federal Reserve was on a tightening cycle and over the next eighteen months they would increase rates by another 3¼%. This gives some sort of backdrop or scope for what is possible regarding future increases to short term interest rates.
- Chairman Nicholson asked Mr. Parker if there is anything that worries him. Mr. Parker stated he believes the BOI has the team in place to deliver value for a very long time, however he is concerned about the ability to keep the team together.
- Mr. Parker mentioned he is often asked why the pension fund doesn't just give the money to smart investment professionals or place it in mutual funds. He commented on this stating that when the domestic equity returns are compared to mutual funds, SMRS has better returns than nine out of ten mutual funds. The same is true for international equity and long-term fixed income returns with better returns than nine out of ten mutual funds.

**Guest Speaker - Mr. John Danhaki, Managing Partner, Leonard Green & Partners**

- Mr. Danhaki spoke about his 23 years of experience with the Leonard Green & Partners firm. Mr. Danhaki stated that he believes investing for the long-term is very important, as SMRS has done. The firm's 23-year relationship with the SMRS along with being steadfast and having continuity in staff and a lot of patience has made this a very good relationship.
- Mr. Danhaki discussed the firm believes very much in their mission of being long-term investors explaining that one of the challenges they face is the fluctuation of the market going up and down. Looking over a five, six, or seven-year horizon is the goal, what happens in between doesn't matter quite so much.
- Mr. Danhaki discussed investing in a high multiple environment explaining that the quality of the companies they buy is normally more important than what the entry price was. A good company with a good management team is necessary.
- Mr. Danhaki discussed the cumulative growth of U.S. economic expansion stating that duration is not as important as amplitude in recovery. He discussed the current recovery of the market, stating rates have risen from historical lows.

**Review of Investment Reports – Received and Filed**

- The Fixed Income, Real Estate and Infrastructure, Absolute and Real Return/Oppportunistic, Private Equity, Domestic Equity and International Equity, and the Basket Clause were received and filed.

**Closing Remarks**

Chairman Nicholson thanked everyone for attending and thanked staff once again for their hard work.

**Next Meeting Date and Adjournment**

The next IAC Meeting is scheduled for Thursday, September 13, 2018. The meeting was adjourned by Chairman Nicholson at 11:00 a.m.

Approved:

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James B. Nicholson, Chair

State of Michigan Retirement Systems

# EXECUTIVE SUMMARY

Investment Advisory Committee Meeting

September 13, 2018



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

# EXECUTIVE SUMMARY

June 2018

## **Performance**

*Excellent historical returns.*

<b>MPSERS Plan (6/30/18)</b>	<b>1-Year</b>	<b>3-Years</b>	<b>5-Years</b>	<b>7-Years</b>	<b>10-Years</b>
Annualized Returns	12.0%	8.7%	10.2%	9.4%	7.4%
Policy Returns	10.1%	8.8%	9.9%	9.4%	7.9%
Peer Median Returns*	8.6%	7.5%	8.4%	7.9%	6.5%

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

- Over the past one, three, five, seven, and ten years, the returns are much higher than peer median returns. Compared to the State Street Universe of public pension plans greater than \$10 billion, the returns are mostly within the top decile of returns. Also, over the past three and five years, the plans' returns were the least risky, as measured by standard deviation.
- The ten-year return includes the impact of the global financial crisis. 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 \$57.0 billion June 2008 market value, a ten-year annualized return of 7.4% compared to the 6.5% peer median return would add about \$9.4 billion in excess value.
- The returns beat the policy benchmark over the past year by 1.9%. Many of the asset classes posted results in excess of their performance benchmarks; selectivity in domestic equity, real estate, and real return & opportunistic were all big drivers of excess return. A slightly defensive allocation offset some of the positive selectivity.
- For the year ending June 2018, returns exceeded the peer median return by 3.4%. For most of the individual asset classes, returns were better than median over this time-period. Superior selectivity in private equity, domestic equity, and real estate were all big contributors to the excess returns. A higher weighting to real estate also helped to achieve these results.

## **Asset Allocation**

*A low return environment.*

- Given the low rates of return available in the capital markets for safe, short-term bonds, and for the assets to earn the long-term actuarial rates of returns, additional risks (primarily equity risk) must be assumed.
- Liquidity is another fundamental risk assumed and it is managed through asset allocation. The plans have outstanding capital commitments to fund approximately \$12.5 billion in illiquid assets, primarily in private equity. In the June 2018 quarter, over \$1.3 billion of new commitments were made.
- The combined systems paid out approximately \$1.9 billion net of contributions over the past twelve months ending in June 2018.
- Over the past year, real estate had a net purchase of approximately \$830 million, and fixed income of nearly \$300 million. As markets have run up, over the past year in round numbers, the allocation to domestic equity was reduced by \$2.4 billion, real return & opportunistic by \$350 million, absolute return by \$310 million, private equity by \$275 million, and the allocation to short-term cash increased by approximately \$300 million.



## **Capital Markets**

*Risk assets in focus.*

- Capital market assumptions used for determining strategic asset allocations are being reduced across the board, and especially for safer, publicly traded fixed income securities. This is the general opinion for most consultants, investment banks, and other market participants. The reason for this phenomenon is the low interest rate environment caused by the policies of the Federal Reserve and other central banks, as well as the run-up in prices for most risk assets over the past several years since the depths of the Great Recession.
- Fundamentals supporting domestic equities are very strong. Year-over-year growth in analyst estimated earnings for the next year are close to 21%.
- Flat yield curves are often viewed as worrisome. One material difference between the environment of today's flat yield curve and the one in 2007 is the fact that the current Fed Fund's rate is extremely accommodative by historical standards, yielding a real yield of -1% while in the summer of 2007 the real yield was close to 3%.
- The price to hedge the dollar is rising. Although many short-term interest rates globally are lower than the rates in the U.S., once the value of hedging is included, many non-U.S. short-term investments are more attractive for global investors.

## **Economic Backdrop**

*A few risks in the making.*

- Consumer confidence in the U.S. is very high. Measured by a 3-month average of the Conference Board's consumer confidence index, consumers are the most confident since December 2000. This is not very surprising with the U.S. stock market near all-time highs, the national unemployment rate at 4.0%, and the three-month average figure for initial jobless claims at levels last reached in the late 1960's.
- Beginning in January, but through the summer of 2018, President Trump has imposed a series of tariffs aimed mostly at solar panels, washing machines, steel and aluminum. These tariffs impact many large trading partners of the U.S. and in particular; China, Canada, Mexico and the European Union. Predictably, these partners responded negatively and issued their own tariffs.
- After years of cheap money, some emerging market countries such as Argentina and Turkey are coming under tremendous pressure as U.S. short-term interest rates begin to rise. There is concern that not only will the contagion spread to other emerging market countries such as Lebanon, Colombia and South Africa, but that vulnerable financial institutions in developed countries like Spain, France and Italy might get hit as well.

## **Investment Update**

*Highlighting the quarter.*

(\$ Millions)

### **NEW COMMITMENTS**

**April 1 – June 30, 2018**

<b>Asset class</b>	<b>Fund Name / (Managed By)</b>	<b>Commitment</b>
<b>Private Equity</b>		
	Carlyle Europe Partners V, S.C.SP. (CEP V Lux GP, S.a.r.l. and CEP V Managing GP, L.P.)	\$155.0
	Thoma Bravo Fund XIII and XIII-P, L.P. (Thoma Bravo Partners XIII, L.P.)	125.0
	TPG Partners VIII, L.P. (TPG GenPar VIII)	125.0
	New Leaf Biopharma Opportunities II, L.P. (New Leaf BPO Associates II, L.P.)	100.0
	Riverside Capital Appreciation Fund VII, L.P. (RCAF VII Associates, L.P.)	100.0
	Kelso Investment Associates X, L.P. (Kelso)	100.0
	PPC Fund II (PPC Partners)	75.0
	New Leaf Ventures IV, L.P. (New Leaf Ventures Associates IV, LLC)	50.0
	SK Capital Partners V, L.P. (SK Capital Investment V, L.P.)	50.0
	Meritech Capital Partners VI, L.P. (Meritech Capital Associates VI, LLC)	40.0
	TPG Healthcare Partners, L.P. (TPG Healthcare Partners GenPar, L.P.)	25.0
	Lead Edge Capital, IV, LP (Lead Edge Capital IV, LLC)	25.0
	TI Platform Fund II, L.P. (TI Platform Fund II GP, LLC)	15.0
	TI Platform BOV, L.P. (TI Platform Fund II GP, LLC)	15.0
<b>Real Estate and Infrastructure Division</b>		
	Strategic II, LP (Bentall Kennedy)	\$35.0
	Northpark Land Associates (Domain Capital Advisors)	7.2
<b>Real, Opportunistic, &amp; Absolute Return Division</b>		
	NGP Natural Resources XII, L.P. (GFW Energy XII, L.P.)	\$150.0
	Kayne Private Energy Income Fund II, L.P. (KPEIF II GP, LLC)	150.0
<b>TOTAL</b>		<b>\$1,342.2</b>

State of Michigan Retirement Systems

# PERFORMANCE

Investment Advisory Committee Meeting

September 13, 2018



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 Treasurer as fiduciary of the State of Michigan Retirement Systems, and various Michigan trust funds and the State's common cash.*

## **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.*

# MPERS PENSION

## Time-Weighted Rates of Return Periods Ending June 30, 2018

	% of Portfolio 6/30/18	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>7.4</b>	<b>9</b>	<b>9.4</b>	<b>8</b>	<b>10.2</b>	<b>5</b>	<b>8.7</b>	<b>13</b>	<b>12.0</b>	<b>4</b>	<b>1.5</b>	<b>25</b>
Median - Greater than \$10 Billion <sup>2</sup>		6.5		7.9		8.4		7.5		8.6		0.8	
MPERS Total Plan Policy		7.9		9.4		9.9		8.8		10.1		1.1	
<b>DOMESTIC EQUITIES</b>	<b>25.0</b>	<b>10.5</b>	<b>31</b>	<b>13.3</b>	<b>23</b>	<b>13.8</b>	<b>25</b>	<b>12.0</b>	<b>22</b>	<b>18.0</b>	<b>12</b>	<b>4.2</b>	<b>9</b>
Median <sup>2</sup>		10.0		12.4		12.6		10.8		13.6		2.9	
S&P 1500 Index		10.3		13.2		13.4		11.9		14.5		3.7	
<b>INTERNATIONAL EQUITIES</b>	<b>17.5</b>	<b>3.7</b>	<b>39</b>	<b>5.2</b>	<b>56</b>	<b>7.4</b>	<b>32</b>	<b>6.0</b>	<b>47</b>	<b>8.0</b>	<b>53</b>	<b>-3.1</b>	<b>85</b>
Median <sup>2</sup>		3.6		5.3		7.0		5.9		8.0		-2.2	
International Blended Benchmark <sup>3</sup>		2.8		4.0		6.1		5.1		7.3		-2.6	
<b>PRIVATE EQUITIES</b>	<b>15.6</b>	<b>10.6</b>	<b>8</b>	<b>13.4</b>	<b>10</b>	<b>14.5</b>	<b>9</b>	<b>12.5</b>	<b>8</b>	<b>19.3</b>	<b>11</b>	<b>2.8</b>	<b>28</b>
Median <sup>2</sup>		7.2		9.0		9.6		9.2		10.9		1.9	
Alternative Blended Benchmark <sup>4</sup>		14.2		15.9		16.5		14.0		17.3		0.0	
<b>BONDS</b>	<b>12.3</b>	<b>5.1</b>	<b>12</b>	<b>3.8</b>	<b>24</b>	<b>3.8</b>	<b>17</b>	<b>3.7</b>	<b>19</b>	<b>1.9</b>	<b>11</b>	<b>0.3</b>	<b>22</b>
Median <sup>2</sup>		4.3		3.2		2.7		2.4		0.4		0.0	
Barclays Aggregate		3.7		2.6		2.3		1.7		-0.4		-0.2	
<b>REAL ESTATE &amp; INFRASTRUCTURE</b>	<b>11.3</b>	<b>4.5</b>	<b>41</b>	<b>11.4</b>	<b>28</b>	<b>12.2</b>	<b>29</b>	<b>10.5</b>	<b>29</b>	<b>11.7</b>	<b>24</b>	<b>3.0</b>	<b>36</b>
Median <sup>2</sup>		4.0		10.5		10.2		9.3		8.5		2.5	
NCREIF - Property Blended Index <sup>5</sup>		4.9		8.8		8.4		6.9		5.8		1.5	
NCREIF Open Fund Index Net		4.3		10.4		10.0		8.4		7.5		1.8	
<b>REAL RETURN AND OPPORTUNISTIC</b>	<b>8.9</b>			<b>10.3</b>		<b>12.7</b>		<b>10.3</b>		<b>14.9</b>		<b>1.4</b>	
50% (CPI +500 bps) + 50% (8% actuarial rate)				7.3		7.3		7.5		8.0		2.1	
<b>ABSOLUTE RETURN</b>	<b>5.7</b>	<b>2.0</b>		<b>4.8</b>		<b>4.7</b>		<b>3.1</b>		<b>6.8</b>		<b>1.5</b>	
HFR1 FOF Cons 1 month lagged		1.2		2.6		2.9		1.7		4.0		1.1	
<b>CASH EQUIVALENTS</b>	<b>3.7</b>	<b>0.8</b>		<b>0.7</b>		<b>0.8</b>		<b>1.1</b>		<b>1.8</b>		<b>0.5</b>	
1 Month T-Bill		0.3		0.3		0.4		0.6		1.3		0.4	

<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> International blended benchmark is S&P Developed BMI-EPAC 50/50 prior to 1/1/10. S&P Developed BMI-EPAC 75 USD / 25 Local, 1/1/10 to 9/30/10. MSCI ACWI ex USA Gross 10/1/10 to present.

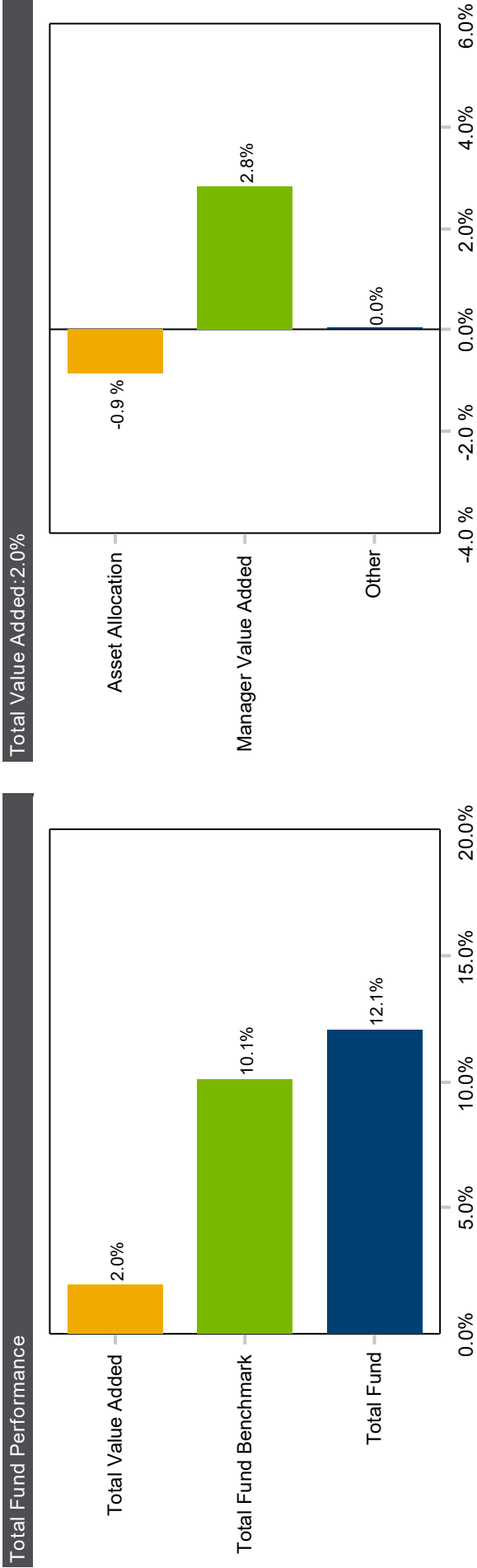
<sup>4</sup> SP 500 + 300 bps thru 12/31/06. Ending market value (EMV) weighted blend of 10 yr yield + 300 bps and SP 500 + 300 bps 12/31/06 to 9/30/09. EMV weighted blend of 10 yr yield + 300 bps and SP 500 + 300 bps 3-month lagged 9/30/09 to present.

<sup>5</sup> NCREIF - Property Blended Index is NPI minus 75 bps prior to October 2005, NPI minus 130 bps current.

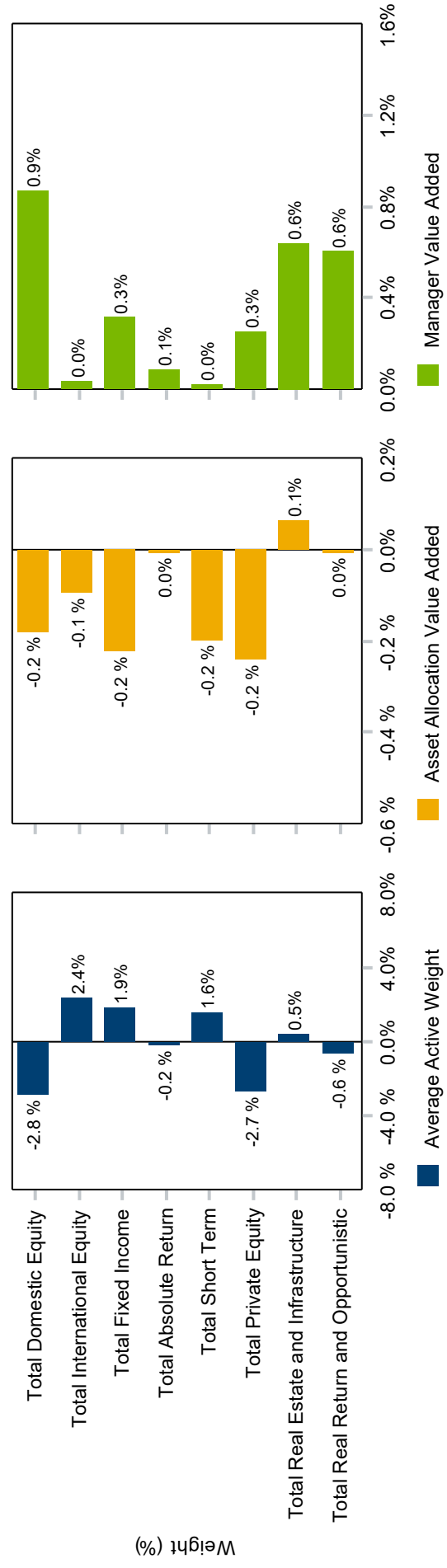
Source: State Street Analytics; the NCREIF - NPI (Property Index) source is NCREIF; the S&P BMI-EPAC Index source is S&P.

Total Fund Attribution

Total Michigan vs. Total Fund Benchmark



Total Asset Allocation: -0.9%



# Cumulative and Consecutive Total Fund Returns

## MPSERS

Cumulative For Years Ending 6/30/18

	1 Year	2 Year	3 Year	4 Year	5 Year	6 Year	7 Year	8 Year	9 Year	10 Year
MPSERS	12.0	12.5	8.7	8.1	10.2	10.5	9.4	10.8	10.8	7.4
Public Plan - Median (> \$10 billion)*	8.6	10.7	7.5	6.4	8.4	9.0	7.9	9.6	9.7	6.5
Rank	4	12	13	4	5	9	8	12	19	9
bp Difference - Median	345	176	125	171	178	154	151	127	113	86

Consecutive For Years Ending

	06/18	06/17	06/16	06/15	06/14	06/13	06/12	06/11	06/10	06/09
MPSERS	12.0	12.9	1.5	6.2	19.1	12.2	2.6	21.7	10.9	-19.3
Public Plan - Median (> \$10 billion)*	8.6	13.0	1.4	3.1	16.9	12.1	1.5	21.6	12.4	-19.4
Rank	4	54	47	5	11	50	28	49	67	50
bp Difference - Median	345	-6	11	311	222	12	112	10	-151	6

## MSERS

Cumulative For Years Ending 6/30/2018

	1 Year	2 Year	3 Year	4 Year	5 Year	6 Year	7 Year	8 Year	9 Year	10 Year
MSERS	12.0	12.5	8.7	8.1	10.2	10.5	9.3	10.8	10.8	7.3
Public Plan - Median (> \$1 billion)*	8.5	10.7	7.4	6.4	8.3	8.9	7.9	9.5	9.6	6.5
Rank	4	14	8	6	4	12	7	15	27	25
bp Difference - Median	348	179	136	167	195	164	148	131	112	77

Consecutive For Years Ending

	06/18	06/17	06/16	06/15	06/14	06/13	06/12	06/11	06/10	06/09
MSERS	12.0	13.0	1.5	6.2	19.1	12.2	2.4	21.7	10.5	-19.5
Public Plan - Median (> \$1 billion)*	8.5	12.9	1.2	3.0	17.0	12.2	1.0	21.6	12.8	-19.5
Rank	4	43	43	4	10	50	24	49	78	49
bp Difference - Median	348	6	36	321	208	1	138	16	-233	7

\*State Street Public Funds Universe

# Cumulative and Consecutive Total Fund Returns

## MSPRS

Cumulative For Years Ending 6/30/18

	1 Year	2 Year	3 Year	4 Year	5 Year	6 Year	7 Year	8 Year	9 Year	10 Year
MSPRS	12.0	12.5	8.7	8.1	10.2	10.5	9.3	10.8	10.8	7.3
Public Plan - Median (> \$1 billion)*	8.5	10.7	7.4	6.4	8.3	8.9	7.9	9.5	9.6	6.5
Rank	4	14	8	7	4	14	8	15	27	26
bp Difference - Median	349	179	135	166	193	161	145	130	111	76

Consecutive For Years Ending

	06/18	06/17	06/16	06/15	06/14	06/13	06/12	06/11	06/10	06/09
MSPRS	12.0	13.0	1.5	6.2	19.0	12.1	2.5	21.8	10.4	-19.5
Public Plan - Median (> \$1 billion)*	8.5	12.9	1.2	3.0	17.0	12.2	1.0	21.6	12.8	-19.5
Rank	4	43	43	4	10	53	23	48	78	50
bp Difference - Median	349	5	35	319	200	-10	142	23	-236	5

## MJRS

Cumulative For Years Ending 6/30/18

	1 Year	2 Year	3 Year	4 Year	5 Year	6 Year	7 Year	8 Year	9 Year	10 Year
MJRS	12.0	12.5	8.7	8.1	10.0	10.4	9.2	10.8	10.4	7.1
Public Plan - Median (> \$1 billion)*	8.5	10.7	7.4	6.4	8.3	8.9	7.9	9.5	9.6	6.5
Rank	4	12	8	6	6	15	9	16	33	31
bp Difference - Median	349	183	137	167	179	152	136	126	80	56

Consecutive For Years Ending

	06/18	06/17	06/16	06/15	06/14	06/13	06/12	06/11	06/10	06/09
MJRS	12.0	13.0	1.5	6.2	18.2	12.2	2.4	22.1	8.0	-18.9
Public Plan - Median (> \$1 billion)*	8.5	12.9	1.2	3.0	17.0	12.2	1.0	21.6	12.8	-19.5
Rank	4	42	43	4	27	48	24	44	97	44
bp Difference - Median	349	12	33	318	120	6	132	58	-478	61

\*State Street Public Funds Universe



State of Michigan Retirement Systems

# ASSET ALLOCATION REVIEW

Investment Advisory Committee Meeting  
September 13, 2018

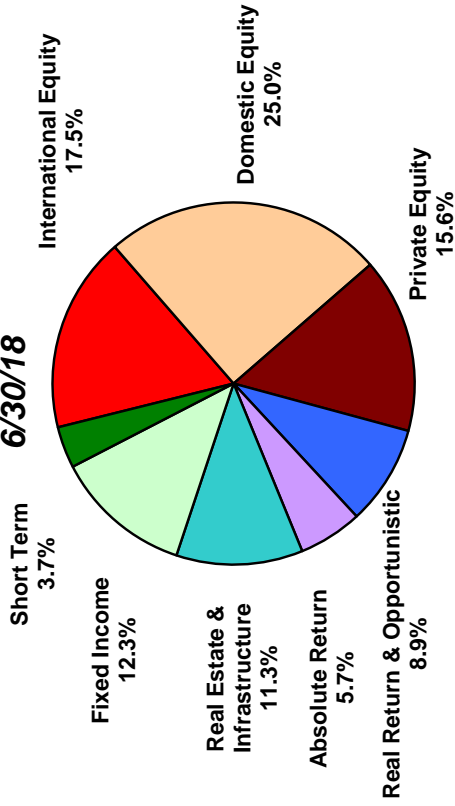


Jon M. Braeutigam  
Chief Investment Officer  
Bureau of Investments

# STATE OF MICHIGAN RETIREMENT SYSTEMS PROFILE - JUNE 2018

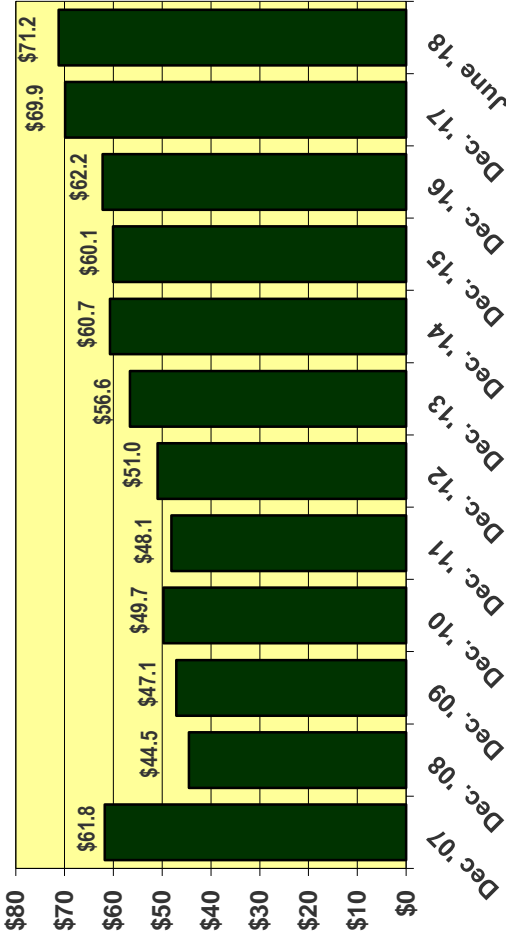
## Asset Allocation

6/30/18



## Market Value\*

(Billions of Dollars)



## Asset Allocation By Market Value

(In Millions)

Investment Strategies	6/30/18	6/30/17
Domestic Equity	\$17,831	\$17,392
International Equity	12,491	11,637
Private Equity	11,078	9,604
Fixed Income	8,726	8,227
Real Estate & Infra.	8,040	6,459
Real Return & Opport.	6,373	5,905
Absolute Return	4,023	4,071
Short Term***	2,655	2,352
<b>TOTAL</b>	<b>\$71,217</b>	<b>\$65,647</b>

## Short Term Equivalents (in Billions)

Short Term Strategy***	\$2.7
Short Term in Other Inv. Strategies	0.7
<b>TOTAL SHORT TERM</b>	<b>\$3.4</b>

4.7% of Total Funds

## Market Value By Plan ~ 6/30/18

(in Millions)

	Pension Plan		OPEB**		Combined	
	Mkt. Value	%	Mkt. Value	%	Mkt. Value	%
MPERS	\$49,008		\$5,891		\$54,899	77.1%
MSERS - (closed)	12,117		2,308		14,425	20.2%
MSPRS	1,451		175		1,626	2.3%
MJRS - (closed)	266		1		267	0.4%
<b>TOTAL</b>	<b>\$62,842</b>		<b>\$8,375</b>		<b>\$71,217</b>	<b>100.0%</b>

MSERS includes the Military Pension Fund

**18th Largest DB Public Pension Fund in the U.S.**  
**18th Largest DB Pension Fund in the U.S.**

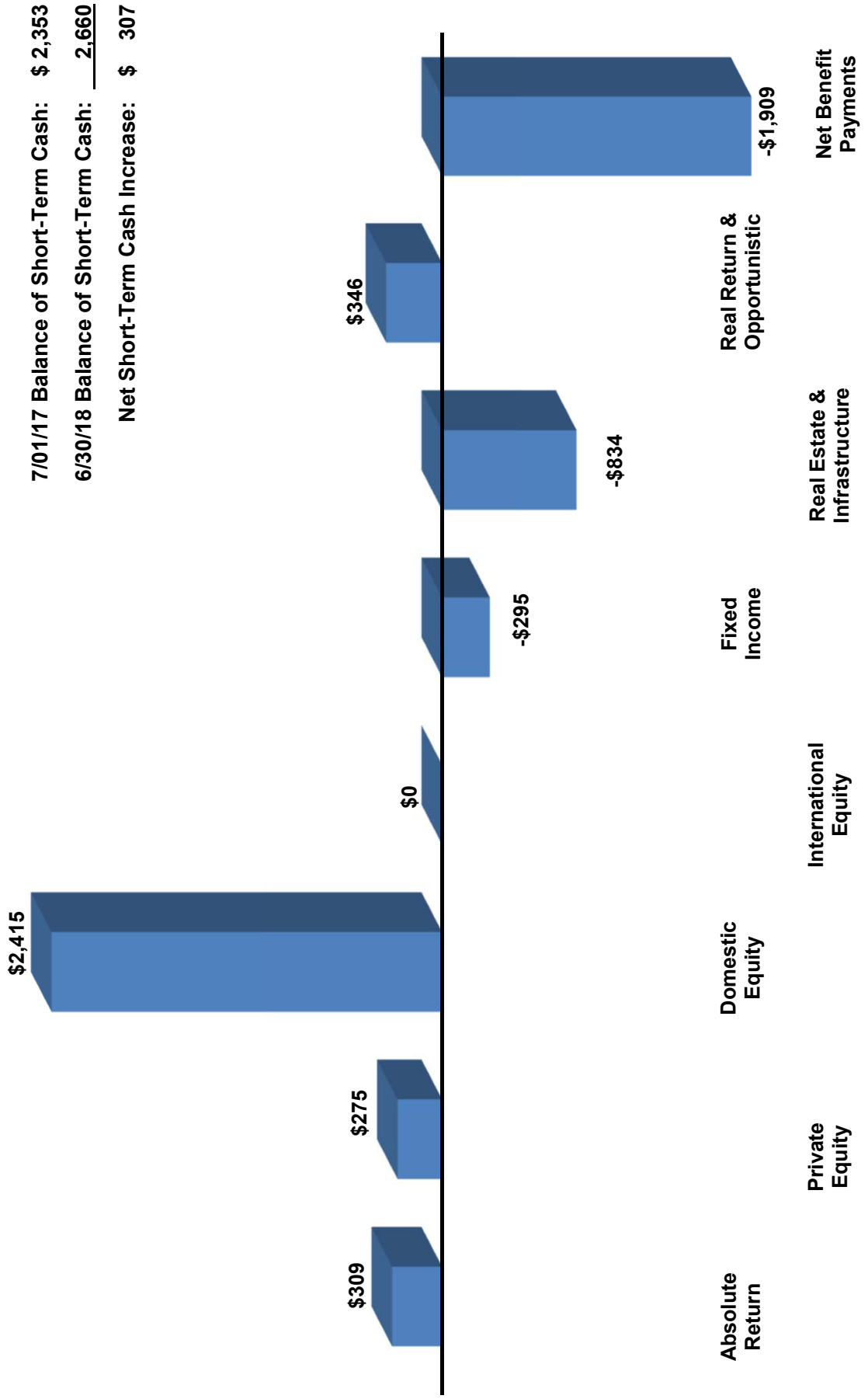
Pensions & Investments Survey - February 5, 2018 Issue

\*The combined net payout for the plans for FY 2017 was \$2.2 billion with \$24.2 billion paid out since FY 2008 thru FY 2017 (SOMCAFR). 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 2017 ~ June 2018



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 6/30/18

Asset Class	MPERS			MSERS			MSPRS			MJRS			SMRS
	Actual 6/30/18	Target 9/30/18	Target* 9/30/19	Actual 6/30/18	Target 9/30/18	Target* 9/30/19	Actual 6/30/18	Target 9/30/18	Target* 9/30/19	Actual 6/30/18	Target 9/30/18	Target* 9/30/19	Ranges
Broad U.S. Equity	25.0%	26.0%	28.0%	25.0%	26.0%	28.0%	25.0%	26.0%	28.0%	25.1%	26.0%	28.0%	20% - 50%
Private Equity	15.6%	16.5%	18.0%	15.6%	16.5%	18.0%	15.6%	16.5%	18.0%	15.6%	16.5%	18.0%	10% - 25%
Broad Int'l Equity	17.5%	17.5%	16.0%	17.5%	17.5%	16.0%	17.5%	17.5%	16.0%	17.6%	17.5%	16.0%	10% - 20%
U.S. Fixed Income Core	12.3%	11.5%	10.5%	12.3%	11.5%	10.5%	12.3%	11.5%	10.5%	12.2%	11.5%	10.5%	8% - 25%
Real Estate / Infrastructure	11.3%	10.0%	10.0%	11.3%	10.0%	10.0%	11.3%	10.0%	10.0%	11.3%	10.0%	10.0%	0% - 15%
Real Return / Opportunistic	9.0%	9.0%	9.5%	9.0%	9.0%	9.5%	9.0%	9.0%	9.5%	8.9%	9.0%	9.5%	0% - 15%
Absolute Return	5.7%	6.0%	6.0%	5.7%	6.0%	6.0%	5.7%	6.0%	6.0%	5.6%	6.0%	6.0%	0% - 12%
Cash	3.7%	3.5%	2.0%	3.7%	3.5%	2.0%	3.7%	3.5%	2.0%	3.7%	3.5%	2.0%	1% - 9%
<b>TOTAL</b>	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 Systems

# MARKETS REVIEW AND OUTLOOK

Investment Advisory Committee Meeting  
September 13, 2018



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.*

MPSERS Plan	Assumed Return* (Arithmetic)	Standard Deviation*	Trailing 10-Year (Benchmark**)	Tactical (Short Term) Expectations***
Private Equity	10.9%	24.0%	14.2%	Hold
International Equity	9.6%	20.0%	2.8%	Add
Domestic Equity	7.8%	17.0%	10.3%	Trim
Real Estate (Core)	6.5%	11.5%	4.9%	Trim
Absolute Return	6.0%	9.0%	1.2%	Hold
Real Ret/Opportunistic	8.8%	9.5%	4.7%	Add
Long-Term Fixed	3.5%	4.0%	3.7%	Hold
Short-Term	3.1%	1.0%	0.3%	Hold

\* Aon Hewitt Investment Consultants 2018 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.*

- Capital market assumptions used for determining strategic asset allocations are being reduced across the board, and especially for safer, publicly traded fixed income securities. This is the general opinion for most consultants, investment banks, and other market participants. The reason for this phenomenon is the low interest rate environment caused by the policies of the Federal Reserve and other central banks, as well as the run-up in prices for most risk assets over the past several years since the depths of the Great Recession.
- Flat yield curves are often viewed as worrisome. One material difference between the environment of today's flat yield curve and the one in 2007 is the fact that the current Fed Fund's rate is extremely accommodative by historical standards yielding a real yield of -1% while in the summer of 2007 the real yield was close to 3%.
- The effects of the recent tax cuts are still being digested by market participants. Year-over-year growth in analyst estimated earnings for the next year are close to 21%. Actual earnings growth may end up materially different, however, it is likely that gains in the U.S. equity market in 2018 will not rely significantly on an expanding multiple.
- Over the past ten years, commodities prices broadly have been falling as measured by the Thomson Reuters CRB Commodity Index, down by roughly about 60% from the peak in 2008. However, since their lows in 2016, prices are up 25%.
- The price to hedge the dollar is rising. Although many short-term interest rates globally are lower than the rates in the U.S., once the value of hedging is included, many non-U.S. short-term investments are actually more attractive for global investors
- Publicly traded REITs are trading below NAV, and historically that has been a good starting valuation tailwind for investors choosing between public and private real estate.

## **International Equity**

*A compelling case.*

- International equities underperformed domestic equities over the year ending June 2018 by -7.2%. Over the past three, five, seven, and ten years ending June 2018, the international market index, MSCI ACWI ex USA, underperformed the S&P 1500 index by -6.8%, -7.4%, -9.4, and -7.7% annualized, respectively.
- Based on a price-to-earnings valuation multiple, excluding non-earning companies, developed international markets trade at approximately a 30% discount to U.S. counterparts while emerging markets are at a 36% discount.
- Year-over-year earnings growth for international markets is estimated to be roughly 14% for the year. Earnings in international markets can grow around 35% just to get back to all-time highs, suggesting that there could be a runway for earnings to grow at a high rate for some time. Trading at a valuation multiple discount, international equity represents a leveraged play on continued global growth.
- Within international equities, emerging markets have outperformed developed markets over the past one and three years by 1.2%, and 0.7% annualized, respectively. Over the past five, seven and ten years, developed has outperformed emerging by 1.2%, 3.1% and 0.4%. The plan is overweight emerging markets, with a weight of 30.1% compared to the benchmark weight of 24.9%.
- International equity small-cap stocks outperformed the broader MSCI ACWI ex USA index over the past one, three, five, seven, and ten years by 3.3%, 2.9%, 3.0%, 2.0% and 3.2%, respectively. The plan is overweight international equity small caps by approximately 4.9%. However, this weight is being reduced as valuations within these securities look stretched.
- The plan is underweight international equity against a global benchmark (approximately 41% versus 48% of total public equity) though at a higher allocation than the peer median allocation; 17.5% versus peer median of 14.4%.

## **Domestic Equity**

*High earnings growth.*

- The broad U.S. stock market return for the one year ending June 2018 was 14.5%, with the majority of the gains coming from earnings growth. Small cap stocks outperformed larger caps by 3.2% over the past year while lagging by -1% over the past three and five years ending June 2018. Growth stocks continue their dominance over value stocks having outperformed by 15.2%, 6.2%, 5.7%, 3.4% and 3.2% annualized over the past one, three, five, seven and ten years, respectively.
- The effects of the recent tax cuts are still being digested by market participants. Year-over-year growth in analyst estimated earnings for the next year are close to 21%. Actual earnings growth may end up materially different, however, it is likely that gains in the U.S. equity market in 2018 will not rely significantly on an expanding multiple.
- Valuation metrics are very much above average and the absolute returns over the next cycle will not likely be as strong as the historical average of 11 – 12% year-over-year total returns.

## **Interest Rates**

*An accommodative Fed.*

- At the end of July 2018, the U.S. 10-year Treasury was yielding only 29 basis points more than the 2-year Treasury. That is the narrowest spread between the two rates since July 2007 and the dawning of the global financial crisis.
- Flat yield curves are often viewed as worrisome. One material difference between the environment of today's flat yield curve and the one in 2007 is the fact that the current Fed Fund's rate is extremely accommodative by historical standards, yielding a real yield of -1% while in the summer of 2007 the real yield was close to 3%.
- At its June 2018 meeting, the Federal Reserve Board voted to raise its key interest rate by an additional 25 basis points. The market is currently pricing in a possibility of two more rate increases in 2018. The Fed has now raised rates seven times since 2015, but the policy rate is still one that is more accommodative than when it started tightening rates in 2015. There is a risk that the Fed is falling behind the curve in its fight against inflation.
- Spreads on investment-grade fixed income are about at its normal level, just a few basis points below its average of 1.1%. Spreads on riskier high-yield assets are much tighter at 120 basis points below average. The plan is reducing its credit exposure. Corporate securities represent approximately 38% of the fixed income allocation, down from a year ago at 42.5% and 50% of the exposure two years ago.

## **Real Estate**

*REIT market adjustment.*

- Over the one year ending July 2018, the REIT market, as measured by the NAREIT index, gained 4.2%, nearly all from dividend yield. Over a longer time period of ten years, REITs have returned an annualized rate of return of 8%.
- Publicly traded REITs are still trading slightly below NAV and historically that has been a good starting valuation tailwind for investors choosing between public and private real estate.

## **Commodities**

*Higher crude prices.*

- Over the past ten years, commodities prices broadly have been falling, as measured by the Thomson Reuters CRB Commodity Index, down by roughly about 60% from the peak in 2008. However, since their lows in 2016, prices are up 25%.
- The price for crude oil has steadily increased over the past year ending July 2018, up 37% year-over-year to nearly \$69 per barrel. This price is its highest price since 2014.
- Having lost value to other currencies in 2017 and early 2018, the U.S. dollar is strengthening. As measured by the DXY index, the dollar gained about 2% of value since July 2017 versus a basket of currencies and 6.5% since the 2018 lows of February.
- The price to hedge the dollar is rising. Although many short-term interest rates globally are lower than the rates in the U.S., once the value of hedging is included, many non-U.S. short-term investments are actually more attractive for global investors.



# ECONOMIC OUTLOOK

## Select Historic Economic Growth with Forecasts

*More growth ahead.*

Real GDP % Growth Actual/Forecasts	2016	2017	2018	2019	2020
World	3.2	3.7	3.7	3.7	3.3
U.S.	1.5	2.2	2.9	2.5	1.9
Developed (G8)	1.7	2.4	2.4	2.2	1.8
Asia	4.9	5.2	4.7	4.9	4.7
EMEA	1.6	3.5	3.1	2.8	2.8
Europe	1.8	2.4	2.1	1.9	1.6
Latin America	-1.1	1.9	1.9	2.5	2.8
China	6.7	6.9	6.6	6.3	6.1

\*Source: Bloomberg

## Economic Overview

*Will tariffs lead to a trade war?*

- The most recent reading of the annualized U.S. GDP growth was 4.1%, slightly behind the consensus estimate of 4.2%. Current estimates for 2019 GDP growth for the U.S. is around 2.5%. Coincidental economic indicators such as the Institute for Supply Management's Manufacturing and Non-Manufacturing PMI Indexes are well above 50, indicating that the U.S. economy is likely to continue to grow.
- Consumer confidence in the U.S. is very high. As measured by a 3-month average of the Conference Board's consumer confidence index, consumers are the most confident since December 2000. This is not very surprising with the U.S. stock market near all-time highs, the national unemployment rate at 4.0%, and the three-month average figure for initial jobless claims at levels last reached in the late 1960's.
- Beginning in January, but through the summer of 2018, President Trump has imposed a series of tariffs aimed mostly at solar panels, washing machines, steel and aluminum. These tariffs impact many large trading partners of the U.S. and in particular; China, Canada, Mexico and the European Union. Predictably, these partners responded negatively and issued their own tariffs.
- To date, little economic impact (positively or negatively) has been attributed to the trade tariffs, however many economists worry that the tariffs could lead to a trade war and lead to poor economic global growth, or worse yet an economic recession. Perhaps in anticipation of a negative impact to farmers due to the exchange of tariffs, in July 2018 the Trump administration announced a program offering to pay farmers up to \$12 billion.
- After years of cheap money, some emerging market countries such as Argentina and Turkey are coming under tremendous pressure as U.S. short-term interest rates begin to rise. There is concern that not only will the contagion spread to other emerging market countries such as Lebanon, Colombia and South Africa, but that vulnerable financial institutions in developed countries like Spain, France and Italy might get hit as well.

# Annual Total Returns of Key Asset Classes 1998 - 2017

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
U.S. Equity	26.33%	26.97%	13.23%	10.40%	11.50%	40.82%	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%
Int'l Equity	19.97%	20.27%	12.24%	7.28%	10.52%	29.58%	14.48%	16.62%	16.59%	15.84%	2.05%	27.24%	13.11%	9.02%	16.17%	15.29%	11.81%	7.97%	Real Estate	21.13%
Real Estate	16.24%	18.93%	9.40%	7.24%	6.74%	9.01%	11.78%	5.65%	15.34%	8.67%	0.10%	16.05%	11.15%	8.35%	10.54%	10.99%	7.53%	5.63%	Corp. Bonds	6.96%
Gov't Bonds	9.85%	11.36%	6.16%	4.43%	3.57%	8.99%	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%
Corp. Bonds	8.59%	Cash	Hedge Funds	Hedge Funds	Inflation	Corp. Bonds	Corp. Bonds	Inflation	Cash	U.S. Equity	Real Estate	Inflation	Gov't Bonds	U.S. Equity	Hedge Funds	Inflation	Hedge Funds	Hedge Funds	Inflation	Hedge Funds
Cash	5.24%	2.68%	3.39%	1.55%	1.79%	2.36%	3.48%	3.06%	4.27%	5.10%	-19.86%	0.19%	5.07%	0.10%	2.02%	1.49%	0.68%	1.89%	2.30%	3.88%
Inflation	1.60%	-1.94%	-6.98%	-10.64%	-14.95%	1.88%	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%
Hedge Funds	-1.61%	Gov't Bonds	Int'l Equity	Int'l Equity	U.S. Equity	Cash	Cash	Corp. Bonds	Inflation	Inflation	Int'l Equity	Real Estate	Cash	Int'l Equity	Cash	Gov't Bonds	Int'l Equity	Int'l Equity	Cash	Cash
		-2.25%	-15.31%	-19.74%	-21.30%	1.16%	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%

		Annualized Returns 1998 - 2017			
Return		Cash	1.97%	Gov't	4.57%
Risk		Cash	0.59%	Gov't	4.01%
		Hedge	3.69%	Hedge	5.81%
		Hedge	3.86%	Corp.	5.29%
				Int'l	6.13%
				Int'l	17.13%
				US Eq.	7.51%
				R.E.	9.78%
					8.33%

- Hedge Funds are represented by the HFRI FOF Conservative Index
- Inflation is represented by the U.S. Consumer Price Index
- International Equity is represented by the MSCI EAFE Index
- 2000 Forward - Int'l Equity is represented MSCI - AC World EX-USA Index
- Cash is represented by 30-day T-Bills

- U.S. Equity is represented by the S&P 1500
- Real Estate is represented by the NPI
- Corporate Bonds are represented by the Barclays Capital - Credit Index
- Government Bonds are represented by the Barclays Capital U.S. Government

State of Michigan Retirement Systems

# REAL ESTATE AND INFRASTRUCTURE REVIEW

Investment Advisory Committee Meeting

September 13, 2018



Brian C. Liikala  
Senior Investment Manager  
Real Estate and Infrastructure Division

# EXECUTIVE SUMMARY

## Performance

<b>MPSERS Plan (6/30/18)</b>	<b>1-Year</b>	<b>3-Years</b>	<b>5-Years</b>	<b>7-Years</b>	<b>10-Years</b>
Annualized Returns	11.7%	10.5%	12.2%	11.4%	4.5%
NCREIF NPI	5.8%	6.9%	8.4%	8.8%	4.9%
Peer Median Returns	8.5%	9.3%	10.2%	10.5%	4.0%
Percentile Rank vs. Peers*	24	29	29	28	41

\*State Street Universe greater than \$1 billion

- Outperformance relative to the one-year benchmark resulted from the Real Estate and Infrastructure Division's (REID) strategy of being underweight in retail, overweight in apartments and hotels, realized gains from asset sales, and appreciation in European infrastructure investments.

## Strategy Update

- The REID is focusing on sourcing off-market opportunities through its extensive network and reducing risk in the portfolio through early income-generating investments that are higher in the capital stack with a shorter projected hold period. The REID has selectively acquired properties where it can add value through management and leasing and has developed properties at attractive risk-adjusted returns. The REID will continue its strategy of assembling portfolios in non-traditional real estate sectors that REID believes will become institutional property types, enabling above market appreciation and returns.
- The REID has been actively managing the portfolio with dispositions resulting in capital returned in excess of \$1.3 billion, and funding new investments of nearly \$2.4 billion over the past 12 months. The REID is also working with its advisors in executing the disposition of properties in secondary markets where illiquidity occurs in periods of slower economic growth and realizing gains from the sale of assets at historically low capitalization rates.
- The REID has approximately \$1.2 billion in unfunded commitments. New commitments during the quarter include:
  - \$7.2 million to Northpark Land Associates, LLLP, managed by Domain Capital Advisors, for predevelopment costs for an office building in Sandy Springs, Georgia.
  - \$35 million to Strategic II LP, managed by Bentall Kennedy, to develop and acquire medical office buildings throughout the U.S. at SMRS's discretion.

## Market Environment

- Investor demand disparities within property types and within real estate markets are appearing. Supply of new buildings in all property types has increased and is beginning to raise concern from investors. However, a strong economy has kept demand for space high enough to absorb new supply. Retail properties are less

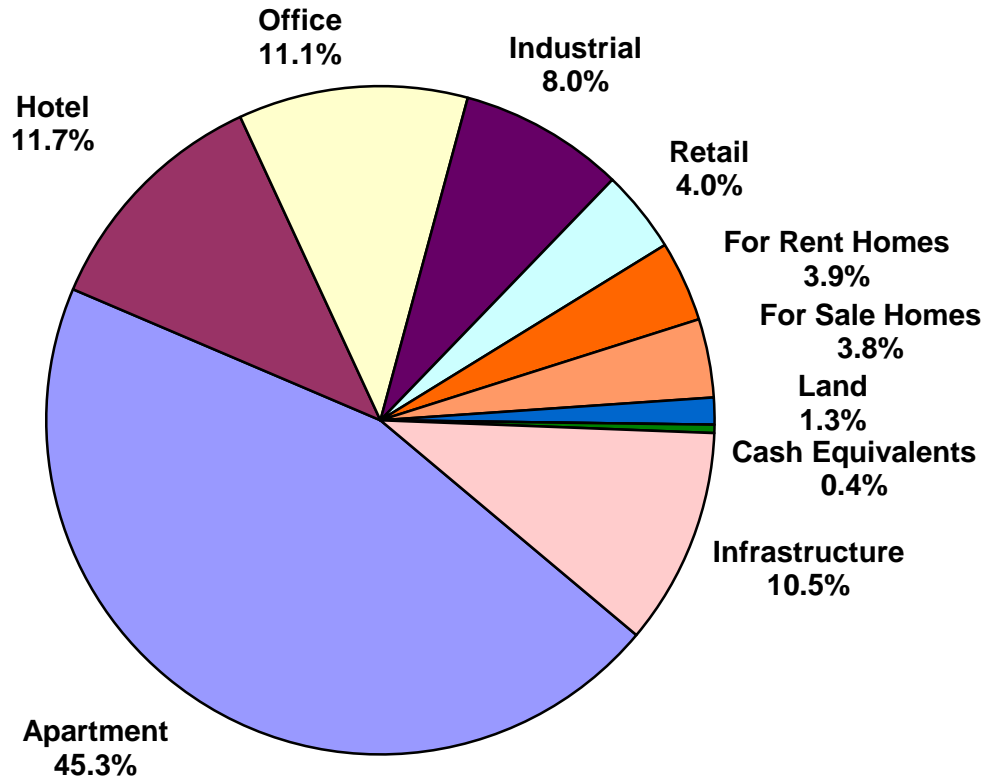
attractive to investors as e-commerce continues to grow. Senior housing, student housing and medical office are attracting more investor attention. Lenders have become more selective in quality and location of the collateral and have been disciplined in their underwriting standards for construction lending. The cost of new construction in land, labor and materials has steadily increased, making it more difficult for developers to meet return thresholds.

- The passage of the U.S. tax reform bill is generally viewed as favorable to the real estate industry. Economic growth from companies increasing investment in their U.S. business operations would increase demand for office labor and industrial space. Real estate developers will benefit from a lower pass-through tax rate. The increase in the standard deduction could further delay apartment renters from purchasing a home.
- Fund flows to the infrastructure sector continue to remain strong, as investor interest in the asset class continues to grow. Opportunities include North American energy, power generation, European transportation, and emerging market fundamental infrastructure projects. The industry has gained attention from the new Federal Administration's intent on rebuilding U.S. infrastructure; however, details on legal and financial framework of Public Private Partnerships (P3) are limited and will take time to develop. A tight labor market for construction workers could inhibit timing of completions.
- In the commercial mortgage-backed securities (CMBS) market, spreads over the swap rate for 10-year AAA-rated securities increased 1 bp from the prior quarter and stand at 83 bps, remaining historically low. The lower-rated security spreads remain appropriate for the risk in comparison to debt metrics in the bond market. Commercial Mortgage Alert reported that CMBS issuance for the six-month period ending June 30, 2018 was \$40 billion up \$5 billion as compared to the same period in 2017. A wave of refinancing for 2007 ten-year vintage loans (in excess of \$100 billion) are finding enough lenders to complete their refinancing and therefore may not pose a problem. Large banks continue to be the low risk A note lender (<40% LTV), allowing private non-bank lenders to fill the funding gap, where the REID's credit strategy has focused its attention.

# SMRS

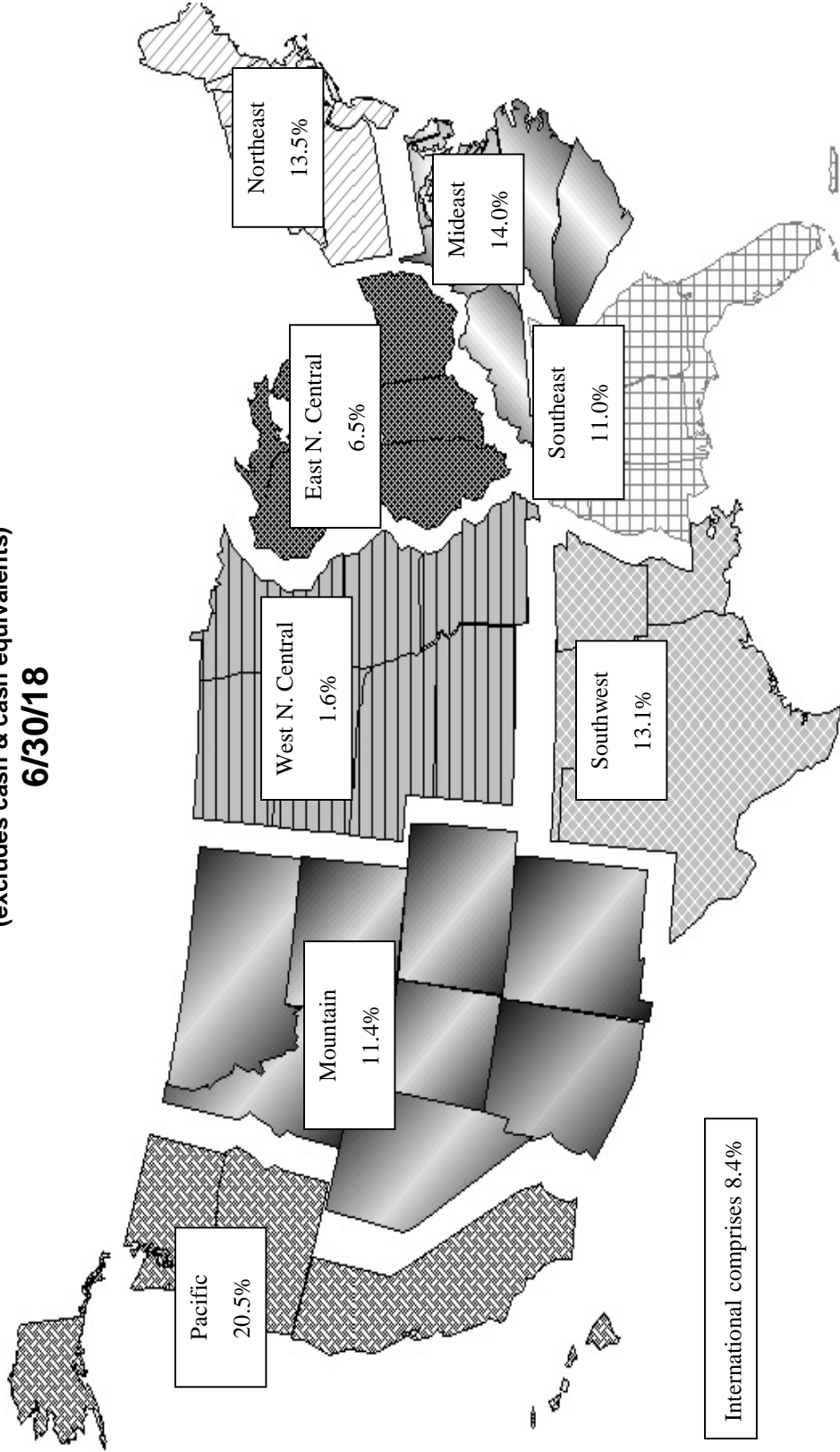
## Real Estate and Infrastructure

### 6/30/18



<b>Market Value in Millions</b>				
	<u>6/30/18</u>		<u>6/30/17</u>	
Apartment	\$3,641	45.3%	\$2,271	35.2%
Hotel	944	11.7%	860	13.3%
Office	894	11.1%	950	14.7%
Infrastructure	841	10.5%	741	11.5%
Industrial	639	8.0%	497	7.7%
Retail	321	4.0%	347	5.4%
For Rent Homes	314	3.9%	330	5.1%
For Sale Homes	308	3.8%	287	4.4%
Land	105	1.3%	106	1.6%
	<u>\$8,007</u>	<u>99.6%</u>	<u>\$6,389</u>	<u>98.9%</u>
Cash Equivalents	<u>33</u>	<u>0.4%</u>	<u>70</u>	<u>1.1%</u>
<b>Total Investments</b>	<b><u><u>\$8,040</u></u></b>	<b><u><u>100.0%</u></u></b>	<b><u><u>\$6,459</u></u></b>	<b><u><u>100.0%</u></u></b>

**SMRS**  
**Real Estate by Region**  
**Based on Market Value**  
(excludes cash & cash equivalents)  
**6/30/18**



Geographic regions defined by NCREIF, whose property index composition is: Pacific 32.2%, Mountain 6.5%, West N. Central 1.3%, Southwest 10.7%, East N. Central 7.2%, Southeast 9.4%, Northeast 21.0%, Midwest 11.7%

**SMRS**  
**Real Estate and Infrastructure**  
**6/30/18**

**Top Ten  
Advisors or Entity**

<u>Advisor or Entity</u>	<u>Market Value</u>
MWT Holdings LLC	\$ 2,855,419,823
Clarion Partners	661,605,169
Blackstone Group	501,744,653
Five Star Realty Partners LLC	356,974,843
Rialto Capital Management LLC	347,499,992
Principal Real Estate Investors	293,591,684
Domain Capital Advisors Inc	292,036,142
CIM Investment Advisors LLC	237,488,403
Transwestern Investment Management	231,779,049
Heitman Capital Management	198,295,503
	<u>\$ 5,976,435,261</u>

**Occupancy  
by Property Type**

	Apartment	Office	Industrial	Retail	Hotel
SMRS Portfolio	95.2%	87.5%	92.1%	91.3%	70.9%
National Average	93.0%	86.9%	92.7%	95.4%	61.6%



# SMRS

## Market Values by Ownership Entity

6/30/18

### REAL ESTATE

	<u>Market Value</u>	<u>Unfunded Commitment</u>
801 Grand Avenue Capital, LLC	\$ 70,860,077	\$ 0
AEW Senior Housing III	2,299,999	2,625,984
Apollo Asia Real Estate Fund	16,559,602	53,859,559
Asana Partners Fund I	15,101,645	9,666,828
Avanath Affordable Housing I, LLC	24,357,692	1,467,911
Avanath Affordable Housing II, LLC	33,148,617	0
Avanath II SMRS Co-Investment Fund LLC	17,451,727	0
Avanath Affordable Housing III	25,581,003	33,820,867
Beacon Capital Strategic Ptnrs. IV, LP	22,637	0
Beacon Capital Strategic Ptnrs. V, LP	40,938	0
Blackstone R/E IH3 Co-Inv Partners	313,721,342	0
Blackstone R/E Partners V, LP	11,182,949	0
Blackstone R/E Partners VI, LP	11,666,528	3,680,930
Blackstone R/E Partners VIII, LP	44,804,675	39,930,476
Capri Select Income II	62,537	0
Capri Urban Investors, LLC	8,541,607	0
CIM Fund III, LP	38,891,853	0
CIM Fund VIII, L.P.	85,652,619	28,676,129
CIM Urban REIT, LLC	42,556,739	0
CIM VI (Urban REIT), LLC	30,230,162	0
Clarion Gables Multifamily Trust, LP	30,208,222	0
Columbus Circle Holdings, LLC	153,967,269	139,272,720
Crown Small Cap Real Estate	14,360,422	10,375,000
Domain GVA-1, LLC	69,283,619	3,681,132
Domain Hotel Properties, LLC	427,455,159	0
Gateway Capital Real Estate Fund II, LP	41,226,794	0
Great Lakes Property Group Trust	66,359,409	10,000,000
Heitman Credit	11,306,218	0
IMRF II CoInvest Spiga LP	9,137,761	4,290,943
Invesco Mortgage Recovery Feeder Fund	4,835,777	0
Invesco Mortgage Recovery Fund II, L.P.	30,271,110	14,107,874
IPF II Co-Invest Cayman LP	31,991,912	2,710,897
JBC Funds North LaSalle LLC	17,242,177	0
JBC Opportunity Fund III, LP	495,673	0
JP Morgan India Property Fund II, LLC	37,180,975	3,957,258
KBS/SM Fund III, LP	44,839,020	0
KBS/SM Fund IV	63,407,984	0
L-A Saturn Acquisition	28,581,158	0
Landmark Real Estate Partners V, LP	11,028,027	0
LaSalle Asia Opportunity Fund II, LP	277,464	0
LaSalle Asia Opportunity Fund III, LP	1,845,350	0
Lion Industrial Trust	197,248,756	0
Lion Mexico Fund, LP	6,693,032	0

	<u>Market Value</u>	<u>Unfunded Commitment</u>
Lombard GVA0016 (former AGL Annuity)	361,152,269	0
Lone Star Fund X LP	81,007,058	122,170,720
Lubert-Adler Real Estate Fund VII, LP	76,411,933	6,222,826
M1 Westgate CoInvest LLC	17,927,497	413,286
M301W CoInvest LLC	22,229,533	0
MERS Acquisitions Ltd.	163,596,980	27,000,000
MG Alliance, LLC	150,000	0
MIP Holdco LLC	126,559,110	38,300,000
MSREF V - International	2,717,859	0
MSREF VI - International	4,495,737	0
MSRESS Fund III Institutional LP	20,439,612	0
MWT Holdings, LLC	2,855,419,823	0
* <b>Northpark Land Associates</b>	31,944,752	70,927,786
Orange Investors LLC	186,689,285	0
Paladin Realty Brazil Investors III (USA), LP	22,707,829	0
Paladin Realty Latin America Investors IV-CI, LP	46,495,645	9,232,284
Paladin Realty TB COINV V LP	13,651,584	0
Penmain Office LLC	36,840,502	0
Principal Separate Account	222,731,607	35,453,590
Proprium RE Spec. Situations Fund, LP	52,791,233	23,799,884
Rialto Absolute Partnership I	75,225,890	0
Rialto Credit Partshp LP	137,397,636	157,255,036
Rialto Real Estate Fund, LP	21,525,654	0
Rialto Real Estate Fund II, LP	39,566,221	0
Rialto Real Estate Fund III-Debt, LP	30,594,274	26,063,270
Rialto Real Estate Fund III-Property, LP	13,121,348	41,786,822
Rialto Mezzanine Partners Fund	30,068,969	0
SM Brell II LP	29,535,776	0
Stockbridge RE Fund II-C, LP	25,849,465	0
Strategic LP	18,472,349	0
TPG RE Finance Trust Inc. (TRTX)	98,028,597	0
TPG Real Estate Partners II	27,664,970	17,204,432
TSP Fund II, LP	34,142,983	15,441,129
TSP Spartan C-I LLC	9,616,873	0
TSP Spartan C-II LLC	18,522,224	0
TSP Value and Income Fund LP	42,937,859	4,843,982
True North High Yield Invest. Fund II, LLC	7,779,082	0
True North Real Estate Fund III, LLC	44,501,725	9,348,297
Venture Center, LLC	150,000	0
Western National Realty Fund II, LP	21,997,899	0
	<u>\$ 7,164,637,882</u>	<u>\$ 967,587,852</u>
Short-Term Investments and Other	12,432,894	0
<b>Total Real Estate Investments</b>	<b><u>\$ 7,177,070,775</u></b>	<b><u>\$ 967,587,852</u></b>

\* New or additional commitment made during the quarter reported

**SMRS**  
**Market Values by Ownership Entity**  
**6/30/18**

**INFRASTRUCTURE**

	<b>Market Value</b>	<b>Unfunded Commitment</b>
Arclight Energy Partners VI, LP	\$ 40,611,171	\$ 9,081,559
ASF VI Infrastructure B LP	22,387,939	14,864,229
ASF VII Infrastructure Fund B L.P.	1,511,738	27,892,271
ASF Como Co-Investment LP	6,224,056	13,593,775
Basalt Infrastructure Partners, LP (Balfour Beatty)	50,083,614	1,200,000
Blackstone Energy Partners, LP	48,420,838	4,702,610
Blackstone Energy Partners II, LP	44,663,847	46,534,580
Brookfield Infrastructure Fund II-B, L.P.	53,853,407	5,111,355
Customized Infrastructure Strategies, LP	60,240,990	5,661,912
Dalmore Capital Fund	68,654,877	0
GCM Grosvenor Infrastructure Investment Program, L.P. (CSG)	61,770,515	0
GCM Grosvenor Customized Infrastructure Strategies II, L.P.	42,939,347	19,238,579
Global E&P Infrastructure Fund II L.P. (formerly First Reserve)	41,472,222	33,045,081
GSO Energy Select Opportunities Fund LP	27,284,474	30,906,909
JPMorgan AIRRO India SideCar Fund US, LLC	91,747,846	3,187,421
JPMorgan Asian Infra. & Rel. Res. Opp Fund II	11,483,464	7,440,094
KKR Eagle CoInvest L.P.	34,016,384	1,853,268
KKR Global Infrastructure Investors, LP	52,632,831	4,182,224
RPEP SMRS Infra II, LLC	12,492,227	500,000
StonePeak Infrastructure Fund LP	68,089,681	13,294,127
	<u>\$ 840,581,469</u>	<u>\$ 242,289,994</u>
Short-Term Investments and Other	22,256,341	0
<b>Total Infrastructure Investments</b>	<b><u>\$ 862,837,809</u></b>	<b><u>\$ 242,289,994</u></b>
 <b>TOTAL INVESTMENTS</b>	 <b><u>\$ 8,039,908,585</u></b>	 <b><u>\$ 1,209,877,846</u></b>

State of Michigan Retirement Systems

# PRIVATE EQUITY REVIEW

Investment Advisory Committee Meeting

September 13, 2018



Peter A. Woodford  
Senior Investment Manager  
Private Equity Division

## EXECUTIVE SUMMARY

### Performance

<b>MPSERS Plan (6/30/18)</b>	<b>1-Year</b>	<b>3-Years</b>	<b>5-Years</b>	<b>7-Years</b>	<b>10-Years</b>
Annualized Returns	19.3%	12.5%	14.5%	13.4%	10.6%
PE Benchmark Returns	17.3%	14.0%	16.5%	15.9%	14.2%
Peer Median Returns	10.9%	9.2%	9.6%	9.0%	7.2%
Percentile Rank vs. Peers*	11	8	9	10	8

\*State Street Universe greater than \$1 billion

- It is not unusual for private equity returns to lag the public benchmark return during periods of expansion and lead the public benchmark during periods of contraction. The past nine years have been no exception due to the second longest expansion in U.S. history. Over the past ten years, a full market cycle, the Private Equity Division has delivered 40 basis points of annualized excess returns over the S&P 500 (ten-year S&P 500 return 10.2%) but underperformed the benchmark by 3.6%.
- Private Equity returns have been strong relative to peer median returns, ranking in the top 8% of peers over the past ten years. Outperformance to peers is attributable to fund selectivity and strategy.
- For the twelve months ending June 30, 2018, the Private Equity Division returned approximately \$275 million, net of contributions, to the pension fund. Although the pace of distributions continues to slow, distribution activity should remain healthy for as long as the economic expansion continues. General Partners are incentivized to exit investments at current valuations.
- Commitments closed during the quarter include:
  - \$15 million to TI Platform Fund II, an early-stage micro-venture capital fund-of-funds
  - \$15 million to TI Platform BOV, an early-stage venture capital fund-of-funds
  - \$25 million to Lead Edge Capital IV, a late-stage venture capital/growth equity fund
  - \$25 million to TPG Healthcare Partners, a healthcare focused buyout fund
  - \$40 million to Meritech Capital Partners VI, a late-stage venture capital fund
  - \$50 million to SK Capital Partners V, a middle market buyout fund
  - \$50 million to New Leaf Ventures IV, an early-stage healthcare venture fund
  - \$75 million to PPC Fund II, a middle market buyout fund
  - \$100 million to New Leaf BioPharma Opportunities II, a late-stage healthcare venture fund
  - \$100 million to Kelso Investment Associates X, a middle market buyout fund
  - \$100 million to Riverside Capital Appreciation Fund VII, a lower middle market buyout
  - \$125 million to Thoma Bravo Fund XIII, a software focused buyout fund
  - \$125 million to TPG Partners VIII, a upper middle market buyout fund
  - \$155 million to Carlyle Europe Partners V, a pan European buyout fund

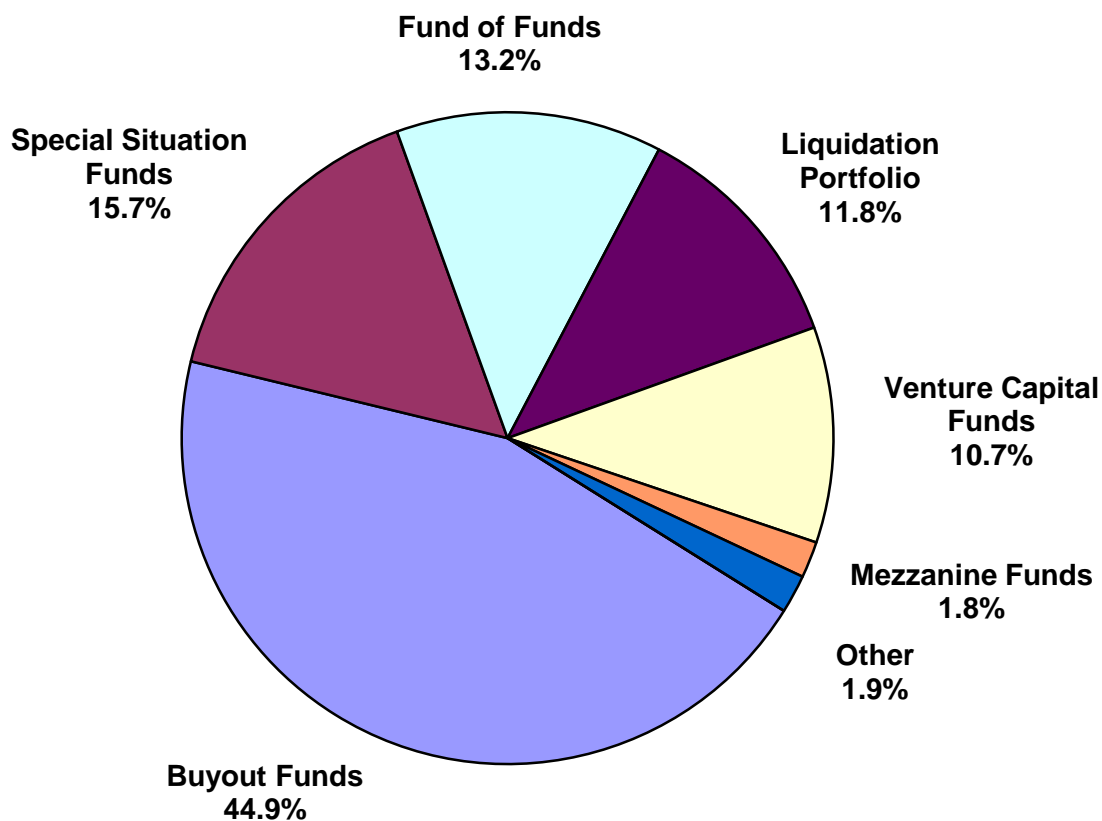
### Strategy Update

The strategy for the next twelve months will focus on new sponsors raising capital and existing sponsors raising successor funds. This may be a combination of buyout, venture capital, secondary, and growth equity funds seeking new commitments. The Private Equity Division continues to tilt slightly toward the middle and lower middle market to diversify its exposure to large funds. 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

### 6/30/18



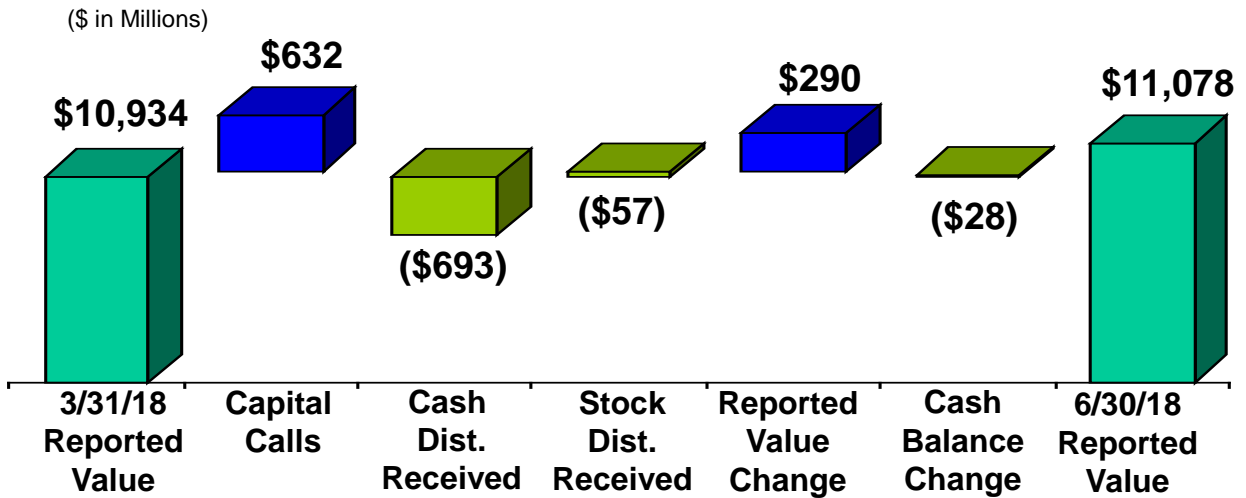
<b>Market Value in Millions</b>				
	<u>6/30/18</u>		<u>6/30/17</u>	
Buyout Funds	\$4,975	44.9%	\$4,427	46.1%
Special Situation Funds	1,736	15.7%	1,654	17.2%
Fund of Funds	1,458	13.2%	817	8.5%
Liquidation Portfolio	1,310	11.8%	1,344	14.0%
Venture Capital Funds	1,192	10.7%	1,028	10.7%
Mezzanine Funds	201	1.8%	173	1.8%
Other	206	1.9%	161	1.7%
<b>Total</b>	<b><u>\$11,078</u></b>	<b><u>100.0%</u></b>	<b><u>\$9,604</u></b>	<b><u>100.0%</u></b>

# SMRS

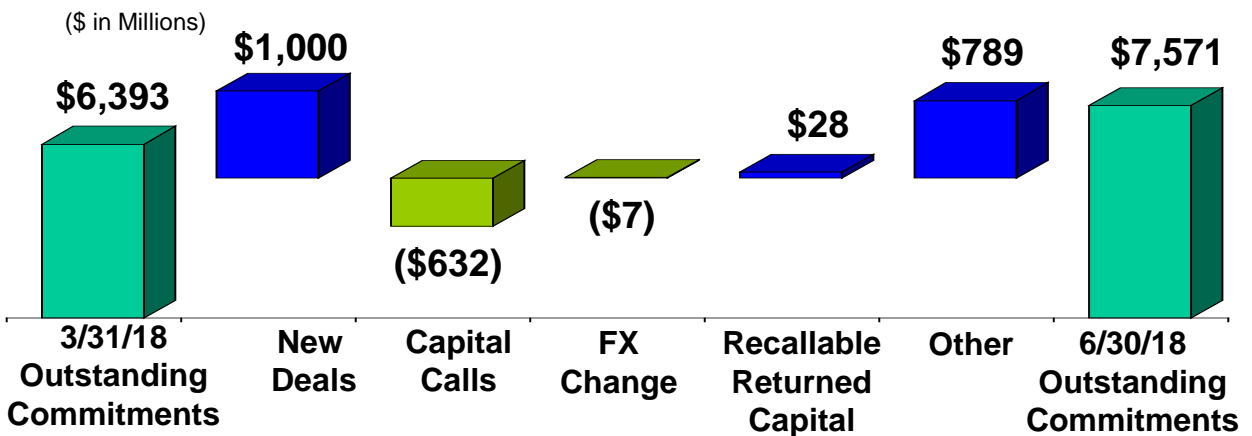
## Private Equity

### 6/30/18

#### Invested Commitments



#### Outstanding Commitments

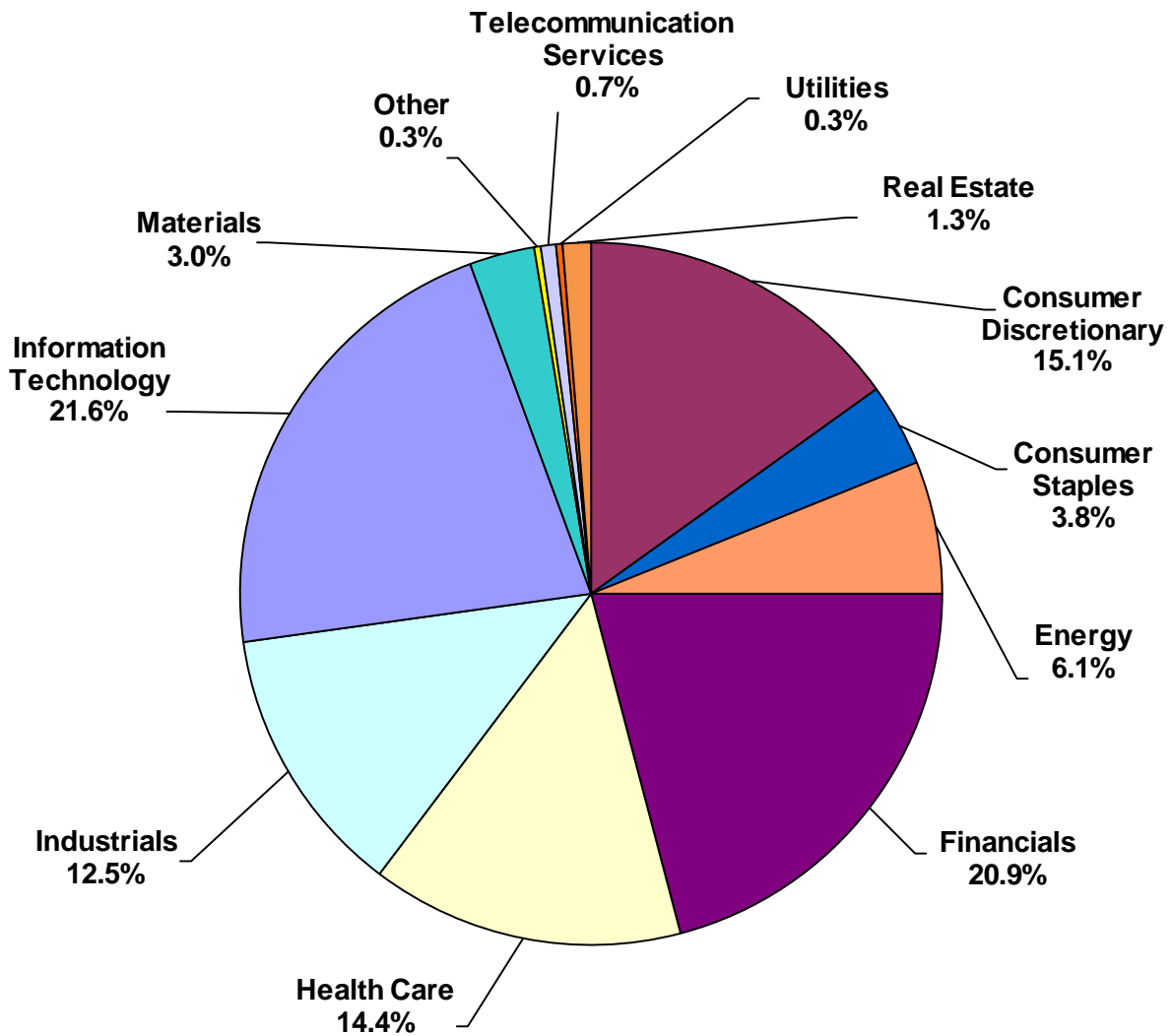


# SMRS

## Private Equity

6/30/18

### Investments by Industry



These numbers are based on the most recent available General Partner Data; primarily 3/31/18 and are subject to change.

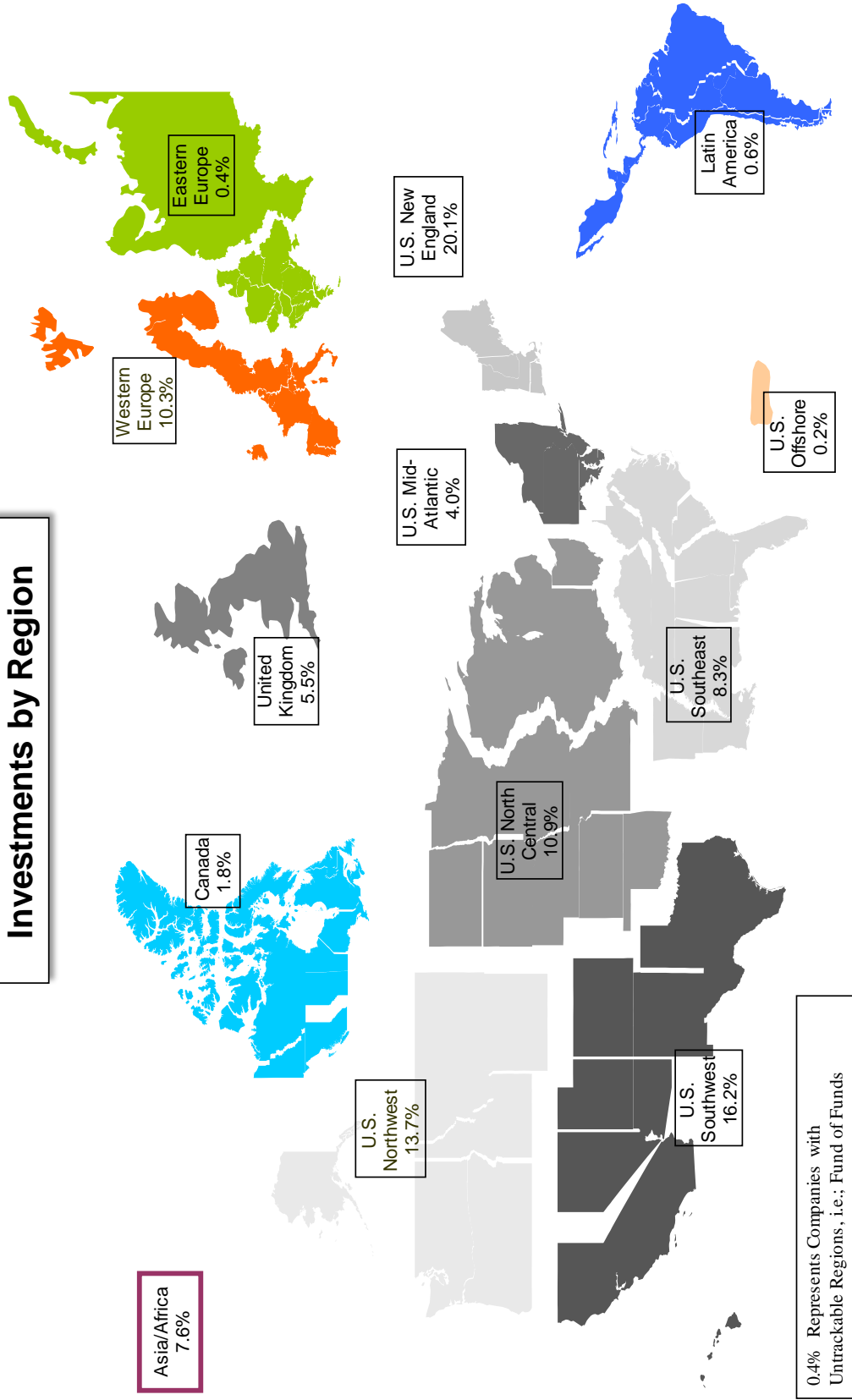


# SMRS

## Private Equity

6/30/18

### Investments by Region



Geographic Report: North America 74%, Europe 16%, Asia 8%, Other 2%

# SMRS

## Private Equity

### 6/30/18

#### Portfolio by Vintage Year

(\$ in Millions)

<u>Asset Vintage</u>	<u>Reported Value</u>	<u>Outstanding Commitment</u>	<u>Total Exposure</u>
1986-98	\$ 2	\$ 3	\$ 5
1999	8	10	18
2000	56	25	81
2001	123	60	183
2002	15	4	19
2003	8	13	21
2004	92	35	127
2005	240	24	264
2006*	600	171	771
2007	521	132	653
2008	775	121	896
2009	38	1	39
2010	219	5	224
2011	708	118	826
2012	1,349	123	1,472
2013	414	151	565
2014	1,238	433	1,671
2015	3,427	1,860	5,287
2016	880	1,361	2,241
2017	113	1,540	1,653
2018	45	1,381	1,426
Income Accruals	1	0	1
Cash	203	0	203
Act. Small Cap - Stock Dist	3	0	3
<b>Total</b>	<b>\$ 11,078</b>	<b>\$ 7,571</b>	<b>\$ 18,649</b>

\*Liquidation portfolio is 2006 vintage

#### FX Exposure

(\$ in Millions)

<u></u>	<u>Reported Value</u>	<u>Outstanding Commitment</u>	<u>Total Exposure</u>	<u>Total (USD)</u>
Euro (\$1.17/ €)	€ 332	€ 414	€ 746	\$871

# SMRS

## Private Equity

6/30/18

### Top 10 Sponsors

(\$ in Millions)

<b>Asset Type</b>	<b>Reported Value</b>	<b>Outstanding Commitment</b>	<b>Total</b>
HarbourVest Partners	\$ 2,274	\$ 1,005	\$ 3,279
Blackstone Capital Partners	460	404	864
KKR	501	359	860
The Carlyle Group	317	536	853
Grosvenor Capital Management	611	156	767
Warburg Pincus Capital	564	200	764
Advent International	452	151	603
Leonard Green & Partners	371	149	520
TPG	283	228	511
Affinity Equity Partners	176	226	402
<b>Top 10 Total Value</b>	<b>\$ 6,009</b>	<b>\$ 3,414</b>	<b>\$ 9,423</b>

### Cash Weighted Rates of Return\*

<b>(Net IRR)</b>	<b>Current Qtr.</b>	<b>1-Year</b>	<b>3-Year</b>	<b>5-Year</b>	<b>10-Year</b>
Buyout	-0.3%	14.0%	12.3%	15.8%	11.5%
Fund of Funds	0.0%	12.6%	11.8%	13.2%	8.2%
Mezzanine	-0.1%	9.7%	6.2%	7.8%	8.3%
Special Situations	0.0%	8.6%	8.4%	11.1%	10.7%
Venture Capital	0.0%	16.4%	8.0%	15.6%	16.8%

\*These numbers are based on most recent available General Partner reported data; primarily 3/31/18 and are subject to change

# SMRS

## Private Equity

### 6/30/18

#### Net Market Values by Ownership Entity

	<u>Adjusted Reported Value</u>	<u>Unfunded Commitment</u>
Accel Europe I, L.P.	\$ 3,521,004	\$ 1
Accel Europe II	16,882,459	3,300,000
Accel Growth Fund II, L.P.	12,769,819	240,000
Accel Growth Fund III, L.P.	12,995,394	1,120,000
Accel Growth Fund IV L.P.	13,999,538	7,370,000
Accel IX, L.P.	5,022,963	3,000,000
Accel Leaders Fund L.P.	4,613,252	880,000
Accel London V L.P.	5,841,033	6,900,000
Accel VI-S	2,230,235	652,611
Accel VI, L.P.	1,005,472	0
Accel VII, L.P.	0	5,000,000
Accel VIII, L.P.	3,710,252	4,782,499
Accel X, L.P.	15,495,108	400,000
Accel XI, L.P.	6,600,689	1,680,000
Accel XII, L.P.	6,537,582	1,680,000
Accel XIII, L.P.	3,760,698	5,900,000
Advent Global Private Equity V	8,517,328	8,700,000
Advent International GPE VI-A LP	95,818,859	0
Advent International GPE VII-B, L.P.	213,990,481	12,000,000
Advent International GPE VIII-B, L.P.	115,166,661	114,412,500
Advent Latin American Private Equity Fund VI, L.P.	18,764,995	16,240,000
Affinity Asia Pacific Fund III, L.P.	56,665,854	11,325,595
Affinity Asia Pacific Fund IV, L.P.	119,527,414	39,443,775
Affinity Asia Pacific Fund V L.P.	0	175,000,000
Apax Digital, L.P.	0	50,000,000
Apax Europe Fund VI	20,617,040	2,469,133
Apax Europe VII, L.P.	26,081,189	1,738,926
Apax IX, L.P.	69,448,208	85,005,421
Apax US VII	9,733,031	417,509
Apax VIII - B, L.P.	112,254,080	14,285,547
Apollo Investment Fund IX, L.P.	0	100,000,000
Apollo Investment Fund VIII L.P.	87,928,559	22,616,044
Arboretum Ventures II	2,206,851	0
Arboretum Ventures III, L.P.	12,863,305	315,000
Arboretum Ventures IV, L.P.	15,237,341	17,490,000
Ares Corporate Opportunities Fund II	7,686,415	11,423,773
Ares Corporate Opportunities Fund III, LP	96,172,216	8,749,733

	<u>Adjusted Reported Value</u>	<u>Unfunded Commitment</u>
Ares Corporate Opportunities Fund IV, L.P.	93,243,701	19,258,553
AXA ASF Miller Co-Investment	1,871,057	6,656,684
Axiom Asia Co-Investment Fund I, L.P.	0	50,000,000
Axiom Asia IV, L.P.	26,064,607	26,347,811
Axiom Asia Private Capital Fund III, L.P.	42,238,620	8,559,134
Axiom Asia V, L.P.	0	50,000,000
BC European Capital IX	76,184,261	2,980,315
BC European Capital VII, L.P.	573,360	0
BC European Capital VIII, L.P.	13,158,801	9,130,241
Berkshire Fund IX Coinvestment Fund, L.P.	7,067,834	42,932,166
Berkshire Fund IX, L.P.	59,527,226	112,835,264
Berkshire Fund VI, L.P.	47,077,510	7,554,903
Berkshire Fund VII, L.P.	38,669,469	2,449,845
Berkshire Fund VIII, L.P.	64,304,704	11,082,950
Blackstone Capital Partners IV	16,759,077	4,792,430
Blackstone Capital Partners V	21,858,800	13,128,043
Blackstone Capital Partners V-S	1,679,537	712,476
Blackstone Capital Partners VI, LP	296,221,828	43,809,144
Blackstone Capital Partners VII, L.P.	72,843,783	209,513,313
Bridgepoint Europe IV	38,427,804	6,233,891
Carlyle Europe Partners II	950,716	4,317,536
Carlyle Europe Partners III	13,408,417	6,207,903
Carlyle Europe Partners IV, L.P.	79,942,530	51,694,468
** <b>Carlyle Europe Partners V, S.C.SP.</b>	0	145,943,746
Carlyle Partners IV, L.P.	5,182,933	16,009,296
Carlyle Partners V L.P.	55,102,430	54,261,025
Carlyle Partners VI, L.P.	162,080,402	8,102,716
Carlyle Partners VII, L.P.	0	250,000,000
Centerbridge Capital Partners III, LP	40,110,556	42,378,556
Cerberus SMRS Partners, L.P.	53,230,145	23,304,657
Charlesbank Equity Fund IX, L.P.	0	100,000,000
Charlesbank Fund IX Overage Allocation Program	10,916,627	39,083,373
CM Liquidity Fund, L.P.	0	25,000,000
Coller International Partners V, L.P.	22,770,467	43,600,000
Coller International Partners VI, L.P.	38,557,366	29,723,267
Coller International Partners VII, L.P.	82,898,068	80,430,400
Crescent Mezzanine Partners VI, L.P.	36,948,829	8,176,242
Crescent Mezzanine Partners VII	11,058,407	139,893,454
CVC Capital Partners VII, L.P.	0	175,132,495
DLJ Investment Partners III	830,456	764,960
Dover Street IX, L.P.	33,208,389	68,000,000
EnCap Energy Capital Fund X, L.P.	32,045,013	13,524,205
Entertainment IP Fund, L.P.	8,497,042	40,896,436
FIMI Opportunity 6, L.P.	14,522,545	36,954,547
FirstMark Capital I, L.P.	82,831,555	196,596

	<u>Adjusted Reported Value</u>	<u>Unfunded Commitment</u>
FirstMark Capital IV, L.P.	6,905,396	27,300,000
FirstMark Capital OF I, L.P.	22,403,120	0
FirstMark Capital OF II, L.P.	7,980,627	26,950,000
FirstMark Capital P2, L.P.	168,082,451	0
Flagship Pioneering VI	9,601,554	64,500,000
Flagship Ventures Fund 2004	6,962,979	0
Flagship Ventures Fund 2007, L.P.	17,463,386	0
Flagship Ventures Fund IV, L.P.	106,724,375	0
Flagship Ventures Fund V	62,459,883	4,550,000
Flagship Ventures Opportunities Fund I, L.P.	23,350,315	31,000,000
Fox Paine Capital Fund II, LP	32,945,398	15,382,699
FS Equity Partners VII, L.P.	69,446,733	36,980,234
G-IV Acquisition Holdings, LLC	17,921,776	0
GCM Grosvenor Fund Investment Program I, L.P.	8,826,301	1,350,800
GCM Grosvenor Fund Investment Program II, L.P.	32,675,455	14,116,317
GCM Grosvenor Fund Investment Program III - 2004	46,127,475	4,858,425
GCM Grosvenor Fund Investment Program III - 2006	53,557,036	7,132,502
GCM Grosvenor Fund Investment Program V, L.P.	70,878,631	10,885,263
GCM Grosvenor Fund Investment Program VI, L.P.	25,728,650	9,805,253
GCM Grosvenor Fund Investment Program VIII, L.P.	59,929,468	42,705,057
GCM Grosvenor SeasPriFIP LP (PIS06-10)	73,516,923	16,957,550
GCM Grosvenor SeasPriFIP LP (PIS14)	199,394,359	34,129,830
GCM Grosvenor SeasPriFIP LP (Seed)	40,426,166	13,769,012
Genstar Capital Partners VIII, L.P.	8,974,221	43,894,845
Genstar VIII Opportunities Fund I, L.P.	15,359,384	37,073,445
Green Equity Investors IV	5,784,283	1,136,036
Green Equity Investors V	178,014,267	25,966,435
Green Equity Investors VI, L.P.	116,158,427	13,557,869
Green Equity Investors VII, L.P.	70,805,573	108,879,015
GSO Capital Opportunities Fund II, L.P.	19,984,998	11,479,647
GSO Capital Opportunities Fund III, L.P.	26,046,891	74,951,870
GSO COF III Co-Investment Fund, L.P.	4,515,972	45,209,412
HarbourVest Dover Street VIII, L.P.	29,800,712	8,437,500
HarbourVest Int'l III Direct	0	1,000,000
HarbourVest Int'l III Partnership	177,691	1,200,000
Harbourvest Partners Co-Investment Fund IV L.P	76,089,038	30,135,466
HarbourVest Partners Mezzanine Income Fund	48,404,128	56,810,000
HarbourVest V Partnership	200,931	300,000
HarbourVest VI - Direct Fund LP	2,722,185	750,000
HarbourVest VI Partnership	1,368,690	2,000,000
Harvest Partners VII, L.P.	41,841,866	34,449,033
HPS Mezzanine Partners III, L.P.	27,659,503	23,084,723
Insight Venture Partners Growth-Buyout Coinvestment Fu	62,654,116	11,667,903
Insight Venture Partners IX, L.P.	132,735,159	5,750,000
Insight Venture Partners X, L.P.	11,000,000	89,000,000

	<u>Adjusted Reported Value</u>	<u>Unfunded Commitment</u>
Kelso Investment Associates IX, L.P.	91,547,330	31,391,601
Kelso Investment Associates VII	2,397,904	4,970,176
Kelso Investment Associates VIII	68,658,203	22,315,125
** <b>Kelso Investment Associates X, L.P.</b>	0	100,000,000
Khosla Ventures III, L.P.	33,563,836	750,000
Khosla Ventures IV, L.P.	80,337,445	950,000
Khosla Ventures Seed D, L.P.	0	10,000,000
Khosla Ventures V, L.P.	44,936,959	11,350,000
Khosla Ventures VI, L.P.	0	75,000,000
KKR 2006 Fund, L.P.	83,078,869	5,040,754
KKR Americas Fund XII, L.P.	29,049,072	171,740,315
KKR Asian	6,747,454	0
KKR Asian Fund II, L.P.	55,681,326	6,267,844
KKR Asian Fund III	5,374,843	92,978,643
KKR China Growth Fund	33,697,421	3,383,656
KKR E2 Investors (Annex) Fund	115,656	0
KKR European Fund II	1,391,289	0
KKR European Fund III	43,275,424	22,854,187
KKR European Fund IV L.P.	96,733,542	44,902,891
KKR Millennium Fund	8,368,867	0
KKR North America Fund XI, L.P.	137,990,936	11,764,192
** <b>Lead Edge Capital IV, L.P.</b>	0	25,000,000
Lightspeed Venture Partners VI	470,903	0
Lightspeed Venture Partners VII, L.P.	12,446,755	0
Menlo Ventures IX, L.P.	3,122,369	0
Menlo Ventures X, L.P.	22,060,820	0
Menlo Ventures XI, L.P.	45,086,022	1,000,000
Menlo Ventures XIV, L.P.	2,395,933	4,900,000
MeriTech Capital Partners II, L.P.	2,283,777	1,850,000
Meritech Capital Partners III, L.P.	9,142,035	0
Meritech Capital Partners IV, L.P.	14,039,032	900,000
Meritech Capital Partners V, L.P.	20,116,290	2,850,000
** <b>Meritech Capital Partners VI, L.P.</b>	1,700,000	38,300,000
Michigan Growth Capital Partners II, L.P.	185,359,461	13,936,835
Michigan Growth Capital Partners III, L.P.	21,310,881	98,612,584
Michigan Growth Capital Partners, LP	42,519,917	12,848,500
Midtown Fund III, L.P.	0	0
Midtown II Liquidating Trust	2,369,574	0
** <b>New Leaf Biopharma Opportunities II, L.P.</b>	18,000,000	82,000,000
New Leaf Growth Fund I, L.P.	165,244,854	0
New Leaf Ventures II, L.P.	13,453,292	0
New Leaf Ventures III, L.P.	25,151,304	12,750,000
** <b>New Leaf Ventures IV, L.P.</b>	0	50,000,000
Nordic Capital VI, L.P.	862,468	1
Nordic Capital VII	5,932,358	3,214,429

	<u>Adjusted Reported Value</u>	<u>Unfunded Commitment</u>
Nordic Capital VIII, L.P. (Alpha)	49,505,767	13,876,928
Oak Investment Partners X, L.P.	6,362,184	0
Oak Investments Partners IX, L.P.	675,393	0
Oaktree Opportunities Fund X, L.P.	22,387,481	12,000,000
Oaktree Opportunities Fund Xb, L.P.	1,750,000	68,250,000
OCM Opportunities Fund IX, L.P.	58,046,202	0
OCM Opportunities Fund VII (B), L.P.	2,986,931	4,983,650
OCM Opportunities Fund VII, L.P.	3,509,815	0
OCM Opportunities Fund VIII B, L.P.	19,866,270	0
OCM Opportunities Fund VIII, L.P.	3,961,680	0
OCM Principal Opportunities Fund IV	2,717,046	5,002,377
Ocqueoc Holdings, LLC	14,080,633	49,971,662
Parthenon Investors II	1,456,520	3,186,779
Parthenon Investors III	28,558,392	2,732,182
Parthenon Investors IV, L.P.	45,390,659	4,480,042
Peninsula Capital Fund IV	7,073,037	2,201,026
Peninsula Fund VI, L.P.	28,378,947	16,962,408
** <b>PPC Fund II</b>	10,885,130	64,114,870
Public Pension Capital, LLC	46,004,760	63,033,679
Rhone Partners V, L.P.	62,206,178	60,689,285
Riverside Capital Appreciation Fund VI, LP	62,532,535	14,003,491
** <b>Riverside Capital Appreciation Fund VII, L.P.</b>	0	100,000,000
Riverside Micro Cap Fund I, LP	25,504,341	5,782,975
Riverside Micro-Cap Fund II, L.P.	68,896,259	2,735,834
Riverside Micro-Cap Fund III, L.P.	57,474,270	5,282,822
Riverside Micro-Cap Fund IV	37,278,009	17,634,814
Science Ventures Fund II, L.P.	8,458,096	11,000,000
Shamrock Growth Capital Fund IV, L.P.	13,778,230	34,297,477
Silver Lake Partners II	2,280,413	3,531,586
Silver Lake Partners III	62,780,152	13,199,137
Silver Lake Partners IV, L.P.	58,858,378	6,500,020
Silver Lake Partners V, L.P.	4,968,064	62,531,936
** <b>SK Capital Partners V, L.P.</b>	0	50,000,000
SM/TCP L.P.	31,973,190	7,139,418
SMRS - TOPE LLC	1,078,663,116	547,922,465
SMRS-CAPP LLC	6,700,000	93,300,000
SMRS-NCRP LLC	996,427,973	194,788,977
Sycamore Partners III, L.P.	0	99,000,000
TCW Shared Op Fund III	73,887	0
TCW/Crescent Mezzanine Partners III Secondary	267,389	0
TCW/Crescent Mezzanine Partners III, L.P.	2,453,742	29,733,856
TCW/Crescent Mezzanine Partners IV, L.P.	83,430	13,660,773
TCW/Crescent Mezzanine Partners IVB Secondary	141,795	0
TCW/Crescent Mezzanine Partners V, LLC	11,585,961	15,382,013
TCW/Crescent Mezzanine Partners VC Secondary	3,494,279	0



	<u>Adjusted Reported Value</u>	<u>Unfunded Commitment</u>
The Huron Fund III, L.P.	9,079,688	4,542,756
The Huron Fund IV, L.P.	24,135,917	4,544,456
The Huron Fund V, L.P.	3,762,500	31,237,500
The Shansby Group 4	34,477	521,018
The Shansby Group 5 (TSG5)	1,476,001	4,183,394
Thoma Bravo Discover Fund II, L.P.	0	75,000,000
Thoma Bravo Fund XII, L.P.	100,556,296	55,417,395
** Thoma Bravo XIII, L.P.	0	125,000,000
** TI Platform BOV, L.P.	0	15,000,000
** TI Platform Fund II, L.P.	0	15,000,000
TPG IV (Texas Pacific Group IV)	2,477,451	211,725
** TPG Healthcare Partners, L.P.	0	25,000,000
TPG Partners III, LP	774,988	2,087,002
TPG Partners VI, L.P.	116,314,355	12,168,911
TPG Partners, VII, L.P.	109,530,398	58,204,369
** TPG Partners VIII, L.P.	0	125,000,000
TPG V (Texas Pacific Group V)	53,700,851	5,841,509
Trilantic Capital Partners V (North America) Fund A, L.P.	34,466,214	6,764,938
Trilantic Capital Partners VI (North America) L.P.	7,270,815	67,729,185
TSG6, L.P.	99,442,811	29,467,070
TSG7 A L.P.	59,171,630	68,952,386
Turnbridge Capital Partners I , LP	61,470,287	37,243,434
Veritas Capital Fund V, L.P.	99,074,859	1,764,130
Veritas Capital Fund VI, L.P.	11,914,255	87,051,301
Veritas V Co-Investors, L.P.	21,510,843	15,000,000
Vista Equity Endeavor Fund I, L.P.	17,127,378	31,564,125
Vista Equity Partners Fund V, L.P.	65,287,813	10,503,928
Vista Equity Partners Fund VI, L.P.	59,454,718	20,176,759
Vista Foundation Fund III, L.P.	10,590,560	13,996,023
Warburg Pincus China, L.P.	28,227,448	18,877,500
Warburg Pincus Energy MCIP, L.P.	0	10,396,887
Warburg Pincus Energy, L.P.	61,616,332	37,000,000
Warburg Pincus Equity Partners, L.P.	889,555	0
Warburg Pincus Financial Sector, L.P.	4,552,357	40,140,000
Warburg Pincus International Partners	4,884,117	0
Warburg Pincus Private Equity IX	18,142,977	0
Warburg Pincus Private Equity VIII, L.P.	6,983,127	0
Warburg Pincus Private Equity X, L.P.	137,881,766	0
Warburg Pincus Private Equity XI, L.P.	184,399,086	0
Warburg Pincus Private Equity XII Secondary, L.P.	14,503,445	11,687,500
Warburg Pincus Private Equity XII, L.P.	101,674,004	81,812,500
WestAm COREplus Private Equity QP	772,192	2,086,719
WestAm Special Private Equity Partners	1,830,081	2,317,427
<b>Total Private Equity</b>	<b>\$ 10,871,609,236</b>	<b>\$ 7,571,443,310</b>

	<u>Adjusted Reported Value</u>	<u>Unfunded Commitment</u>
Cash	180,427,846	-
Active Small Cap Cash	22,102,900	-
Active Small Cap	3,094,086	-
Income Accruals	330,983	-
<b>Grand Total</b>	<b><u><u>\$11,077,565,051</u></u></b>	<b><u><u>\$7,571,443,310</u></u></b>

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

\*\* New Commitments made during quarter reported

State of Michigan Retirement Systems

# REAL, OPPORTUNISTIC, & ABSOLUTE RETURN REVIEW

Investment Advisory Committee Meeting

September 13, 2018



Jennifer Yeung

Senior Investment Manager

Real, Opportunistic, & Absolute Return Division

# EXECUTIVE SUMMARY

## Performance

<b>MPSERS Plan</b>	<b>1-Year</b>	<b>3-Years</b>	<b>5-Years</b>	<b>7-Years</b>	<b>10-Years</b>
Absolute Return	6.8%	3.1%	4.7%	4.8%	2.0%
HFRI FOF Conservative*	4.0%	1.7%	2.9%	2.6%	1.2%

\*Information as of June 30, 2018.

- The Absolute Return portfolio outperformed the benchmark by nearly 3% for the year. The outperformance was primarily driven by overweight exposure to credit.
- Credit was the largest overall contributor to performance. Within credit, residential mortgage managers consistently drove strong performance due to the development of the securitization market for re-performing loan pools.
- Equities were the second largest contributor to performance for the quarter. Gains were driven by strong performance in the Industrials, Technology, Healthcare and Consumer portfolios. Quant managers also performed well as they continue to benefit from running neutral equity portfolios and from the pickup in volatility.

## 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.
- No new commitments for the quarter.
- We remain cautious on directional risks and have continued to shift towards diversifying strategies. As we position the portfolio moving forward we look to:
  - Continue increasing allocations to special situations and co-investments, which have more idiosyncratic risk and are implemented on a market neutral basis.
  - Target allocations to opportunities in macro and quant equity strategies that could be well positioned to take advantage of a rising interest rates and higher volatility environment.
  - Focus on opportunities that seek to provide diversification, protect the downside and deliver absolute return.

## **Performance**

<b>MPSERS Plan</b>	<b>1-Year</b>	<b>3-Years</b>	<b>5-Years</b>	<b>7-Years</b>	<b>10-Years</b>
Real Return and Opport.	14.9%	10.3%	12.7%	10.3%	N/A
Custom Benchmark	8.0%	7.5%	7.3%	7.3%	N/A

- Total Real Return and Opportunistic portfolio value was \$6.4 billion with a total one-year return of 14.9%. Performance for the year was driven by strong income from private credit, natural resource strategies, and media and entertainment holdings, as well as solid returns from asset sales in natural resource, telecom, and transportation funds.

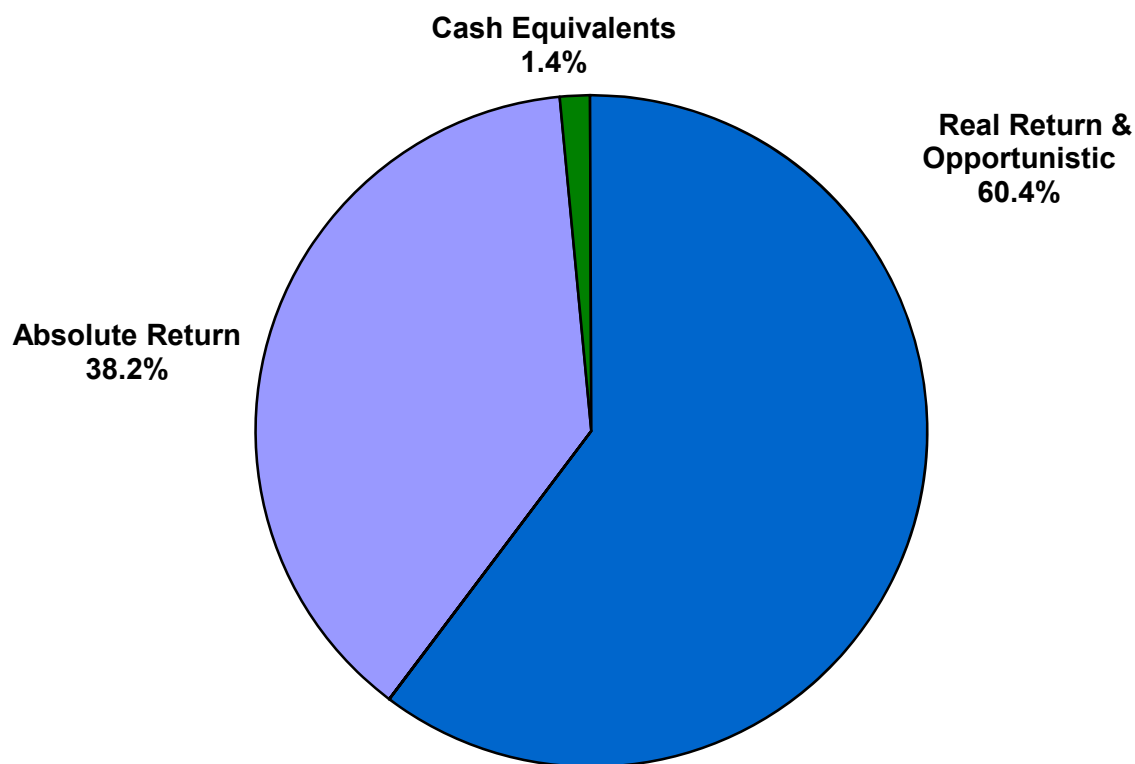
## **Strategy Update**

- 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.
- The Real Return & Opportunistic portfolio has approximately \$3.7 billion of unfunded commitments. New commitments closed during the quarter include:
  - \$150 million to NGP Natural Resources XII, L.P., a commingled fund that will commit capital to management teams that will operate companies in low-cost, unconventional basins across North America. NGP has invested in North American energy for over 28 years and has invested, created portfolio value and exited investments during all stages of commodity price and capital market cycles.
  - \$150 million to Kayne Private Energy Income Fund II, L.P., a commingled fund that seeks to invest in upstream oil and gas assets with a focus on later-stage assets that are producing and generating cash flows.
- We remain focused on finding differentiated strategies that are additive to the current portfolio mix. The pipeline remains full though many opportunities are priced for perfection.
  - We continue to like insurance-related opportunities, niche strategies with some scalability, and contractual cash flow.
  - Also, we continue to review opportunities in the private energy space. This opportunity has grown as many publicly-traded oil and gas companies have focused on de-levering their balance sheets, operating within cash flows, and look to improve their return metrics. As a result, public companies have continued to sell non-core assets to focus operations on key strategic areas. This has benefited private investors as a strong pipeline of high quality assets are coming to market.

# SMRS

## Absolute, Real Return and Opportunistic

### 6/30/18



<b>Market Value in Millions</b>				
	<u>6/30/18</u>		<u>6/30/17</u>	
Absolute Return	\$3,973	38.2%	\$4,061	40.7%
Real Return and Opportunistic	6,273	60.4%	5,805	58.2%
Cash Equivalents	150	1.4%	110	1.1%
<b>Total Investments</b>	<b><u>\$10,396</u></b>	<b><u>100.0%</u></b>	<b><u>\$9,976</u></b>	<b><u>100.0%</u></b>

# SMRS

## Absolute Return

### 6/30/18

#### Net Market Values by Entity

	<b>Net Market Value</b>
Drawbridge Opportunities Fund	\$ 232,558,812
* EnTrust White Pine Partners, LP	37,605,338
JM IV, LP	79,737,525
MP Securitized Credit Master Fund, LP	76,859,927
Riverside Credit Solutions Fund I, LP	4,850,000
SJC Direct Lending Revolver Fund III, LP	266,615
* Tahquamenon Fund, LP	3,539,905,171
Visium Balanced Fund, LP	1,273,046
<b>Total Absolute Return</b>	<b>\$ 3,973,056,434</b>
Short-Term Investments & Other	50,299,330
<b>Grand Total</b>	<b>\$ 4,023,355,764</b>

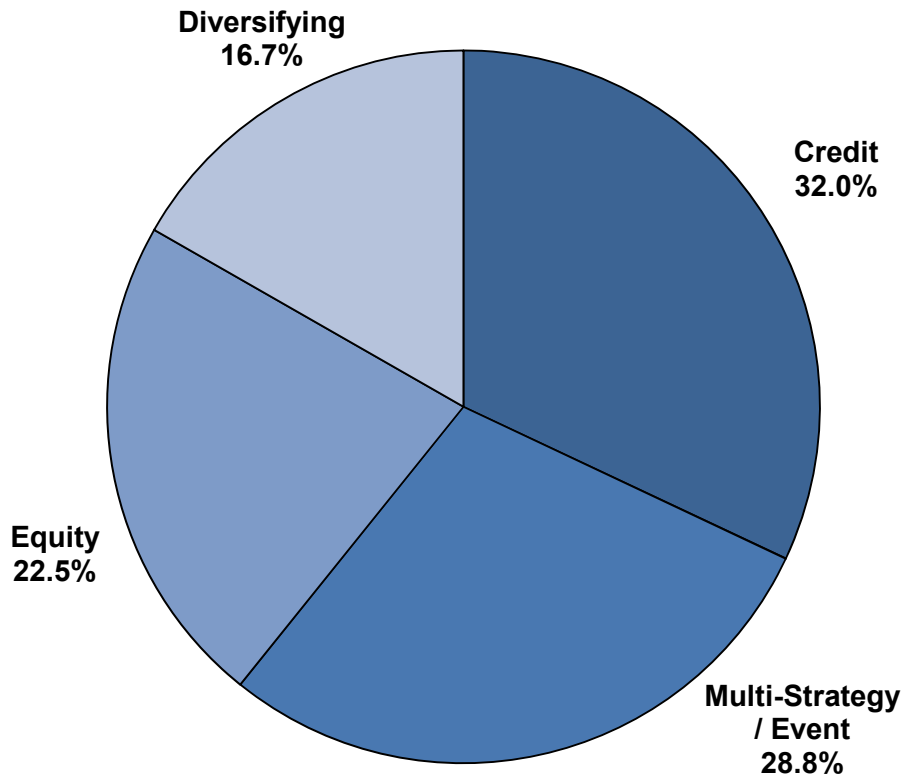
\* Fund of Funds

# SMRS

## Absolute Return

### 6/30/18

### Investments By Strategy



<b>Strategy Breakdown</b>			
Underlying Funds:	77	Median Position Size:	0.5%
Strategies:	4	Average Position Size:	1.3%
Relationships:	6	Largest Position Size:	6.7%



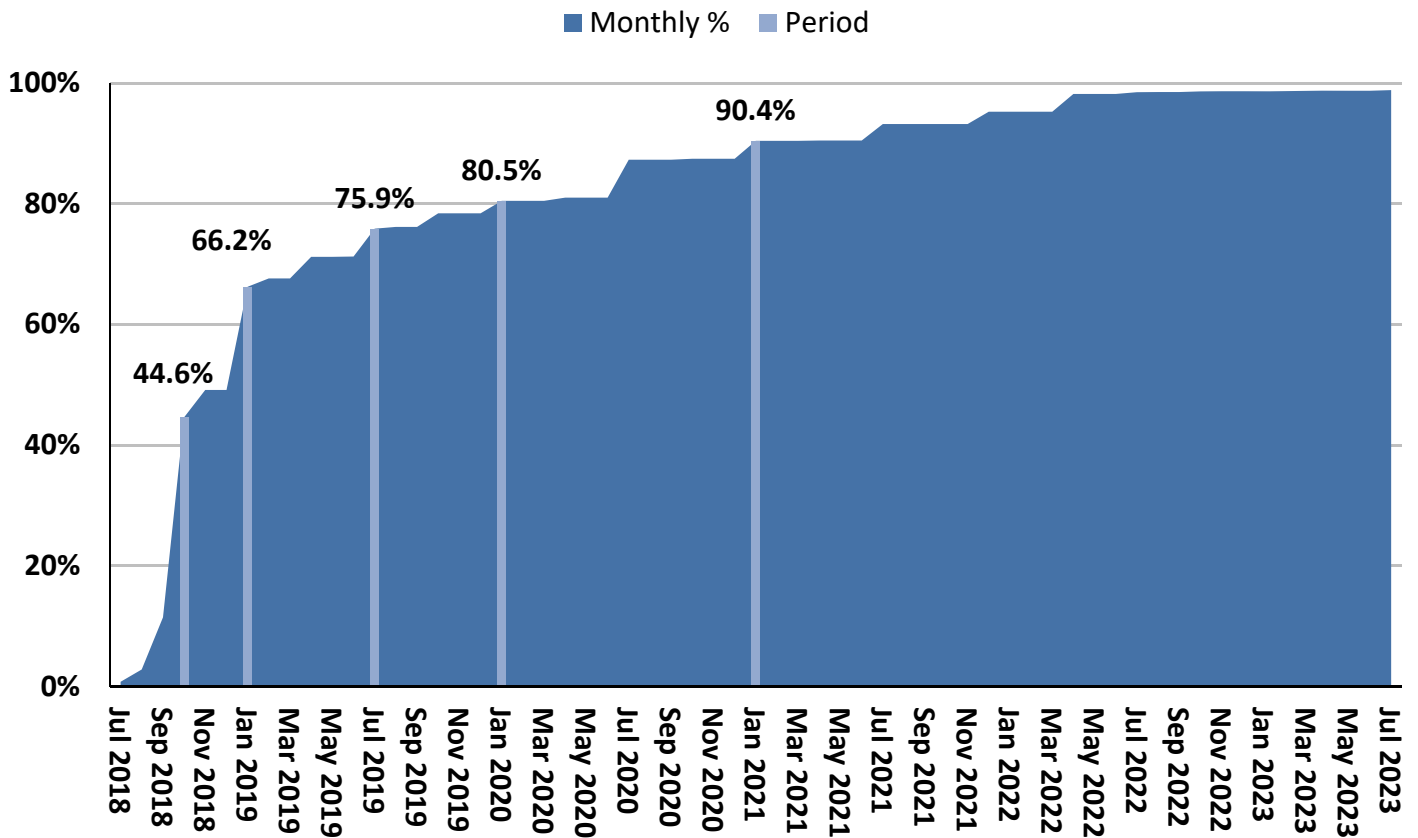
# SMRS

## Absolute Return

### 6/30/18

### Liquidity Analysis

Redeemable	Marginal Allocation (% each period)	Aggregate Allocation (% since Analysis Date)
By 10/1/18	44.6%	44.6%
By 1/1/19	21.6%	66.2%
By 7/1/19	9.7%	75.9%
By 1/1/20	4.6%	80.5%
By 1/1/21	9.9%	90.4%
After 1/1/21	8.4%	98.8%
Illiquid	1.2%	100.0%
<b>Total</b>	<b>100.0%</b>	<b>N/A</b>



# SMRS

## Real Return and Opportunistic

### 6/30/18

#### Net Market Value by Entity

	<u>Net Market Value</u>	<u>Unfunded Commitment</u>
* Abernathy Fund I, LLC	\$ 237,807,536	\$ 71,830,780
Apollo Credit Opportunities Fund III, LP	40,026,539	23,806,829
Apollo European Principal Finance Fund II	30,104,217	9,375,995
Apollo Financial Credit Investments Fund II	294,568,562	196,512,311
Apollo Financial Credit Investments Fund III	167,949,810	182,765,115
Apollo HK TMS Investments Holdings, LP	8,537,041	-
Apollo Offshore Credit Fund Ltd	277,513,974	-
Apollo Structured Credit Recovery Fund IV	117,053,584	108,823,282
Barings Asset-Based Income Fund, LP	60,874,635	237,397,292
Blackstone Strategic Capital Holdings, LP	36,094,700	88,287,691
BroadRiver III, LP	6,736,838	191,766,556
BSCH Parallel (MLG) I, LP	40,000,001	79,323,573
Blue Peninsula Fund, LP	145,560,815	77,335,973
Carlyle Intl Energy Partners, LP	28,787,071	35,072,560
Carlyle Energy Mezzanine Opportunity Fund II	17,331,808	37,180,343
Centerbridge SCP III, LP	19,891,922	10,499,873
* Content Holdings, LLC	423,824,995	45,576,598
Elegantree Fund SPC	10,502,561	4,735,264
Energy Recapitalization and Restructuring Fund, LP	30,077,638	7,456,217
ERR Michigan Holdings, LP	4,343,246	2,269,933
* Fairfield Settlement Partners, LLC	66,055,122	62,961,491
FCO MA MI, LP	113,745,106	93,675,888
Fortress MSR Opportunities Fund I A, LP	87,033,100	-
Fortress Transportation & Infrastructure	68,248,999	-
GSO Credit Alpha Fund, LP	66,159,907	38,581,824
Highbridge Principal Strategies - Specialty Loan Fund III	52,142,102	6,885,221
Hopen Life Sciences Fund II	3,968,020	1,675,000
HPS Red Cedar Fund	90,563,780	228,596,788
JP Morgan Global Maritime Investment Fund, LP	82,604,152	2,914,854
KANG Fund, LP	631,629	-
Kayne Anderson Energy Fund VII, LP	63,735,843	22,690,615
Kayne P.E. Income Fund	106,005,856	50,709,805
** <b>Kayne P.E. Income Fund II</b>	<b>-</b>	<b>150,000,000</b>
Kayne Solutions Fund, LP	58,539,658	189,804,629
KKR EI&G Fund	63,600,390	1,927,499
KKR Lending Partners I, LP	22,514,289	11,930,723
KKR Lending Partners II, LP	63,305,838	11,737,239
Lakewater, LLC, Series 1	136,627,061	1,319,607
Lakewater, LLC, Series 2	240,442,421	11,041,654
Lakewater, LLC, Series 3	557,803,365	11,216,552
Lakewater, LLC, Series 4	32,279,291	17,428,562
Lakewater, LLC, Series 5	238,506,574	19,406,239

	<u>Net Market Value</u>	<u>Unfunded Commitment</u>
Marathon CLO Equity Fund, LP	10,076,231	14,545,000
Merit Energy Partners, LP	29,249,588	8,583,196
MidCap FinCo Holdings LTD	300,233,070	-
Napier Park Aircraft Leasing Vehicle I, LLC	37,360,060	16,856,511
Napier Park Aircraft Leasing Rollover Fund I, LLC	6,070,697	71,046,255
Nash Co-Investment	14,488,771	-
New Fortress Energy HLDGS	503,936,000	-
<b>** NGP Natural Resources XII</b>	<b>-</b>	<b>150,000,000</b>
Orion Coinvest III, LP	1,655	2,236,552
Orion Mine Finance Fund 1A, LP	55,083,355	5,057,658
Orion Mine Finance Fund I, LP	100,841,188	7,376,051
Orion Mine Finance II, LP	51,757,274	50,065,865
Orion Mine Finance Co-Fund II, LP	10,413,226	39,936,508
Redding Ridge Holdings, LP	44,198,535	58,021,398
* Renaissance Venture Cap Fund II, LP	19,837,444	7,715,455
* Renaissance Venture Cap Fund III, LP	1,436,405	23,250,000
REOG Fund II Coinvest, LP	24,993,721	8,402,545
Ridgewood Energy Oil & Gas II	100,019,550	26,588,559
Ridgewood Energy Oil & Gas III	49,839,925	188,970,922
RPEP Energy Opp Inst Partner	18,175,539	24,490,886
RPEP SMRS Holdings, LLC	1	1,876,850
SJC Direct Lending Fund I, LP	620,038	15,088,120
SJC Direct Lending Fund IA, LP	210,949	3,764,486
SJC Direct Lending Fund II, LP	122,171,666	38,261,315
SJC Direct Lending Fund III, LP	52,770,492	180,698,252
* Social Network Holdings, LLC	106,539,063	24,429,952
Specialty Equity Strategy, LP	267,077	19,647,000
Sprott PRL (M), LP	5,300,670	16,424,141
Sprott PRL (M-Co-Invest)	10,095,115	15,000,000
Sprott Private Resource Lending Fund (US), LP	50,852,611	63,630,325
Terra Co-Investment, LLC	37,109,452	14,000,000
TICP CLO Partners II, LP	29,296,553	19,301,214
TSSP Adjacent Opp Partners, LP	101,689,560	203,202,894
Varo Coinvestment, LP	16,825,463	892,702
Vida Insurance Credit Opportunity Fund II, LP	66,803,769	22,137,984
Warwick Energy Partners III	51,160,629	11,470,665
Warwick (SMRS) Co-Invest, LP	30,505,364	2,732,720
<b>Total Real Return and Opportunistic</b>	<b>\$ 6,272,330,702</b>	<b>\$ 3,700,222,357</b>
<b>Short-Term Investments &amp; Other</b>	<b>100,068,825</b>	<b>-</b>
<b>Grand Total</b>	<b>\$ 6,372,399,527</b>	<b>\$ 3,700,222,357</b>

\* Fund of Funds

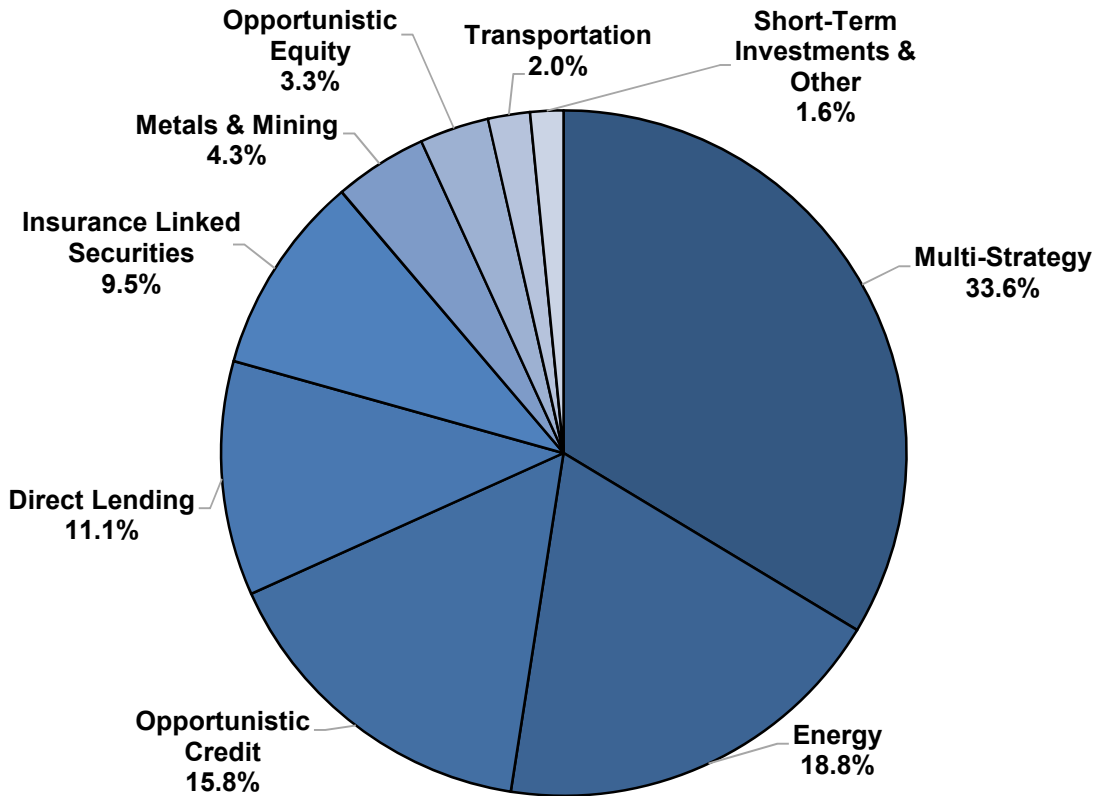
\*\* New Commitment

# SMRS

## Real Return and Opportunistic

### 6/30/18

#### Investments By Strategy



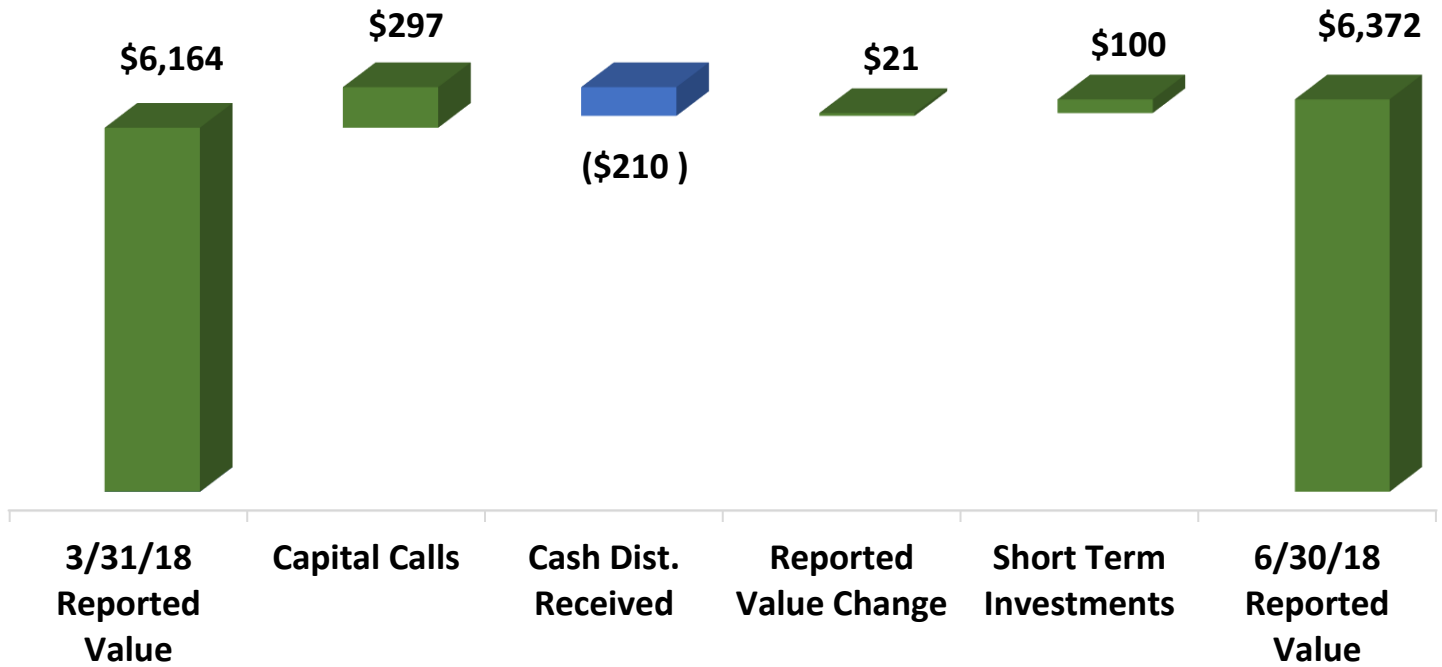
<b>Investment Strategy</b>	
Multi-Strategy	\$ 2,142,242,769
Energy	1,199,354,525
Opportunistic Credit	1,005,831,447
Direct Lending	704,532,223
Insurance Linked Securities	602,114,101
Metals & Mining	284,345,095
Opportunistic Equity	207,875,633
Transportation	126,034,909
Short-Term Investments & Other	100,068,825
<b>Total Market Value</b>	<b>\$ 6,372,399,527</b>

# SMRS

## Real Return and Opportunistic 6/30/18

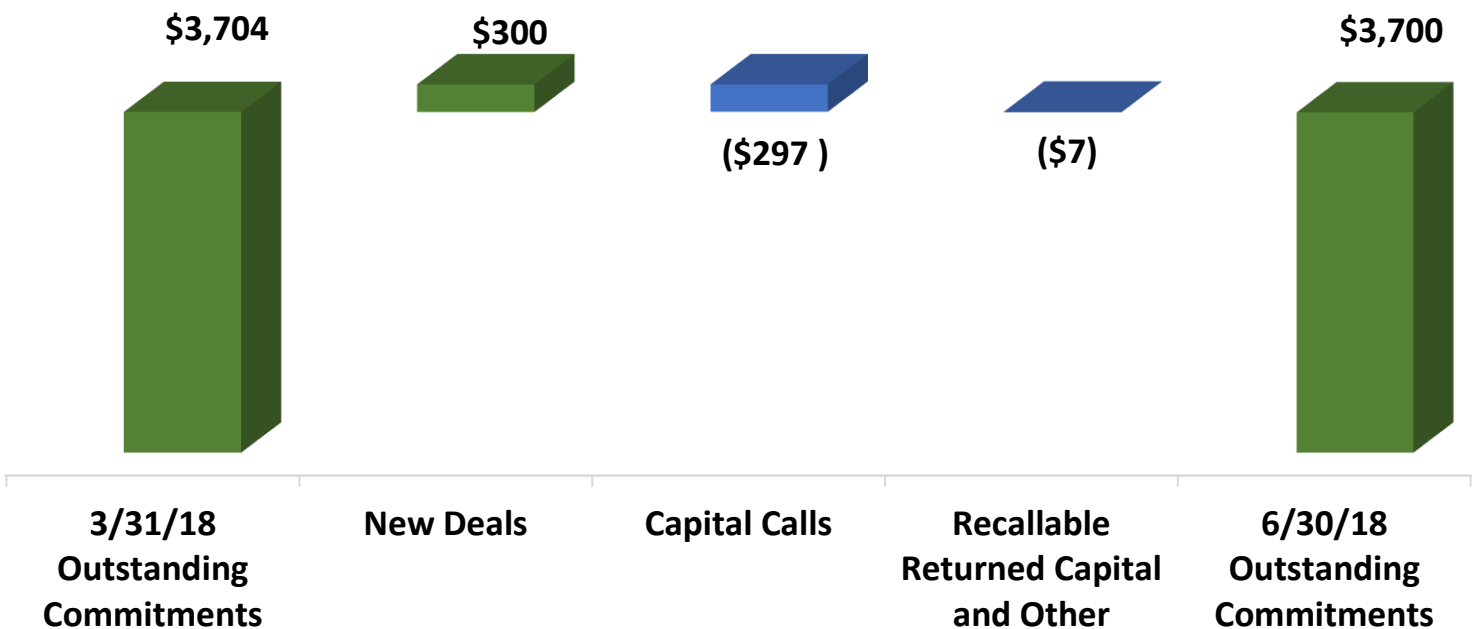
\$ Millions

### Invested Commitments



\$ Millions

### Outstanding Commitments



# SMRS

## Real Return and Opportunistic

### 6/30/18

(\$ in Millions)

### Top Ten Advisors or Entities

<u>Advisor or Entity</u>	<u>Market Value</u>
Apollo Global Management	\$ 1,280
Barings Alternative Investments	1,267
Domain Capital Advisors	834
Fortress Investment Group	705
Kayne Anderson Capital Partners	266
Orion Resource Partners	218
Ridgewood Energy	193
Czech Asset Management	176
KKR Asset Management	149
BlackRock, Inc.	146
<b>Total Market Value</b>	<b>\$ 5,234</b>

State of Michigan Retirement Systems

# DOMESTIC EQUITY REVIEW

Investment Advisory Committee Meeting

September 13, 2018



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

# EXECUTIVE SUMMARY

## Performance

<b>MPSERS Plan (6/30/18)</b>	<b>1-Year</b>	<b>3-Years</b>	<b>5-Years</b>	<b>7-Years</b>	<b>10-Years</b>
Annualized Returns	18.0%	12.0%	13.8%	13.3%	10.5%
S&P 1500	14.5%	11.9%	13.4%	13.2%	10.3%
Peer Median Return	13.6%	10.8%	12.6%	12.4%	10.0%
Percent Rank vs. Peers *	12	22	25	23	31

\*State Street Universe greater than \$1 billion

- Total Domestic Equity outperformed its peer group and the S&P 1500 over all time periods, both gross and net of fees. Over the past year performance was 350 basis points (bps) in excess of the benchmark, with incurred tracking error of 1.8%.
- SMRS pays roughly 8 bps per year in domestic equity fees versus its peer group at an estimated 20-25 bps (per the research of Aon/Hewitt in 2017).
- Outperformance by internally managed active portfolios of 830 bps during the past year.
- Success driven by investments in Twitter, Square, Illumina, Abiomed and Apple among others, as well as the internal overlay program.
- Ark Investments continued its run of outstanding performance, beating the S&P 1500 by 43% over the past year and annualizing 46.7% over the past two and one quarter years.
- Fisher Investments is beating the S&P 1500 by 130 bps annualized over the past five years, putting it in the top 1% of its peer group over that time.
- Outperformance by LA Capital Deep Value of 430 bps over the past year, placing it near the top decile of its peer group.
- Clarkston Capital Small Cap remains in the top 10% of peer group returns since inception four years ago, despite weathering a difficult near-term market environment for its strategy.
- Significant contribution from Mellon Capital overlay strategy, adding 30 bps to overall division return.

## 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 Portfolio remains overweight the financial sector, defensive stocks and technology companies, while remaining underweight the consumer discretionary, industrials and energy sectors. Portfolio beta is 1.1, so a significant market correction would present a modest headwind to performance.
  - Total Domestic Equity's portfolio would outperform the S&P 1500 by ~11% were it to appreciate to the market multiple of 17.5x from where it stands now at 15.7x, or if multiples between it and the benchmark were otherwise to converge.
  - The potential for multiple convergence is driven by active exposures in Berkshire Hathaway, AGNC, Gilead Sciences, American Express, Aflac and Facebook among others. All trade at PE ratios of 14x or less, with the exception of Facebook, which we believe to be undervalued despite its higher multiple.
  - In the event that multiples do not converge, the division remains in a position to outperform based on its higher level of dividend yield, coupled with faster earnings per share growth than the S&P 1500.
  - At the broader portfolio level, allocations to attractively valued financial and defensive stocks offset each other from an interest rate risk standpoint, paving the way for potential outperformance in most rate environments.

## **Market Environment and Outlook**

- At ~17x forward earnings, equity markets trade 10% above their historical average of 15.7x and slightly below their 25-year historical average of 18x, albeit with higher levels of profitability, which may prove to be cyclical.
- Factoring in the existing low level of interest rates, stocks are reasonably priced for an environment where long term bond yields are 4% or lower, as historical average PE ratios were realized in significantly higher interest rate environments.
- The market is currently paying out 1.9% of its earnings in dividends and reducing shares outstanding by 2.2% by way of share buybacks, for a 4.1% total shareholder yield.
- It is also growing shareholders' equity at a rate of 4.1% by reinvesting roughly 25% of its earnings back into its underlying businesses.
- The market is thus poised to earn roughly 8.2% (shareholder yield of 4.1% + reinvestment rate of 4.1%) in an environment where stock multiples and returns on equity are stable.
- This compares favorably to the 30-year U.S. Treasury at 3.1%, and unfavorably to the historical compound annual return for the S&P 500 from 1928 – 2017 of 9.5%.

# SMRS

## Domestic Equity Strategies

6/30/18

Markets	Amount	Total	% of Total
<b>Internal Indexed</b> (\$ in Millions)			
Indexed Portfolios	\$7,952		
<b>Total Indexed</b>		<b>\$7,952</b>	<b>44.6%</b>
<b>Internal Active</b>			
Active Portfolios	\$5,393		
<b>Total Internal Active</b>		<b>\$5,393</b>	<b>30.2%</b>
<b>External Active</b>			
Los Angeles Capital	\$1,234		
Fisher Investments	689		
Seizert Capital Partners	567		
Mellon Capital	525		
Clarkston Capital Partners	512		
ARK Investments	477		
Bivium Capital	160		
Attucks Asset Management	155		
Ancora	108		
Munder Capital Management	33		
Northpointe Capital	26		
<b>Total External Active</b>		<b>\$4,486</b>	<b>25.2%</b>

**Total Domestic Equity**

**\$17,831**

**100.0%**

# SMRS

## Domestic Equities Composite

### 6/30/18

<b>Date:</b>	<u>6/30/18</u>	<u>3/31/18</u>	<u>12/31/17</u>	<u>9/30/17</u>
Assets (\$ in Millions):	\$17,831	\$17,136	\$17,051	\$16,751
Number of Securities:	1,334	1,318	1,304	1,271
Active Share:	39%	37%	39%	41%

Description: The Domestic Equities Composite combines both the SMRS' Actively Managed Composite and its index funds.

<b>Characteristics</b>	<u>SMRS</u>	<u>S&amp;P 1500</u>	<u>S&amp;P 1500 Value</u>
Market Capitalization (\$ in Billions)	\$228.8	\$203.3	\$119.4
P/E FY1	15.7x	17.5x	14.8x
P/E upside to S&P 1500	11.0%	0.0	17.7%
Price/Book	3.5x	3.2x	2.1x
Return on Equity	21.3%	17.9%	14.0%
<b>Risk Metrics</b>			
Beta	1.10	1.00	0.94
Tracking Error	1.8%	0.0%	3.3%
<b>Projected Returns</b>			
Dividend Yield	2.2%	1.9%	2.5%
Buyback Yield	2.1%	2.2%	2.2%
Reinvestment Rate	<u>5.9%</u>	<u>4.1%</u>	<u>3.4%</u>
<b>Projected Investment Return</b>	<b><u>10.2%</u></b>	<b><u>8.2%</u></b>	<b><u>8.1%</u></b>

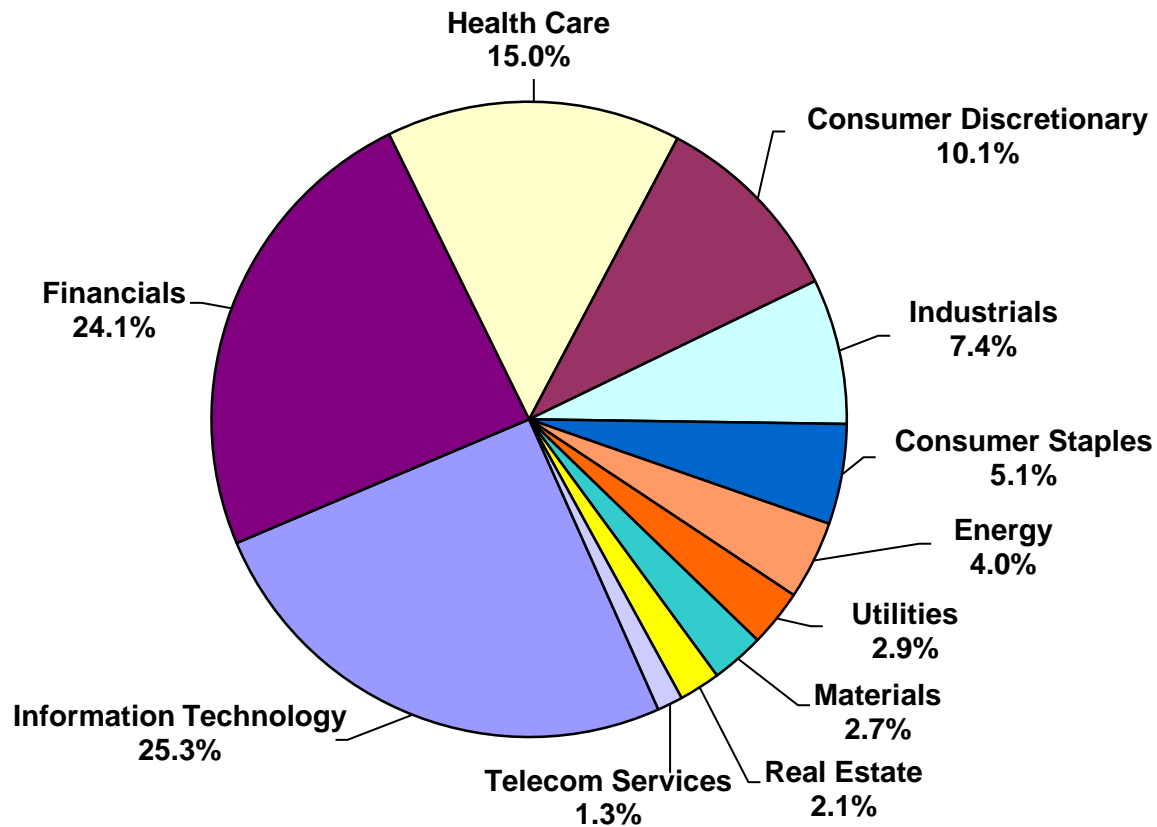
### TOP TEN EXPOSURES – Domestic Equities vs S&P 1500 6/30/18

<u>Domestic Equity Portfolio</u>			<u>S&amp;P 1500</u>		
<u>Company Name</u>	<u>Portfolio Weight</u>	<u>FY1 P/E</u>	<u>Company Name</u>	<u>Market Weight</u>	<u>FY1 P/E</u>
SPDR S&P 500 ETF Trust	13.6%	16.9	Apple, Inc.	3.6%	16.1
Berkshire Hathaway, Inc. B	4.0%	12.6	Microsoft Corporation	3.0%	24.4
Apple, Inc.	3.8%	16.1	Amazon.com, Inc.	2.7%	136.3
Facebook, Inc. Class A	3.0%	25.5	Alphabet, Inc.	2.6%	25.4
Microsoft Corporation	2.1%	24.4	Facebook, Inc. Class A	1.8%	25.5
Gilead Sciences, Inc.	2.1%	11.5	Berkshire Hathaway, Inc. B	1.4%	12.6
Amazon.com, Inc.	1.9%	136.3	JPMorgan Chase & Co.	1.4%	11.6
AGNC Investment Corp.	1.9%	7.7	Exxon Mobil Corp.	1.4%	16.5
Alphabet, Inc.	1.6%	25.4	Johnson & Johnson	1.3%	14.9
SPDR Port. LT Treasury ETF	<u>1.6%</u>	<u>36.3</u>	Bank of America Co.	<u>1.0%</u>	<u>11.1</u>
<b>TOTAL</b>	<b><u>35.6%</u></b>	<b><u>16.9</u></b>	<b>TOTAL</b>	<b><u>20.2%</u></b>	<b><u>19.6</u></b>

# SMRS

## Domestic Equity By Sector

### 6/30/18



<b>Market Value in Millions</b>				
<b>6/30/18</b>				
	<u>Assets</u>	<u>Percent</u>	<u>Benchmark</u>	<u>Difference</u>
Information Technology	\$4,509	25.3%	24.9%	0.4%
Financials	4,289	24.1%	14.1%	10.0%
Health Care	2,676	15.0%	13.7%	1.3%
Consumer Discretionary	1,800	10.1%	13.0%	-2.9%
Industrials	1,318	7.4%	10.2%	-2.8%
Consumer Staples	905	5.1%	6.6%	-1.5%
Energy	717	4.0%	6.2%	-2.2%
Utilities	526	2.9%	3.1%	-0.2%
Materials	475	2.7%	3.0%	-0.3%
Real Estate	382	2.1%	3.4%	-1.3%
Telecom Services	234	1.3%	1.8%	-0.5%
<b>Total</b>	<b><u>\$17,831</u></b>	<b><u>100.0%</u></b>	<b><u>100.0%</u></b>	

Benchmark: S&P 1500

# SMRS

## Actively Managed Composite

### 6/30/18

Date:	<u>6/30/18</u>	<u>3/31/18</u>	<u>12/31/17</u>	<u>9/30/17</u>
Assets (\$ in Millions):	\$9,879	\$9,431	\$9,261	\$9,126
Number of Securities:	1,053	1,106	999	950
Active Share:	68%	65%	71%	75%

Description: The Actively Managed Composite is designed to add consistent alpha by investing in managers with value-added, but diverse strategies. While the expectation is that most will outperform over time, the composite is designed such that they do so during differing parts of the business cycle.

<b>Characteristics</b>	<b><u>SMRS</u></b>	<b><u>S&amp;P 1500</u></b>	<b><u>S&amp;P 1500 Value</u></b>
Market Capitalization (\$ in Billions)	\$220.1	\$203.3	\$119.4
P/E FY1	14.4x	17.5x	14.8x
P/E upside to S&P 1500	21.1%	0.0	17.7%
Price/Book	3.6x	3.2x	2.1x
Return on Equity	23.9%	17.9%	14.0%
<b>Risk Metrics</b>			
Beta	1.17	1.00	0.94
Tracking Error	3.1%	0.0%	3.3%
<b>Projected Returns</b>			
Dividend Yield	2.5%	1.9%	2.5%
Buyback Yield	2.0%	2.2%	2.2%
Reinvestment Rate	<u>7.6%</u>	<u>4.1%</u>	<u>3.4%</u>
<b>Projected Investment Return</b>	<b><u>12.1%</u></b>	<b><u>8.2%</u></b>	<b><u>8.1%</u></b>

### TOP TEN EXPOSURES – Actively Managed Equities vs S&P 1500

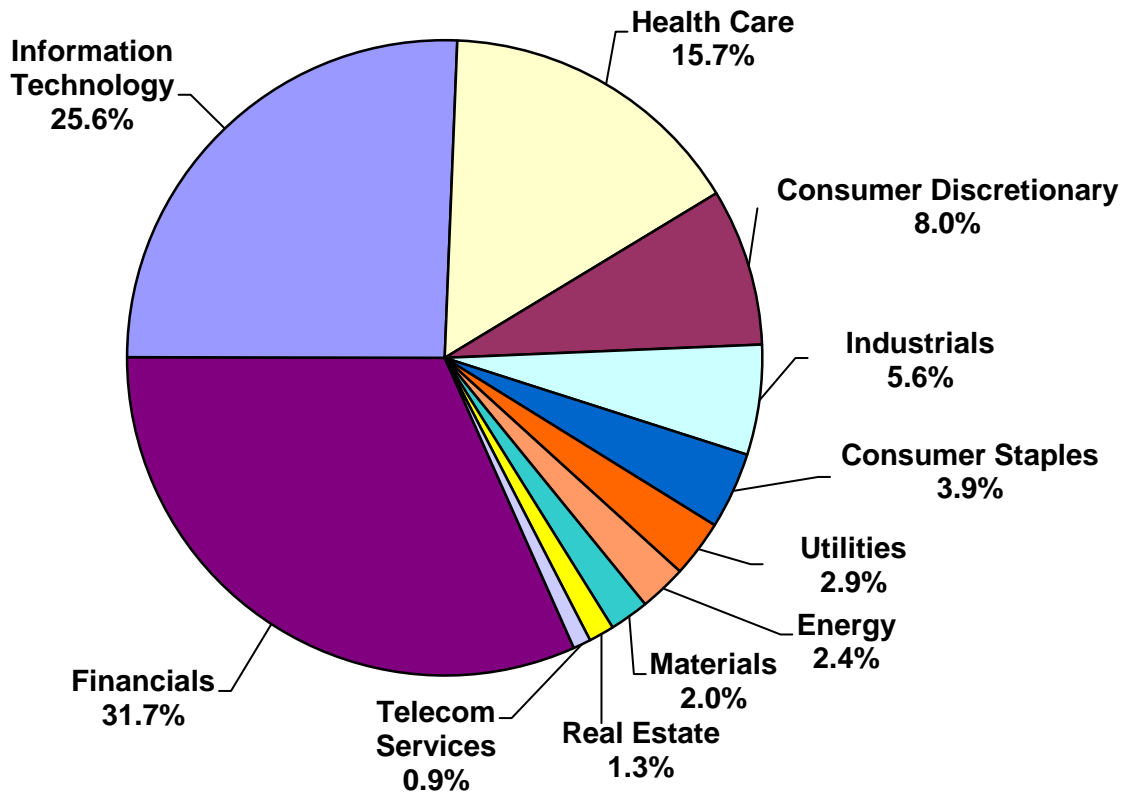
#### 6/30/18

<b><u>Actively Managed Equity Portfolio</u></b>			<b><u>S&amp;P 1500</u></b>		
<b><u>Company Name</u></b>	<b><u>Portfolio Weight</u></b>	<b><u>FY1 P/E</u></b>	<b><u>Company Name</u></b>	<b><u>Market Weight</u></b>	<b><u>FY1 P/E</u></b>
SPDR S&P 500 ETF Trust	20.4%	16.9	Apple, Inc.	3.6%	16.1
Berkshire Hathaway, Inc. B	6.4%	12.6	Microsoft Corporation	3.0%	24.4
Apple, Inc.	4.1%	16.1	Amazon.com, Inc.	2.7%	136.3
Facebook, Inc. Class A	4.1%	25.5	Alphabet, Inc.	2.6%	25.4
AGNC Investment Corp.	3.5%	7.7	Facebook, Inc. Class A	1.8%	25.5
Gilead Sciences, Inc.	3.4%	11.5	Berkshire Hathaway, Inc. B	1.4%	12.6
SPDR Port. LT Treasury ETF	2.9%	36.3	JPMorgan Chase & Co.	1.4%	11.6
American Express	2.4%	13.5	Exxon Mobil Corp.	1.4%	16.5
CVS Health Corporation	2.2%	9.3	Johnson & Johnson	1.3%	14.9
Bank of America Co.	<u>2.0%</u>	<u>11.1</u>	Bank of America Co.	<u>1.0%</u>	<u>11.1</u>
<b>TOTAL</b>	<b><u>51.4%</u></b>	<b><u>14.4</u></b>	<b>TOTAL</b>	<b><u>20.2%</u></b>	<b><u>19.6</u></b>

# SMRS

## Active Equity By Sector

6/30/18



<b>Market Value in Millions</b>				
<b>6/30/18</b>				
	<u>Assets</u>	<u>Percent</u>	<u>Benchmark</u>	<u>Difference</u>
Financials	\$3,132	31.7%	14.1%	17.6%
Information Technology	2,524	25.6%	24.9%	0.7%
Health Care	1,554	15.7%	13.7%	2.0%
Consumer Discretionary	794	8.0%	13.0%	-5.0%
Industrials	552	5.6%	10.2%	-4.6%
Consumer Staples	389	3.9%	6.6%	-2.7%
Utilities	286	2.9%	3.1%	-0.2%
Energy	233	2.4%	6.2%	-3.8%
Materials	197	2.0%	3.0%	-1.0%
Real Estate	126	1.3%	3.4%	-2.1%
Telecom Services	92	0.9%	1.8%	-0.9%
<b>Total</b>	<b><u>\$9,879</u></b>	<b><u>100.0%</u></b>	<b><u>100.0%</u></b>	

Benchmark: S&P 1500

## Manager Performance - Net of Fees

6/30/18

<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>Inception</u>	<u>Inception Date</u>
<b>SMRS S&amp;P 500 Index</b>	<b>\$7,230,839,217</b>	<b>14.4%</b>	<b>12.1%</b>	<b>13.6%</b>	<b>13.5%</b>	<b>--</b>	<b>N/A</b>
S&P 500		14.4%	11.9%	13.4%	13.2%	--	
Style & Risk Adjusted Benchmark		N/M	11.9%	13.4%	13.2%	--	
Lipper Large-Cap Core		12.8%	10.2%	12.0%	11.8%	--	
<i>Excess Return</i>		<i>0.0%</i>	<i>0.2%</i>	<i>0.2%</i>	<i>0.3%</i>	<i>--</i>	
<i>Alpha</i>		<i>N/M</i>	<i>0.2%</i>	<i>0.2%</i>	<i>0.3%</i>	<i>--</i>	
<i>Pct. Rank vs. Lipper Large-Cap Core</i>		<i>36</i>	<i>16</i>	<i>12</i>	<i>9</i>	<i>--</i>	
<b>SMRS Large-Cap Core</b>	<b>2,415,939,460</b>	<b>26.0%</b>	<b>11.7%</b>	<b>14.2%</b>	<b>14.4%</b>	<b>8.9%</b>	<b>8/31/07</b>
S&P 500		14.4%	11.9%	13.4%	13.2%	8.2%	
Style & Risk Adjusted Benchmark		N/M	11.3%	12.9%	13.0%	8.6%	
Lipper Large-Cap Core		12.8%	10.2%	12.0%	11.8%	7.4%	
<i>Excess Return</i>		<i>11.6%</i>	<i>-0.2%</i>	<i>0.8%</i>	<i>1.2%</i>	<i>0.7%</i>	
<i>Alpha</i>		<i>N/M</i>	<i>0.4%</i>	<i>1.3%</i>	<i>1.3%</i>	<i>0.3%</i>	
<i>Pct Rank vs Lipper Large-Cap Core</i>		<i>1</i>	<i>23</i>	<i>6</i>	<i>2</i>	<i>8</i>	
<b>SMRS Large-Cap Growth</b>	<b>1,807,237,913</b>	<b>26.4%</b>	<b>12.5%</b>	<b>15.9%</b>	<b>14.9%</b>	<b>10.1%</b>	<b>5/31/05</b>
S&P 500 Growth Index		20.6%	14.5%	16.0%	14.9%	10.3%	
Style & Risk Adjusted Benchmark		N/M	15.4%	17.0%	15.7%	10.4%	
Lipper Large Growth		22.5%	13.6%	15.7%	13.9%	10.0%	
<i>Excess Return</i>		<i>5.8%</i>	<i>-2.0%</i>	<i>-0.1%</i>	<i>0.0%</i>	<i>-0.1%</i>	
<i>Alpha</i>		<i>N/M</i>	<i>-2.9%</i>	<i>-1.1%</i>	<i>-0.8%</i>	<i>-0.3%</i>	
<i>Pct Rank vs Lipper Large-Cap Growth</i>		<i>21</i>	<i>72</i>	<i>47</i>	<i>27</i>	<i>39</i>	
<b>SMRS All-Cap Garp</b>	<b>1,119,597,469</b>	<b>10.9%</b>	<b>9.0%</b>	<b>12.4%</b>	<b>13.5%</b>	<b>13.5%</b>	<b>4/30/11</b>
S&P 1500 Super Composite		14.5%	11.9%	13.4%	13.2%	12.7%	
Style & Risk Adjusted Benchmark		N/M	11.7%	13.2%	13.1%	12.5%	
Lipper Multi Core		12.2%	9.0%	11.3%	11.1%	10.7%	
<i>Excess Return</i>		<i>-3.6%</i>	<i>-2.9%</i>	<i>-1.0%</i>	<i>0.4%</i>	<i>0.8%</i>	
<i>Alpha</i>		<i>N/M</i>	<i>-2.8%</i>	<i>-0.8%</i>	<i>0.5%</i>	<i>0.9%</i>	
<i>Pct. Rank vs. Lipper Multi Core</i>		<i>68</i>	<i>60</i>	<i>34</i>	<i>6</i>	<i>2</i>	
<b>LA Capital Deep Value</b>	<b>745,359,048</b>	<b>12.5%</b>	<b>9.3%</b>	<b>--</b>	<b>--</b>	<b>8.5%</b>	<b>4/1/15</b>
S&P 1500 Value		8.2%	9.0%	--	--	8.3%	
Style & Risk Adjusted Benchmark		N/M	8.7%	--	--	8.1%	
Lipper Multi-Cap Value		8.9%	7.8%	--	--	7.0%	
<i>Excess Return</i>		<i>4.4%</i>	<i>0.2%</i>	<i>--</i>	<i>--</i>	<i>0.1%</i>	
<i>Alpha</i>		<i>N/M</i>	<i>0.6%</i>	<i>--</i>	<i>--</i>	<i>0.4%</i>	
<i>Pct. Rank vs. Lipper Multi-Cap Value</i>		<i>13</i>	<i>21</i>	<i>--</i>	<i>--</i>	<i>23</i>	
<b>SMRS Mid-Cap Index</b>	<b>721,615,455</b>	<b>14.0%</b>	<b>11.7%</b>	<b>13.3%</b>	<b>12.9%</b>	<b>--</b>	<b>N/A</b>
S&P 400		13.5%	10.9%	12.7%	12.1%	--	
Style & Risk Adjusted Benchmark		N/M	10.8%	12.6%	12.0%	--	
Lipper Large-Cap Core		11.5%	8.4%	10.9%	10.4%	--	
<i>Excess Return</i>		<i>0.5%</i>	<i>0.8%</i>	<i>0.7%</i>	<i>0.8%</i>	<i>--</i>	
<i>Alpha</i>		<i>N/M</i>	<i>0.9%</i>	<i>0.7%</i>	<i>0.9%</i>	<i>--</i>	
<i>Pct. Rank vs. Lipper Mid-Cap Core</i>		<i>23</i>	<i>6</i>	<i>8</i>	<i>3</i>	<i>--</i>	
<b>Fisher All-Cap</b>	<b>689,330,377</b>	<b>19.6%</b>	<b>13.7%</b>	<b>14.7%</b>	<b>11.9%</b>	<b>11.1%</b>	<b>10/31/04</b>
S&P 1500/S&P 600 Value Blend		14.5%	11.9%	13.4%	12.8%	9.6%	
Style & Risk Adjusted Benchmark		N/M	13.7%	14.8%	16.4%	11.2%	
Lipper Multi Core		12.2%	9.0%	11.3%	11.1%	8.1%	
<i>Excess Return</i>		<i>5.1%</i>	<i>1.8%</i>	<i>1.4%</i>	<i>-0.9%</i>	<i>1.5%</i>	
<i>Alpha</i>		<i>N/M</i>	<i>0.0%</i>	<i>-0.1%</i>	<i>-4.5%</i>	<i>-0.1%</i>	
<i>Pct. Rank vs. Lipper Multi Core</i>		<i>3</i>	<i>1</i>	<i>1</i>	<i>41</i>	<i>1</i>	

<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>Inception</u>	<u>Inception Date</u>
<b>Seizert Capital Partners</b>	<b>566,521,405</b>	<b>10.5%</b>	<b>9.9%</b>	<b>10.6%</b>	<b>11.7%</b>	<b>14.1%</b>	<b>11/30/09</b>
S&P 1500/S&P 400 Value Blend		14.5%	11.9%	13.4%	13.2%	16.0%	
Style & Risk Adjusted Benchmark		N/M	9.1%	10.5%	12.5%	15.1%	
Lipper Multi Core		12.2%	9.0%	11.3%	11.1%	12.7%	
<i>Excess Return</i>		-4.0%	-2.0%	-2.8%	-1.5%	-1.9%	
<i>Alpha</i>		N/M	0.8%	0.2%	-0.8%	-1.0%	
<i>Pct. Rank vs. Lipper Multi Core</i>		72	46	67	47	22	
<b>Mellon US Equity Enhanced</b>	<b>525,138,707</b>	<b>25.4%</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>27.4%</b>	<b>3/1/17</b>
S&P 500		14.4%	--	--	--	13.2%	
Style & Risk Adjusted Benchmark		N/M	--	--	--	22.5%	
Lipper Multi Core		12.8%	--	--	--	12.0%	
<i>Excess Return</i>		11.0%	--	--	--	14.2%	
<i>Alpha</i>		N/M	--	--	--	4.9%	
<i>Pct. Rank vs. Lipper Large-Cap Core</i>		1	--	--	--	1	
<b>LA Capital All-Cap Growth</b>	<b>488,615,184</b>	<b>15.8%</b>	<b>13.5%</b>	<b>15.9%</b>	<b>14.3%</b>	<b>12.0%</b>	<b>5/31/05</b>
S&P 1500 Growth		20.3%	14.2%	15.8%	14.6%	10.4%	
Style & Risk Adjusted Benchmark		N/M	10.1%	13.5%	13.0%	10.5%	
Lipper Multi-Cap Growth		20.4%	11.3%	13.8%	12.6%	9.9%	
<i>Excess Return</i>		-4.5%	-0.8%	0.1%	-0.3%	1.6%	
<i>Alpha</i>		N/M	3.4%	2.3%	1.3%	1.5%	
<i>Pct. Rank vs. Lipper Multi-Cap Growth</i>		76	28	24	21	13	
<b>Ark Investments</b>	<b>477,152,289</b>	<b>57.5%</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>46.7%</b>	<b>3/1/16</b>
S&P 1500 Growth		20.3%	--	--	--	20.8%	
Style & Risk Adjusted Benchmark		N/M	--	--	--	31.2%	
Lipper All-Cap Growth		20.4%	--	--	--	20.6%	
<i>Excess Return</i>		37.2%	--	--	--	25.9%	
<i>Alpha</i>		N/M	--	--	--	15.5%	
<i>Pct. Rank vs. Lipper All-Cap Growth</i>		1	--	--	--	1	
<b>Clarkston Capital Large-Cap</b>	<b>277,763,254</b>	<b>7.3%</b>	<b>9.3%</b>	<b>--</b>	<b>--</b>	<b>8.9%</b>	<b>4/1/15</b>
S&P 500		14.4%	11.9%	--	--	11.1%	
Style & Risk Adjusted Benchmark		N/M	6.4%	--	--	5.9%	
Lipper Large-Cap Core		12.8%	10.2%	--	--	9.5%	
<i>Excess Return</i>		-7.0%	-2.6%	--	--	-2.2%	
<i>Alpha</i>		N/M	2.9%	--	--	3.0%	
<i>Pct. Rank vs. Lipper Large-Cap Core</i>		92	74	--	--	73	
<b>Clarkston Capital Small-Cap</b>	<b>234,335,107</b>	<b>11.5%</b>	<b>10.8%</b>	<b>--</b>	<b>--</b>	<b>12.2%</b>	<b>1/1/14</b>
S&P 600		15.6%	11.8%	--	--	10.7%	
Style & Risk Adjusted Benchmark		N/M	9.0%	--	--	8.3%	
Lipper Small-Cap Core		13.8%	9.0%	--	--	8.7%	
<i>Excess Return</i>		-4.1%	-1.0%	--	--	1.5%	
<i>Alpha</i>		N/M	1.8%	--	--	3.9%	
<i>Pct. Rank vs. Lipper Small-Cap Core</i>		65	24	--	--	8	
<b>Bivium Capital Partners</b>	<b>159,665,014</b>	<b>8.1%</b>	<b>6.2%</b>	<b>9.9%</b>	<b>9.9%</b>	<b>6.1%</b>	<b>11/30/07</b>
S&P 1500 Value		8.2%	9.0%	10.7%	11.4%	5.9%	
Style & Risk Adjusted Benchmark		N/M	9.3%	10.9%	14.4%	8.1%	
Lipper Multi Cap Value		8.9%	7.8%	9.7%	10.0%	5.8%	
<i>Excess Return</i>		-0.1%	-2.9%	-0.8%	-1.6%	0.3%	
<i>Alpha</i>		N/M	-3.2%	-1.0%	-4.5%	-2.0%	
<i>Pct. Rank vs. Lipper Multi Cap Value</i>		53	81	57	62	34	
<b>Attucks Asset Management</b>	<b>155,341,227</b>	<b>12.4%</b>	<b>8.9%</b>	<b>10.8%</b>	<b>10.7%</b>	<b>6.7%</b>	<b>11/30/07</b>
S&P 1500 Super Composite		14.5%	11.9%	13.4%	13.2%	7.9%	
Style & Risk Adjusted Benchmark		N/M	12.0%	13.6%	13.8%	7.9%	
Lipper Multi Core		12.2%	9.0%	11.3%	11.1%	6.6%	
<i>Excess Return</i>		-2.1%	-3.0%	-2.6%	-2.5%	-1.2%	
<i>Alpha</i>		N/M	-3.1%	-2.8%	-3.1%	-1.2%	
<i>Pct. Rank vs. Lipper Multi Core</i>		53	61	66	65	51	



<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>Inception</u>	<u>Inception Date</u>
<b>Ancora</b>	<b>107,859,567</b>	--	--	--	--	7.9%	<b>10/1/17</b>
S&P 1000 SMID-Cap		--	--	--	--	11.1%	
Style & Risk Adjusted Benchmark		--	--	--	--	7.3%	
Lipper Mid-Cap Equity		--	--	--	--	9.6%	
<i>Excess Return</i>		--	--	--	--	-3.2%	
<i>Alpha</i>		--	--	--	--	N/M	
<i>Pct. Rank vs. Lipper Mid-Cap</i>		--	--	--	--	63	
<b>Large-Cap Consistent Growth</b>	<b>34,204,719</b>	<b>28.0%</b>	<b>13.4%</b>	--	--	12.5%	<b>3/1/15</b>
S&P 500		14.4%	11.9%	--	--	10.2%	
Style & Risk Adjusted Benchmark		N/M	11.7%	--	--	9.8%	
Lipper Large-Cap Core		12.8%	10.2%	--	--	8.7%	
<i>Excess Return</i>		13.7%	1.5%	--	--	2.3%	
<i>Alpha</i>		N/M	1.7%	--	--	2.7%	
<i>Pct. Rank vs. Lipper Large-Cap Core</i>		1	5	--	--	2	
<b>Munder Concentrated SMID Cap</b>	<b>32,405,129</b>	<b>19.6%</b>	<b>4.6%</b>	<b>10.6%</b>	<b>10.4%</b>	<b>15.9%</b>	<b>4/30/09</b>
S&P 400 Mid-Cap Growth		15.7%	11.3%	13.1%	11.9%	18.3%	
Style & Risk Adjusted Benchmark		N/M	14.7%	13.3%	12.5%	16.8%	
Lipper Mid-Cap Growth		19.0%	10.0%	12.7%	11.3%	16.7%	
<i>Excess Return</i>		3.9%	-6.7%	-2.6%	-1.6%	-2.4%	
<i>Alpha</i>		N/M	-10.0%	-2.7%	-2.1%	-1.0%	
<i>Pct. Rank vs. Lipper Mid-Cap Core</i>		39	97	86	70	73	
<b>NorthPointe All-Cap Core</b>	<b>25,936,952</b>	<b>8.6%</b>	<b>6.2%</b>	<b>9.4%</b>	<b>8.3%</b>	<b>7.2%</b>	<b>10/31/04</b>
NorthPointe Blended Benchmark		8.2%	9.0%	10.7%	11.4%	8.0%	
Style & Risk Adjusted Benchmark		N/M	8.6%	11.3%	12.9%	11.0%	
Lipper Multi Core		8.9%	7.8%	9.7%	10.0%	7.6%	
<i>Excess Return</i>		0.4%	-2.8%	-1.3%	-3.1%	-0.8%	
<i>Alpha</i>		N/M	-2.4%	-1.9%	-4.6%	-3.9%	
<i>Pct. Rank vs. Lipper Multi Core</i>		47	81	71	84	63	

State of Michigan Retirement Systems

# FIXED INCOME REVIEW

Investment Advisory Committee Meeting

September 13, 2018



Daniel J. Quigley  
Senior Investment Manager  
Fixed Income Division

# EXECUTIVE SUMMARY

## Performance

MPSERS Plan (6/30/18)	1-Year	3-Years	5-Years	7-Years	10-Years
Annualized Returns	1.9%	3.7%	3.8%	3.8%	5.1%
Bloomberg Barclays US Agg	-0.4%	1.7%	2.3%	2.6%	3.7%
Peer Median Returns	0.4%	2.4%	2.7%	3.2%	4.3%
Percentile Rank vs. Peers*	11	19	17	24	12

\*State Street Universe greater than \$1 billion

- The fixed income portfolio outperformed its benchmark and peer group across all time periods. This year-over-year (YOY) outperformance was due to several key allocation decisions. Overweight allocations to securitized assets, emerging market debt, and corporate credit boosted performance. The portfolio also benefited from an underweight to Treasuries and Agency Residential Mortgage Backed Securities (RMBS).
- The duration positioning of the portfolio helped performance due to an overweight to floating-rate securities in a rising rate environment. An underweight to long duration securities also assisted performance as bonds with a maturity of 20 years or greater underperformed due to interest rate increases.
- Strategies such as High Yield Credit and Structured Fixed Income experienced strong returns in 2017. Structured Fixed Income returned 4.9% on a YOY basis while High Yield Credit returned 1.7%.

## Strategy Update

The goal of the Long-Term Fixed Income Division portfolio is to meet or exceed the returns of the Bloomberg Barclays U.S. Aggregate Bond Index while satisfying the overall characteristics of a core fixed income portfolio. These characteristics are: income, liquidity, principal preservation, and diversification from equity market risk. The portfolio has a higher yield than the benchmark without having meaningfully more risk than the U.S. Aggregate Index. The yield-to-maturity of the portfolio is currently 4.0% versus a benchmark yield of 3.3%. In addition to this, the portfolio has an equity beta of 0.0, in line with the U.S. Aggregate equity beta of -0.1.

- The Core-plus strategy implemented to achieve this goal includes:
  - Core: As of June 30, 2018, the allocation to U.S. Treasuries, investment-grade corporate bonds, government-guaranteed U.S. Agency Debentures, RMBS, and Commercial Mortgage Backed Securities (CMBS) was 66.8%. This includes a 21.5% allocation to U.S. Treasuries, TIPS, and cash.
  - Plus: The portfolio maintains a strategic, out-of-benchmark allocation to high-yield corporate debt, securitized credit, and global fixed income strategies as market opportunities allow. This allocation increases the portfolio yield and total return potential but will result in lower liquidity and higher volatility. The allocation to the Plus portfolio was 33.2% as of June 30, 2018.

## Tactical Update

- The allocation to high-yield strategies was 5.4% at the end of the quarter, down from a peak of 14.0% in 2016. While fundamentals remain strong in this sector, the division has reduced this position due to the unattractive valuation of HY credit in the current markets.

- The allocation to securitized credit, primarily in CMBS, non-agency RMBS, and CLO securities, has increased to 21.2% of the portfolio. The combination of high income (often floating rate) and low duration in these investments is desirable at this point in the interest rate cycle.
- The portfolio has an increased allocation to floating rate securities, including AAA CLO investments and investment-grade floating rate corporate bonds. This allocation accounts for approximately 15% of portfolio assets and should position the portfolio to outperform in a rising interest rate environment as the Federal Reserve continues to tighten monetary policy.
- The allocation to U.S. TIPS decreased during the quarter to 1.9% of the fixed income portfolio. The TIPS allocation has outperformed nominal U.S. Treasuries on a YOY basis. This allocation should continue to outperform nominal U.S. Treasuries in a rising rate environment if increases in interest rates are driven partially by increased inflation expectations.

### **Market Environment and Outlook**

- The yield curve for U.S. Treasury securities flattened for the year with short-term interest rates increasing by more than long-term rates. The yield on the 30-year Treasury increased by 15bp on a YOY basis while two-year Treasury yields increased from 1.4% to 2.5%. Short-term rate increases were driven by tightening from the Federal Reserve. The FOMC has increased the Fed Funds rate by 175 bps since December of 2015, including a 25 bp rate hike during their June meeting to take the Fed Funds rate to 2.0%. Markets expect an additional one to two rate increases during the remainder of the calendar year.
- Inflation expectations increased during the quarter with ten-year breakeven inflation expectations ending the quarter at 2.1%. This is in line with the 2% median inflation target from the Federal Reserve. The portfolio has reduced its allocation to U.S. TIPS but still believes that owning these securities offers value should inflation indices continue recent increases.
- Credit markets were weaker for the quarter with high-yield spreads ending the quarter at 363 bps, 10 bp wider for the quarter but almost 500 bps tighter over the previous two years. Investment-grade spreads also widened during the quarter, increasing by 14 bp to 123 bps. The portfolio has reduced its allocation to corporate credit by roughly 2.8% YTD as spread levels have moved below their historical averages.
- Global markets were weak with the Emerging Markets Index experiencing a return of -3.8% on a YTD basis. The spread on the EMD Index ended the quarter at 300 bps, roughly in line with its five-year average.
- Securitized assets such as CMBS, ABS, and CLO bonds have also experienced strong tightening recently but still look relatively attractive when compared with long-term averages. Spreads on BBB CMBS securities ended the quarter at 293 bps, down 83 bps YOY.
- The higher relative yield of short-term U.S. interest rates, coupled with recent strength of the U.S. dollar, has created attractive opportunities to invest in dollar-hedged positions for short-term developed market sovereign debt. The Fixed Income Division continues to look at these opportunities and may trade in hedged positions on a relative value basis should this opportunity persist.

### **Conclusion**

The portfolio remains defensively positioned for rising interest rates. The duration remains short of the benchmark and the portfolio maintains an underweight to long-term debt. This position is offset through a larger allocation to structured and corporate debt securities which increase the income of the portfolio. The portfolio will continue to look for attractive risk-adjusted opportunities within the fixed income opportunity set.

**SMRS**  
**Long-Term Fixed Income by Strategy**  
**6/30/18**

	Amount	Total	% of Total
<b>Core</b> (\$ in Millions)			
LTFID Internal	\$4,842		
PIMCO Mortgage Fund	248		
Dodge & Cox	239		
PGIM Investment Grade Credit	226		
<b>Total Core</b>		<b>\$5,555</b>	<b>63.7%</b>
<b>Tactical</b>			
Pyramis	\$297		
Loomis Core Plus	225		
<b>Total Tactical</b>		<b>\$521</b>	<b>6.0%</b>
<b>Securitized Debt</b>			
Met West Securitized Ops	\$610		
Principal CMBS	532		
Napier Park CLO Debt	260		
TICP CLO Debt	232		
Napier Park ABS Income	162		
Napier Park Strategic Loan	58		
<b>Total Securitized Debt</b>		<b>\$1,852</b>	<b>21.2%</b>
<b>High Yield</b>			
Columbia Management	\$248		
PGIM High Yield	214		
Crescent Direct Lending	9		
<b>Total High Yield</b>		<b>\$470</b>	<b>5.4%</b>
<b>Global</b>			
T. Rowe Global Multi-Sector	\$226		
PGIM Global Liquid Relative Value	101		
<b>Total Global</b>		<b>\$327</b>	<b>3.7%</b>

**TOTAL**

**\$8,726**

**100.0%**

NOTE: Totals may not be exact due to rounding.

# SMRS

## Fixed Income Holdings Portfolio Characteristics

Benchmark: Barclays Aggregate

6/30/18

<u>Characteristic</u>	<u>Portfolio</u>	<u>Benchmark</u>
Average Maturity (Yrs)	7.8	8.3
Duration (Yrs)	4.9	6.0
Spread Duration (Yrs)	5.8	6.1
Coupon (%)	3.4	3.1
Yield to Maturity (%)	4.0	3.3
Credit Rating	A	AA
VaR (%)	4.1	4.8
Tracking Error	145 bps	n/a
Beta (vs S&P 500)	-0.02	-0.06

### Commentary

#### Objectives

Income:

Liquidity:

Principal Preservation:

Diversification:

#### Highlights

The coupon of the portfolio is approximately 30 bps higher than the benchmark. Roughly 15% of the portfolio is invested in floating-rate securities, allowing coupon income to increase relative to the benchmark if the yield curve continues to flatten.

21.5% of the portfolio is invested in cash, U.S. Treasuries, and TIPS. These investments can be liquidated via same-day trading.

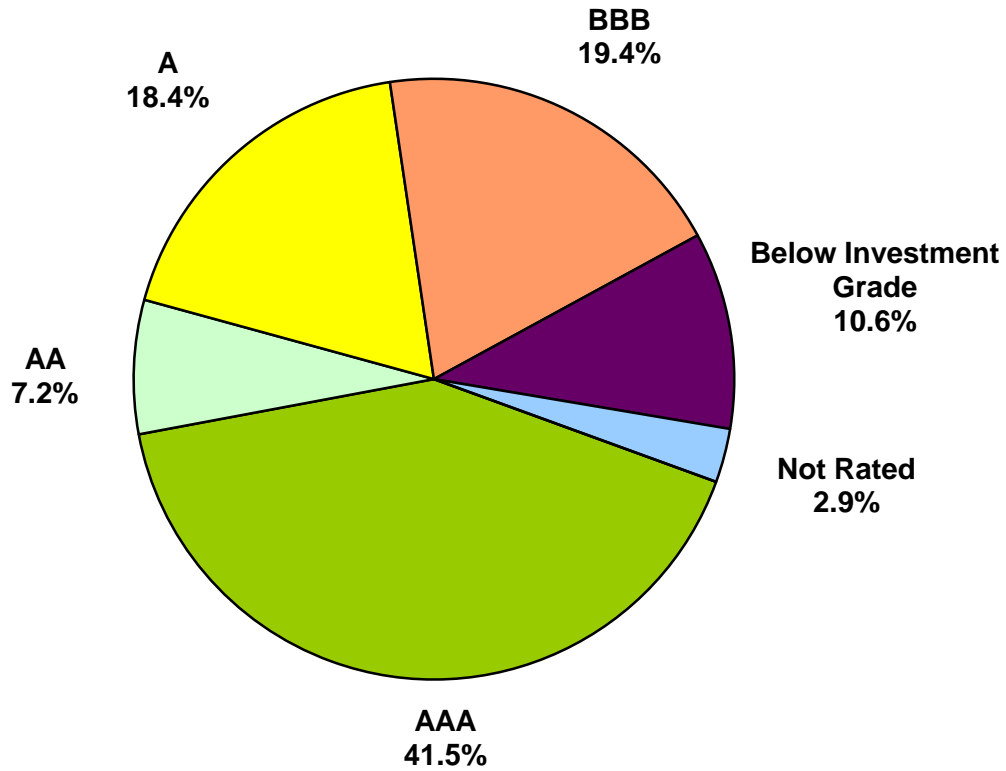
The portfolio has a large allocation to U.S. Treasuries and carries an investment-grade credit rating.

The equity beta of the portfolio is roughly 0.0 meaning that the portfolio returns are uncorrelated with equity market movements, and in line with the benchmark bond index.

# SMRS

## Fixed Income By Rating

### Total U.S. Long-Term Fixed Income 6/30/18



<b>Market Value in Millions</b>				
<b>6/30/18</b>				
	<u>Assets</u>	<u>Percent</u>	<u>Benchmark</u>	<u>Difference</u>
AAA	\$3,624	41.5%	71.9%	-30.4%
AA	632	7.2%	4.5%	2.7%
A	1,605	18.4%	11.1%	7.3%
BBB	1,694	19.4%	11.7%	7.7%
Not Rated	250	2.9%	0.8%	2.1%
* Below Investment Grade	921	10.6%	0.0%	10.6%
<b>Total Investments</b>	<b><u>\$8,726</u></b>	<b><u>100.0%</u></b>	<b><u>100.0%</u></b>	

\* Comprised of approximately 7.4% High Yield Credit and 3.2% High Yield RMBS/ABS

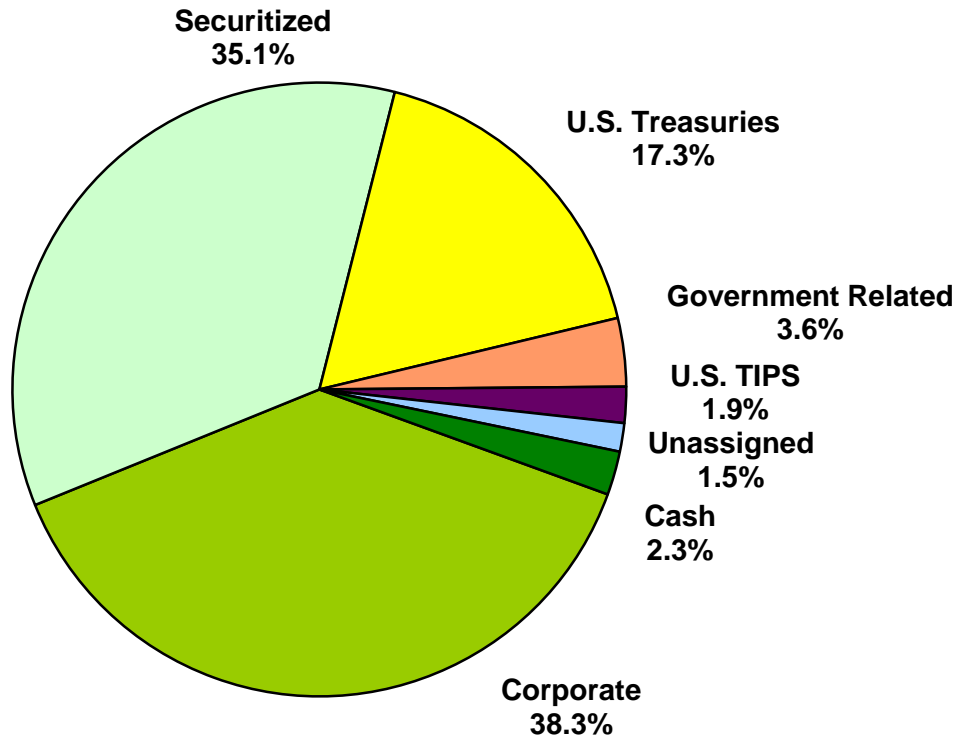
Benchmark: Barclays US Aggregate

# SMRS

## Fixed Income By Asset Type

### Total U.S. Long-Term Fixed Income

#### 6/30/18



<b>Market Value in Millions</b>				
<b>6/30/18</b>				
	<u>Assets</u>	<u>Percent</u>	<u>Benchmark</u>	<u>Difference</u>
Corporate	\$3,339	38.3%	25.0%	13.3%
Securitized	3,061	35.1%	30.6%	4.5%
U.S. Treasuries	1,515	17.3%	37.8%	-20.5%
Government Related	314	3.6%	6.6%	-3.0%
U.S. TIPS	165	1.9%	0.0%	1.9%
Unassigned	128	1.5%	0.0%	1.5%
Cash	204	2.3%	0.0%	2.3%
<b>Total Investments</b>	<b><u>\$8,726</u></b>	<b><u>100.0%</u></b>	<b><u>100.0%</u></b>	

Benchmark: Barclays US Aggregate

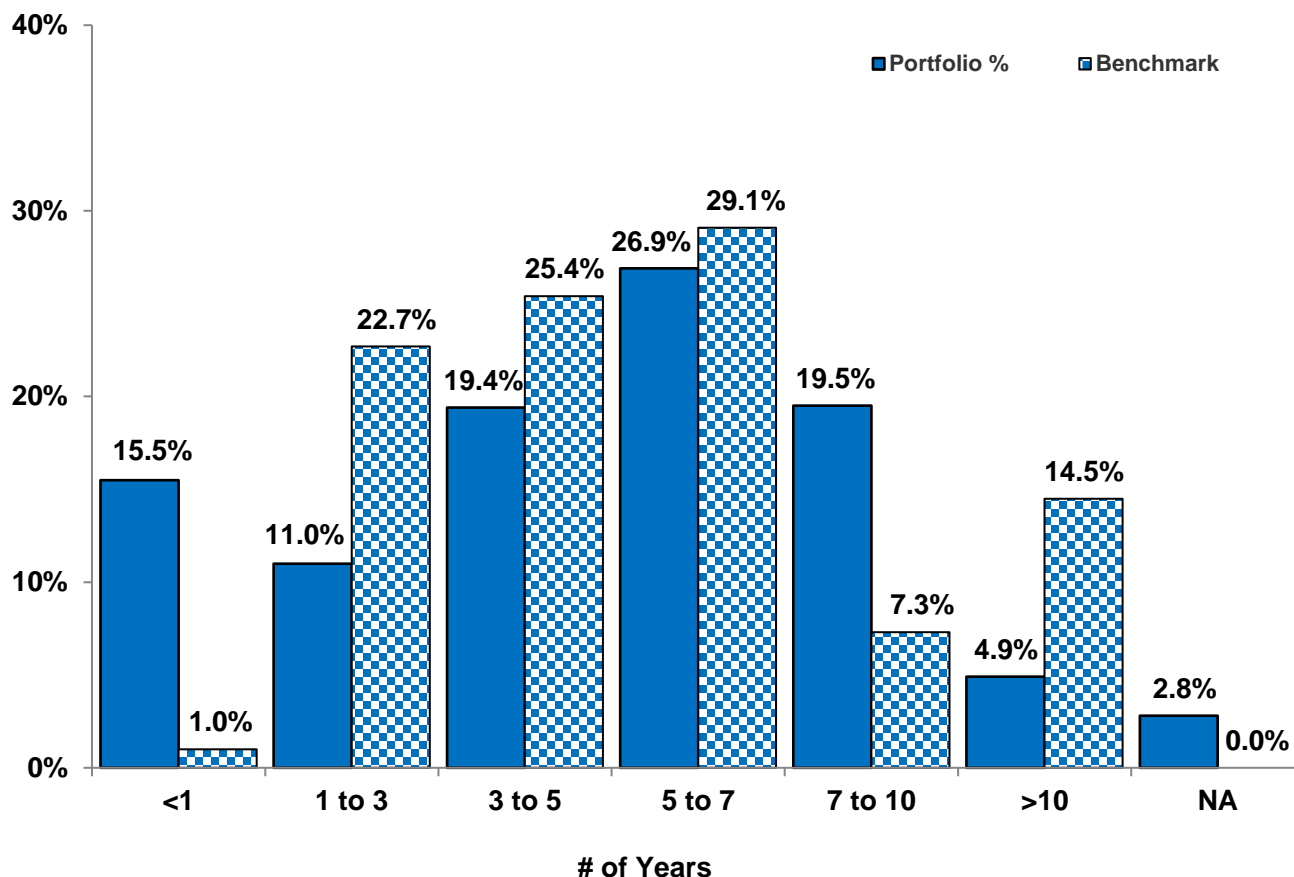


# SMRS

## Duration Distribution

### Fixed Income Composite Versus Benchmark

6/30/18



Source: Factset

Market Value in Millions					
Duration	Assets	Portfolio Weight	Benchmark Weight	Portfolio Duration*	Benchmark Duration*
<1	\$1,360	15.5%	1.0%	0.1	1.0
1 to 3	960	11.0%	22.7%	2.2	2.0
3 to 5	1,695	19.4%	25.4%	4.1	4.1
5 to 7	2,344	26.9%	29.1%	5.9	5.7
7 to 10	1,698	19.5%	7.3%	7.8	7.9
>10	428	4.9%	14.5%	17.3	15.5
NA	241	2.8%	0.0%	0.0	0.0
<b>Total</b>	<b>\$8,726</b>	<b>100.0%</b>	<b>100.0%</b>	<b>4.9</b>	<b>6.0</b>

\* Effective Duration

Benchmark: Barclays US Aggregate

## SMRS Internal/External Manager Performance – Net of Fees

6/30/18

### Total Fixed Income Performance, Net of Fees (MPSERS)

	<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>\$8,725,947,142</b>	<b>1.70%</b>	<b>3.60%</b>	<b>3.60%</b>	<b>3.70%</b>	<b>4.90%</b>
<i>Bloomberg/Barclays Aggregate Bond Index</i>	<i>N/A</i>	<i>-0.40%</i>	<i>1.70%</i>	<i>2.30%</i>	<i>2.60%</i>	<i>3.70%</i>
<b>Internal Core Fixed Income</b>	<b>\$4,841,518,009</b>	<b>1.00%</b>	<b>3.00%</b>	<b>3.20%</b>	<b>3.20%</b>	<b>4.60%</b>
<b>Fixed Income Core</b>	<b>\$487,411,147</b>	<b>0.50%</b>	<b>2.70%</b>	<b>2.90%</b>	<b>3.30%</b>	<b>4.60%</b>
Dodge & Cox Core	239,463,439	0.60%	2.70%	3.30%	3.50%	4.90%
PIMCO Mortgage Fund	247,947,708	--	--	--	--	--
<i>Bloomberg/Barclays Aggregate Bond Index</i>	<i>N/A</i>	<i>-0.40%</i>	<i>1.70%</i>	<i>2.30%</i>	<i>2.60%</i>	<i>3.70%</i>
<b>Investment Grade Credit</b>	<b>\$226,314,092</b>	<b>-0.60%</b>	<b>3.30%</b>	<b>3.80%</b>	<b>4.30%</b>	<b>5.50%</b>
PGIM Investment Grade	226,314,092	-0.60%	3.30%	3.90%	4.50%	6.10%
<i>Bloomberg/Barclays Credit Index</i>	<i>N/A</i>	<i>-0.70%</i>	<i>2.90%</i>	<i>3.40%</i>	<i>3.90%</i>	<i>5.20%</i>
<b>Tactical Fixed Income</b>	<b>\$521,327,590</b>	<b>1.40%</b>	<b>3.20%</b>	<b>4.40%</b>	<b>5.50%</b>	<b>6.20%</b>
Loomis Sayles CorePlus	224,514,862	1.20%	2.80%	--	--	--
Fidelity Tactical Bond Fund	296,812,728	1.70%	3.80%	--	--	--
<i>Bloomberg/Barclays Aggregate Bond Index</i>	<i>N/A</i>	<i>-0.40%</i>	<i>1.70%</i>	<i>2.30%</i>	<i>2.60%</i>	<i>3.70%</i>
<b>High Yield Fixed Income</b>	<b>\$461,852,130</b>	<b>1.30%</b>	<b>4.90%</b>	<b>--</b>	<b>--</b>	<b>--</b>
Columbia Management High Yield	247,882,139	0.40%	4.60%	--	--	--
PGIM High Yield	213,969,991	2.30%	5.40%	--	--	--
<i>Bloomberg/Barclays US HY BA/B 2% Cap</i>	<i>N/A</i>	<i>1.80%</i>	<i>4.80%</i>	<i>--</i>	<i>--</i>	<i>--</i>
<b>Structured Fixed Income</b>	<b>\$1,852,327,522</b>	<b>4.60%</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
Principal CMBS	531,889,750	3.50%	3.70%	5.40%	6.20%	6.70%
MetWest Securitized Opportunities	609,998,398	5.30%	4.50%	--	--	--
Napier Park ABS Income	161,760,729	9.20%	9.70%	--	--	--
Napier Park Strategic Loan LP	57,637,298	6.80%	--	--	--	--
Napier Park CLO Debt	259,511,813	3.80%	--	--	--	--
TICP CLO Debt	231,529,534	2.80%	--	--	--	--
Crescent Direct Lending	8,587,336					
<i>Bloomberg/Barclays Aggregate Bond Index</i>	<i>N/A</i>	<i>-0.40%</i>	<i>1.70%</i>	<i>2.30%</i>	<i>2.60%</i>	<i>3.70%</i>
<i>Blended CMBS Benchmark</i>	<i>N/A</i>	<i>0.00%</i>	<i>2.70%</i>	<i>4.30%</i>	<i>5.00%</i>	<i>2.70%</i>
<b>Global Fixed Income</b>	<b>\$326,609,308</b>	<b>1.50%</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
T. Rowe Global Multi-Sector	225,518,618	0.90%	--	--	--	--
PGIM GLRV	101,090,690	--	--	--	--	--
<i>Custom GMS Benchmark</i>	<i>N/A</i>	<i>1.10%</i>				

State of Michigan Retirement Systems

# INTERNATIONAL EQUITY REVIEW

Investment Advisory Committee Meeting

September 13, 2018



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

# EXECUTIVE SUMMARY

## Performance

<b>MPSERS Plan (06/30/18)</b>	<b>1-Year</b>	<b>3-Years</b>	<b>5-Years</b>	<b>7-Years</b>	<b>10-Years</b>
Annualized Returns	8.0%	6.0%	7.4%	5.2%	3.7%
MSCI ACWI ex USA Returns	7.3%	5.1%	6.1%	4.0%	2.8%
Peer Median Returns	8.0%	5.9%	7.0%	5.3%	3.6%
Percentile Rank vs. Peers*	53	47	32	56	39

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

- The International Equity Division (IED) portfolio outperformed the benchmark by 0.7% over the last twelve months. The outperformance was a result of exposures to the quality factor, information technology sector, and certain far east markets; China, Taiwan, Thailand, and Malaysia.

## 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 risk management decisions.

## Strategy

- The International Equity Division uses three distinct portfolio strategies to add value.
  - Index investments, 28.5% of assets, to gain broad international stock market exposure with minimal tracking risk.
  - Stock plus investments, 34.6% of assets, to implement a portable alpha strategy onto high-level strategic tilts.
  - Active investments, 36.9% of assets, to gain specific international stock market exposures.
- Current portfolio drivers of risk and return.
  - Tracking error of the portfolio is 0.8% which is below the division's risk budget of 3.0%. Tracking error is expected to increase over in the coming months partly due to a normalization of volatility in markets but also due to changes to the strategic position of the portfolio.
  - Primary contributors to IED's tracking error are emerging markets, quality factor, momentum factor, information technology sector, and energy sector.
  - The division remains focused on identifying high information ratio (IR) investments to more efficiently use its risk budget. Future portfolio returns will be driven by the performance of emerging markets, with an expected IR of 0.4, and the dividend tilt factor, with an expected IR of 1.0.

- Quarterly changes to International Equity Division allocation.
  - Rebalanced \$680.0 million of maturing swaps to the MSCI Dividend Tilt factor index. This increases the portfolio's exposure to both quality and yield. The investment return of this index is estimated to be 10.6% annualized, approximately 150 basis points (bps) above the benchmark MSCI ACWI ex USA Index, with a tracking error of 1.6%.

### **Market Environment and Outlook**

- Global markets remain in a correction phase that began at the end of January 2018. Although geopolitical events and trade discussions continue to weigh on markets, forward-looking growth estimates have prevented further declines in stock prices.
- International stock markets' top line continues to grow, albeit at a slower pace than the first quarter and less than domestic markets. Sales grew 5.7% year-over-year through early August 2018 for the MSCI ACWI ex USA. Energy, materials, and real estate were the leading sectors.
- MSCI ACWI ex USA trailing twelve-month normalized price-to-earnings ratio was 18.1, slightly lower than the twenty-year average of 22.3.
- Normalized annual compound rate of return for the MSCI ACWI ex USA index was estimated to be approximately 9.1%. This rate is based on the current price and actual fundamentals over multiple periods to remove fundamental variability, better estimating the earnings power of the index.
- A ten-year blended international government yield of 1.9% implies an international equity risk premium of 7.2%. The equity risk premium increased over the last quarter by approximately 20 bps solely due to improved expected returns on stocks while global government bond yields remained range bound.
- Emerging markets were up 37.3% in 2017. Through early August, the MSCI Emerging Markets Index was down -6.0% versus the MSCI ACWI ex USA at -2.9%. Emerging market valuations remain attractive with wider value spreads relative to developed markets. Forward looking annualized compound rate for emerging markets was estimated to be approximately 11.2% versus developed markets at 8.5%.
- Small-cap companies remain slightly overvalued; however, large and mid-cap companies' value spreads look attractive. Mid-cap is trading just above the +1 standard deviation relative to its twenty-year history. Forward returns for small caps are estimated at 8.3%.

### **Conclusion**

International equity markets continue to offer an attractive equity risk premium relative to international ten-year government bonds. Emerging markets and the dividend yield factor are particularly attractive due to wider valuation spreads and higher estimated annualized returns relative to active risk.

**SMRS**  
**International Equity Strategies**  
**6/30/18**

Markets	Amount	Total	% of Total
<b>Indexed</b> (\$ in Millions)			
SSGA	\$2,235		
BlackRock	1,322		
<b>Total Indexed</b>		<b>\$3,557</b>	<b>28.5%</b>
<b>Stock Plus</b>			
Internal Stock Plus	\$2,550		
PIMCO	1,772		
<b>Total Stock Plus</b>		<b>\$4,322</b>	<b>34.6%</b>
<b>Active</b>			
Los Angeles Capital Management	\$1,376		
Wellington	1,002		
Marathon-London	739		
SSGA	714		
Effissimo Capital Management	301		
Lazard	245		
Martin Currie	235		
<b>Total Active</b>		<b>\$4,612</b>	<b>36.9%</b>

**TOTAL**

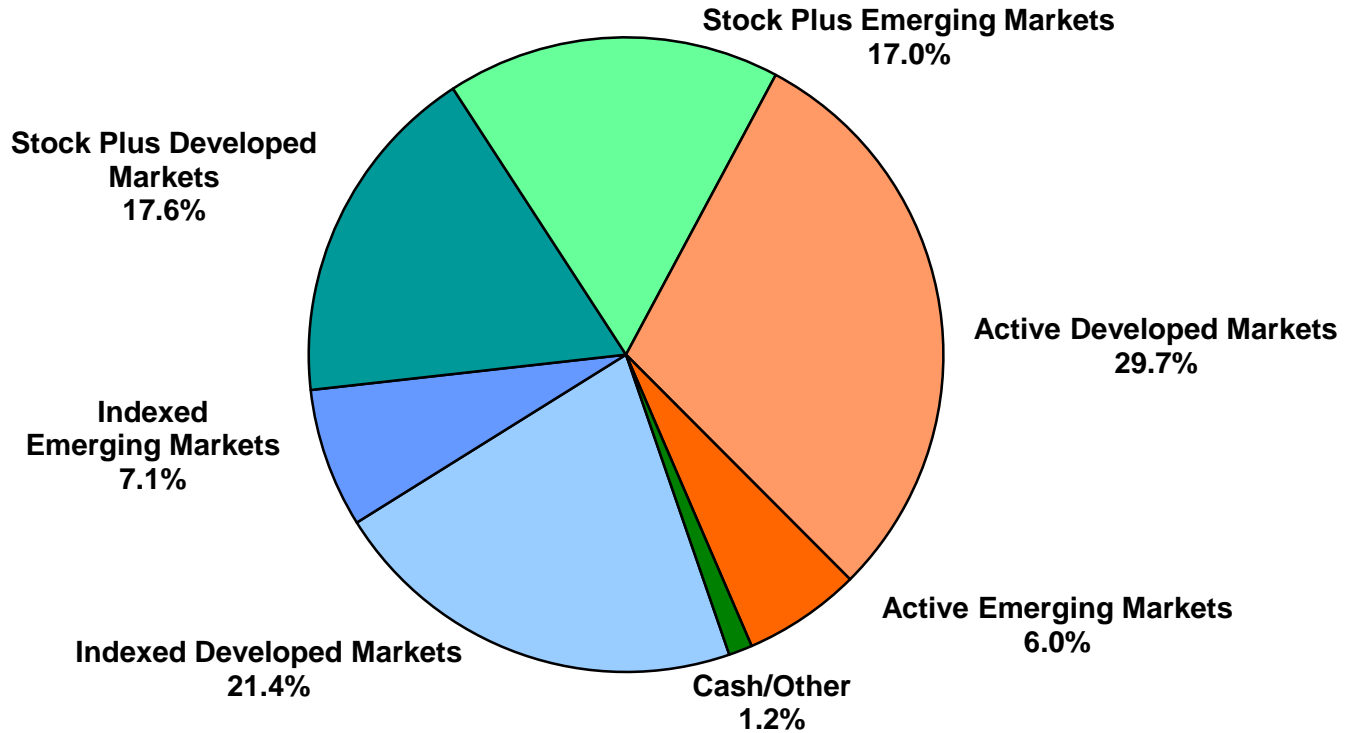
**\$12,491**

**100.0%**

# SMRS

## International Equity Exposure By Category

### 6/30/18



<b>Market Value in Millions</b>		
	<u>6/30/18</u>	
<b><u>Indexed</u></b>		
Developed Markets	\$2,671	21.4%
Emerging Markets	886	7.1%
<b>Total Indexed Equity</b>	<u>\$3,557</u>	<u>28.5%</u>
<b><u>Stock Plus</u></b>		
Developed Markets	\$2,204	17.6%
Emerging Markets	2,118	17.0%
<b>Total Stock Plus Equity</b>	<u>\$4,322</u>	<u>34.6%</u>
<b><u>Active</u></b>		
Developed Markets	\$3,708	29.7%
Emerging Markets	756	6.0%
Cash/Other	148	1.2%
<b>Total Active Equity</b>	<u>\$4,612</u>	<u>36.9%</u>
<b>Total International Equity</b>	<u><u>\$12,491</u></u>	<u><u>100.0%</u></u>

# SMRS

## International Equities

### 6/30/18

Date:	<u>6/30/18</u>	<u>3/31/18</u>	<u>12/31/17</u>	<u>9/30/17</u>
Assets (\$ in Millions):	\$12,491	\$12,901	\$12,990	\$12,351
Number of Securities:	2,644	2,376	9,225	9,109
Active Share:	24%	24%	27%	33%

Benchmark: MSCI ACWI ex USA

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

Portfolio Characteristics:	SMRS		MSCI ACWI ex USA	
	<u>LTM</u>	<u>Normalized</u>	<u>LTM</u>	<u>Normalized</u>
<b>Return:</b>				
Annualized Compound Rate	11.1%	9.7%	9.9%	9.1%
Sustainable Growth Rate	8.5%	7.3%	7.6%	7.0%
Dividend Yield	2.1%	2.1%	2.3%	2.2%
Buyback Yield	0.0%	-0.1%	0.1%	-0.1%
Overlay Yield	0.5%	0.5%	--	--
<b>Risk:</b>				
Beta	1.0	--	1.0	--
Volatility	12.1%	--	12.0%	--
Tracking Error	0.8%	--	0.0%	--
<b>Fundamental:</b>				
Average Capitalization (\$ in Billions)	56.2	--	63.6	--
Price/Earnings	14.6	18.4	15.0	18.1
Price/Book	1.8	2.1	1.8	2.0
ROE	12.3%	11.3%	11.7%	11.3%

#### TOP TEN HOLDINGS

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

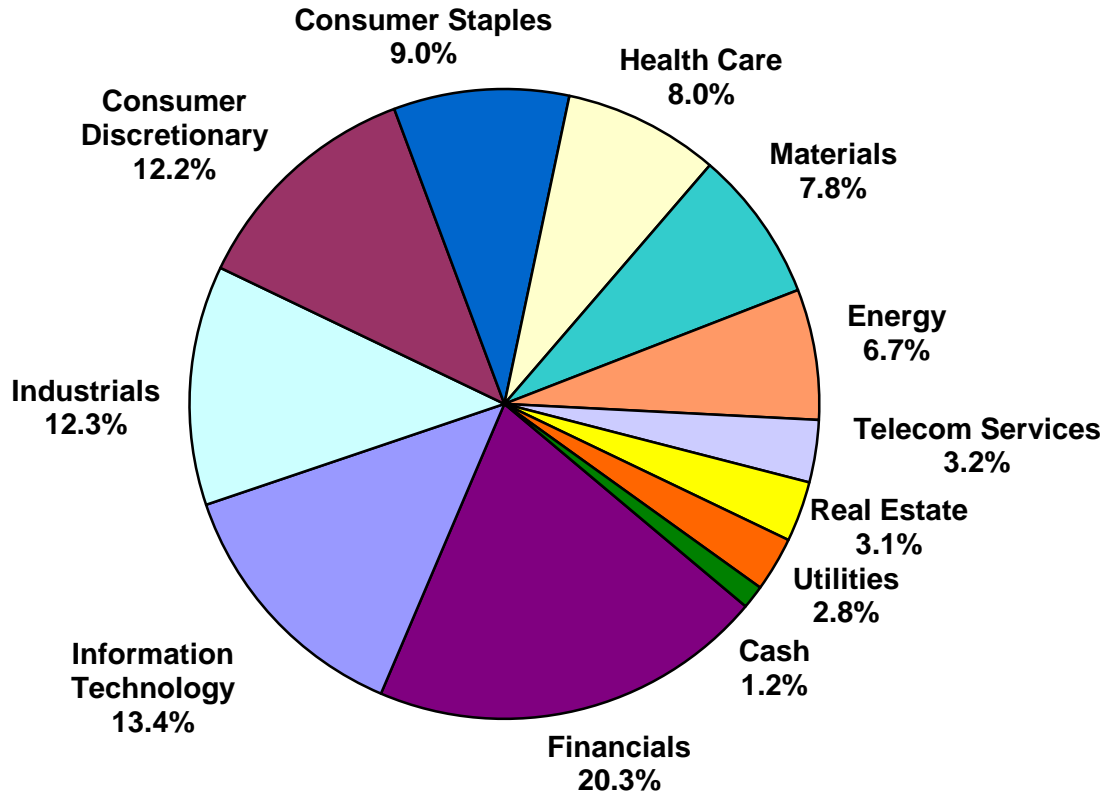
	<u>Portfolio Weight</u>	<u>Market Capitalization*</u>	<u>FY1 P/E</u>	<u>Market Value**</u>
Tencent Holdings Ltd.	1.5%	\$477.1	36.4	\$189.2
Taiwan Semiconductor Manufacturing Co., Ltd.	1.2%	184.1	15.6	152.1
Alibaba Group Holding Ltd. Sponsored ADR	1.1%	476.7	29.9	135.9
Samsung Electronics Co., Ltd.	1.1%	299.2	6.4	134.3
Dai-ichi Life Holdings, Inc.	0.9%	21.4	9.9	112.9
Nestle S.A.	0.9%	237.2	19.9	111.7
Novartis AG	0.8%	193.4	14.6	102.4
Total SA	0.6%	162.4	11.4	76.8
Roche Holding Ltd. Genusssch	0.6%	192.1	13.3	73.7
Naspers Limited Class N	<u>0.6%</u>	<u>111.5</u>	28.2	<u>73.6</u>
<b>TOTAL</b>	<b><u>9.3%</u></b>	<b><u>\$2,355.2</u></b>		<b><u>\$1,162.7</u></b>



# SMRS

## International Equity By Sector

### 6/30/18



<b>Market Value in Millions</b>				
<b>6/30/18</b>				
	<u>Assets</u>	<u>Percent</u>	<u>Benchmark</u>	<u>Difference</u>
Financials	\$2,535	20.3%	22.1%	-1.8%
Information Technology	1,679	13.4%	11.7%	1.7%
Industrials	1,541	12.3%	11.6%	0.7%
Consumer Discretionary	1,520	12.2%	11.0%	1.2%
Consumer Staples	1,123	9.0%	9.7%	-0.7%
Health Care	995	8.0%	8.4%	-0.4%
Materials	980	7.8%	8.1%	-0.3%
Energy	837	6.7%	7.5%	-0.8%
Telecom Services	394	3.2%	3.8%	-0.6%
Real Estate	389	3.1%	3.1%	0.0%
Utilities	350	2.8%	3.0%	-0.2%
Total Investments	<u>\$12,343</u>	<u>98.8%</u>	<u>100.0%</u>	
Cash	148	1.2%	0.0%	1.2%
<b>Total</b>	<b><u>\$12,491</u></b>	<b><u>100.0%</u></b>	<b><u>100.0%</u></b>	

Benchmark: MSCI ACWI ex USA

## International Equity Performance - Net of Fees

6/30/18

Fund Name	Market Value	1-Year	3-Years	5-Years	7-Years	Inception	Inception Date
<b>Total International Equity</b>	<b>\$12,490,910,183</b>	<b>7.8%</b>	<b>5.8%</b>	<b>7.2%</b>	<b>5.1%</b>	<b>6.0%</b>	<b>1/1/04</b>
MSCI ACWI ex USA		7.3%	5.1%	6.0%	3.8%	6.2%	
Lipper International Multi-Cap Core		6.1%	4.8%	6.2%	4.5%	5.8%	
<i>Excess Return</i>		0.5%	0.8%	1.2%	1.3%	-0.2%	
<i>Pct Rank vs. Lipper International Multi-Cap Core</i>		20	26	23	31	32	

<b>Total International Active Strategy</b>	<b>\$4,612,133,672</b>	<b>7.3%</b>	<b>5.3%</b>	<b>6.8%</b>	<b>4.8%</b>	<b>5.3%</b>	<b>5/1/05</b>
MSCI ACWI ex USA		7.3%	5.1%	6.0%	3.8%	5.6%	
Lipper International Multi-Cap Core		6.1%	4.8%	6.2%	4.5%	5.1%	
<i>Excess Return</i>		0.0%	0.3%	0.8%	1.0%	-0.3%	
<i>Pct Rank vs. Lipper International Multi-Cap Core</i>		30	35	32	50	45	
<b>LACM World ex USA</b>	<b>1,002,590,338</b>	<b>14.1%</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>9.3%</b>	<b>12/1/15</b>
MSCI World ex USA		13.9%	--	--	--	9.2%	
Lipper International Multi-Cap Core		14.9%	--	--	--	9.8%	
<i>Excess Return</i>		0.2%	--	--	--	0.1%	
<i>Pct Rank vs. Lipper International Multi-Cap Core</i>		72	--	--	--	60	
<b>Marathon-London International Fund</b>	<b>739,546,460</b>	<b>7.0%</b>	<b>6.5%</b>	<b>8.3%</b>	<b>--</b>	<b>9.6%</b>	<b>2/1/12</b>
MSCI World ex USA		6.9%	5.6%	5.6%	--	6.9%	
Lipper International Multi-Cap Core		6.4%	4.8%	6.2%	--	7.0%	
<i>Excess Return</i>		0.1%	0.9%	2.7%	--	2.6%	
<i>Pct Rank vs. Lipper International Multi-Cap Core</i>		36	12	5	--	3	
<b>SSGA International Alpha Small Cap</b>	<b>713,805,702</b>	<b>7.8%</b>	<b>7.6%</b>	<b>9.9%</b>	<b>8.0%</b>	<b>4.3%</b>	<b>5/1/07</b>
MSCI World ex USA Small Cap		9.7%	10.3%	9.1%	7.1%	3.8%	
Lipper International Small/Mid-Cap Core		8.1%	7.3%	8.1%	5.9%	3.5%	
<i>Excess Return</i>		-1.9%	-2.6%	0.8%	0.8%	0.5%	
<i>Pct Rank vs. Lipper International Small/Mid-Cap Core</i>		55	58	32	24	1	
<b>Wellington IRE Fund</b>	<b>712,944,039</b>	<b>9.5%</b>	<b>5.3%</b>	<b>7.5%</b>	<b>5.3%</b>	<b>4.8%</b>	<b>12/1/05</b>
MSCI World ex USA		6.9%	5.6%	5.6%	4.5%	4.5%	
Lipper International Multi-Cap Core		6.1%	4.8%	6.2%	4.5%	4.4%	
<i>Excess Return</i>		2.5%	-0.3%	1.9%	0.9%	0.3%	
<i>Pct Rank vs. Lipper International Multi-Cap Core</i>		3	36	13	20	29	
<b>LACM Emerging Markets Fund</b>	<b>373,393,102</b>	<b>6.4%</b>	<b>4.8%</b>	<b>4.4%</b>	<b>2.0%</b>	<b>4.6%</b>	<b>12/8/09</b>
MSCI Emerging Markets		8.2%	5.6%	5.0%	1.4%	3.8%	
Lipper Emerging Markets		6.3%	4.6%	3.9%	1.2%	3.8%	
<i>Excess Return</i>		-1.8%	-0.8%	-0.6%	0.5%	0.8%	
<i>Pct Rank vs. Lipper Emerging Markets</i>		54	57	56	36	39	
<b>Effissimo Capital Management Japan</b>	<b>300,645,121</b>	<b>1.3%</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>7.5%</b>	<b>12/1/15</b>
MSCI Japan		6.8%	--	--	--	8.9%	
Lipper International Small/Mid-Cap Value		5.9%	--	--	--	10.2%	
<i>Excess Return</i>		-5.5%	--	--	--	-1.4%	
<i>Pct Rank vs. Lipper International Small/Mid-Cap Value</i>		82	--	--	--	89	
<b>Wellington Emerging Markets Local Equity</b>	<b>288,749,191</b>	<b>8.3%</b>	<b>7.6%</b>	<b>6.5%</b>	<b>--</b>	<b>7.7%</b>	<b>12/1/11</b>
MSCI Emerging Markets		8.2%	5.6%	5.0%	--	4.7%	
Lipper Emerging Markets		6.3%	4.6%	3.9%	--	4.3%	
<i>Excess Return</i>		0.1%	2.0%	1.4%	--	3.0%	
<i>Pct Rank vs. Lipper Emerging Markets</i>		34	15	17	--	10	
<b>Lazard/Wilmington International Equity</b>	<b>245,250,000</b>	<b>7.1%</b>	<b>3.0%</b>	<b>--</b>	<b>--</b>	<b>2.1%</b>	<b>6/1/14</b>
MSCI World ex USA		6.9%	5.6%	--	--	2.5%	
Lipper International Large-Cap Core		6.1%	4.8%	--	--	2.8%	
<i>Excess Return</i>		0.1%	-2.6%	--	--	-0.4%	
<i>Pct Rank vs. Lipper International Large-Cap Core</i>		35	89	--	--	76	
<b>Martin Currie International Long-term Unconstrained</b>	<b>235,178,628</b>	<b>4.4%</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>13.6%</b>	<b>2/1/17</b>
MSCI ACWI ex USA		6.9%	--	--	--	11.9%	
Lipper International Multi-Cap Core		6.1%	--	--	--	11.8%	
<i>Excess Return</i>		-2.6%	--	--	--	1.7%	
<i>Pct Rank vs. Lipper International Multi-Cap Core</i>		81	--	--	--	14	

<b>Fund Name</b>	<b>Market Value</b>	<b>1-Year</b>	<b>3-Years</b>	<b>5-Years</b>	<b>7-Years</b>	<b>Inception</b>	<b>Inception Date</b>
<b>Total International Stock Plus Strategy</b>	<b>\$4,321,964,649</b>	<b>7.7%</b>	<b>6.1%</b>	<b>7.8%</b>	<b>6.1%</b>	<b>7.9%</b>	<b>1/1/09</b>
MSCI ACWI ex USA		7.3%	5.1%	6.0%	3.8%	8.2%	
Lipper International Multi-Cap Core		6.1%	4.8%	6.2%	4.5%	8.1%	
<i>Excess Return</i>		0.4%	1.0%	1.8%	2.3%	-0.3%	
<i>Pct Rank vs. Lipper International Multi-Cap Core</i>		20	21	10	13	52	
<b>Internal Stock Plus</b>	<b>2,550,300,280</b>	<b>6.3%</b>	<b>4.1%</b>	<b>6.9%</b>	<b>8.5%</b>	<b>5.9%</b>	<b>1/1/09</b>
MSCI ACWI ex USA		7.3%	5.1%	6.0%	3.8%	4.8%	
Lipper International Multi-Cap Core		6.1%	4.8%	6.2%	4.5%	5.4%	
<i>Excess Return</i>		-1.0%	-1.0%	0.9%	4.7%	1.0%	
<i>Pct Rank vs. Lipper International Multi-Cap Core</i>		13	5	1	1	1	
<b>PIMCO StockPLUS International TR Fund</b>	<b>1,212,539,636</b>	<b>7.7%</b>	<b>5.4%</b>	<b>6.9%</b>	<b>6.2%</b>	<b>7.0%</b>	<b>10/1/10</b>
MSCI World ex USA		6.9%	5.6%	5.6%	4.5%	5.6%	
Lipper International Large-Cap Core		6.1%	4.8%	6.2%	4.5%	5.6%	
<i>Excess Return</i>		0.7%	-0.2%	1.3%	1.7%	1.4%	
<i>Pct Rank vs. Lipper International Large-Cap Core</i>		22	36	29	11	15	
<b>PIMCO Emerging Markets StockPLUS AR Fund</b>	<b>559,436,760</b>	<b>8.9%</b>	<b>6.0%</b>	<b>--</b>	<b>--</b>	<b>5.6%</b>	<b>4/1/15</b>
MSCI Emerging Markets		8.2%	5.6%	--	--	5.4%	
Lipper Emerging Markets		6.3%	4.6%	--	--	4.5%	
<i>Excess Return</i>		0.7%	0.4%	--	--	0.2%	
<i>Pct Rank vs. Lipper Emerging Markets</i>		30	25	--	--	28	

<b>Total International Index Strategy</b>	<b>\$3,556,510,790</b>	<b>10.1%</b>	<b>6.8%</b>	<b>7.5%</b>	<b>4.5%</b>	<b>8.5%</b>	<b>7/1/09</b>
MSCI ACWI ex USA		7.3%	5.1%	6.0%	3.8%	7.1%	
Lipper International Multi-Cap Core		6.1%	4.8%	6.2%	4.5%	7.5%	
<i>Excess Return</i>		2.9%	1.7%	1.5%	0.7%	1.4%	
<i>Pct Rank vs. Lipper International Multi-Cap Core</i>		3	7	13	57	13	
<b>SSGA MSCI ACWI ex USA Index</b>	<b>2,234,921,940</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>-0.5%</b>	<b>11/1/17</b>
MSCI ACWI ex USA		--	--	--	--	-0.8%	
Lipper International Large-Cap Core		--	--	--	--	-0.9%	
<i>Excess Return</i>		--	--	--	--	0.3%	
<i>Pct Rank vs. Lipper International Large-Cap Core</i>		--	--	--	--	46	
<b>BlackRock MSCI ACWI ex USA Index</b>	<b>1,321,586,916</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>-4.1%</b>	<b>2/22/18</b>
MSCI ACWI ex USA		--	--	--	--	-8.8%	
Lipper International Large-Cap Core		--	--	--	--	-7.4%	
<i>Excess Return</i>		--	--	--	--	4.7%	
<i>Pct Rank vs. Lipper International Large-Cap Core</i>		--	--	--	--	78	

State of Michigan Retirement Systems

# BASKET CLAUSE REVIEW

Investment Advisory Committee Meeting

September 13, 2018



Karen M. Stout, CPA, CGFM  
Administrator  
Trust Accounting Division

# SMRS

## Basket Clause Investments

### 6/30/18

<u>Asset Class</u>	<u>Value</u>
Total Absolute Return	\$3,967,939,819
Total Real Return and Opportunistic	966,661,176
Total International Equity	300,645,134
Total Long-Term Fixed Income	<u>40,449,772</u>
<b>Total Basket Clause Investments</b>	<b><u>\$5,275,695,901</u></b>

The basket clause investments at June 30, 2018, were \$5.3 billion or 7.4% of the total portfolio value of \$71.2 billion.

The Public Employee Retirement System Investment Act, 1965 PA 314, MCL 38.1132 *et seq*, authorizes the State Treasurer to invest up to 30% of the system's assets in investments "not otherwise qualified under the act." MCL 38.1140d(1). Commonly referred to as Section 20d (after the authorizing section of PA 314) or Basket Clause investments, this provision gives the State Treasurer the flexibility to take advantage of market opportunities not specifically authorized in PA 314 while conserving protections against imprudent investment.

# Disclaimer



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