

INVESTMENT ADVISORY COMMITTEE MEETING

September 1, 2016

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 1, 2016

Agenda



- 9:30 a.m. Call to Order and Opening Remarks
- 9:40 a.m. Approval of the 6/16/16 IAC Meeting Minutes
- 9:45 a.m. Executive Summary & Performance for Periods Ending 6/30/16
- 10:00 a.m. Current Asset Allocation Review
- Markets Review and Outlook
- 10:15 a.m. Review of Investment Reports
- Absolute and Real Return/Oppportunistic
 - Domestic Equity
 - Fixed Income
 - International Equity
 - Private Equity
 - Real Estate & Infrastructure
- Basket Clause – *Receive and File*
- 11:00 a.m. Closing Remarks ~ Adjournment



2016 Meeting Schedule

Thursday, September 1, 2016
Thursday, December 15, 2016

TENTATIVE 2017 Meeting Schedule

Thursday, March 9, 2017
Thursday, June 8, 2017
Thursday, September 7, 2017
Tuesday, December 12, 2017

All meetings start at 9:30 a.m.

www.michigan.gov/treasury

State of Michigan Retirement Systems

MINUTES

Investment Advisory Committee Meeting

September 1, 2016



Jon M. Braeutigam
Chief Investment Officer
Bureau of Investments

INVESTMENT ADVISORY COMMITTEE

The Investment Advisory Committee (IAC) held its quarterly meeting on Thursday, June 16, 2016, at the Bureau of Investments, Great Lakes Conference Room, 2501 Coolidge Road, Suite 400, East Lansing, Michigan.

Members Present:

James B. Nicholson, Chair
L. Erik Lundberg
Reginald G. Sanders
John S. Roberts, DTMB
Allan R. Pohl, LARA

In attendance from the Department of Treasury:

Treasurer Nick A. Khouri
Robert L. Brackenbury
Jack Behar
Dan Quigley
Karl Borgquist
Jane Waligorski
Emma Khavari

Jon M. Braeutigam
Jim Elkins
Brian Liikala
Marybeth Gienapp
Travis Haney
Barb Becker
Janet Sudac

Gregory J. Parker
Peter Woodford
Richard Holcomb
Woody Tyler
Tim Reynolds
Marge McPhee
Lori Barrett

Others in attendance:

Max Kotary
Beau Coash
June Morse
Charles Abshagen
Tom Reed

Steve Cummings
Sue Curran
Molly Jason
Paul Lerg
Kerrie Vanden Bosch

Jeff Moore
Josh Lieberman
Mark Guastella
Joe Hernandez
Liz Smith

Call to Order

Mr. James B. Nicholson called the June 16, 2016, IAC meeting to order at 9:30 a.m.

Approval of Minutes of March 2, 2016

- Mr. Nicholson asked for a motion to approve the minutes of the March 2, 2016, IAC meeting. Mr. Erik Lundberg so moved, seconded by Mr. Allan Pohl, there were no objections – motion carried.

Special Mention

- Mr. Robert Brackenbury noted that Mrs. Emma Khavari would be retiring at the end of June after 47 years of service to the State of Michigan, with over 35 years with the Bureau of Investments.

Executive Summary Tab – Performance Review

- Mr. Braeutigam discussed the one-year return and noted that the relative returns over all time periods have been excellent.
- Mr. Braeutigam noted that absolute returns over the three, five, and seven years have been strong.
- Mr. Braeutigam addressed the recent volatility in the markets noting that this is healthy for a normal market.
- Mr. Braeutigam discussed asset allocation noting that the 8% actuarial rate of return drives the asset allocation. There was a brief discussion and explanation of the actuarial rate of return. Mr. Braeutigam highlighted the fact that interest rates are historically very low which makes earning 8% on a diversified portfolio, over long time periods, difficult going forward.

Asset Allocation & Performance Tabs

- Mr. Parker provided an overview of the asset allocation and how assets are allocated. There was a discussion of the 8% target. It was noted that approximately one-third of public pension funds have an 8% target, and that the median target was less than 8%.
- Mr. Parker noted that over the past year approximately \$2.2 billion was paid out for benefits net of contributions.
- Mr. Parker highlighted the current asset allocation noting that the fund is underweight peers relative to fixed income.
- Mr. Parker indicated that the peers may have a different objective for fixed income and he discussed the fund's fixed income objective of diversifying equity risk.
- Mr. Parker noted that the fund is allocated slightly defensively to the strategic target weight.
- Mr. Parker discussed the economy noting that the market believes that the Fed is on hold for 2016; and the U.S. economy is expected to continue to grow slowly.
- Mr. Parker discussed the tailwinds to the economy. He noted a few potential inflationary forces, such as: the housing demand, the labor force supply, the rebound in commodities. He also mentioned the Fed and the plans of other central banks, Brexit, and the U.S. election.

Markets Review and Outlook Tab

- Mr. Parker provided a review of the capital markets noting that pension plans generally are lowering their assumed rates of returns for the major asset classes.
- Mr. Parker noted that the U.S. stock market started 2016 very poorly, but year-to-date is up slightly.
- Mr. Parker remarked that U.S. growth stocks are beating value stocks and he stated that the fund is positioned for a normalization of the style factor.
- Mr. Parker stated that the yield curve is at normal levels of flatness.

Fixed Income Review

- Mr. Dan Quigley discussed the importance of the fixed income portfolio as part of the overall fund. He noted that many peers, as well as managers, have increased allocation to unconstrained bond mandates.

- Mr. Quigley noted that the division currently maintains out-of-benchmark exposure to high-yield credit managers as well as securitized credit mandates.
- Mr. Quigley noted that this exposure increases the credit risk of the portfolio, however, this risk is offset by relatively lower interest rate risk due to the portfolio's lower duration.
- Mr. Quigley stated that the yield to maturity of the fixed income benchmark is around 2%, while the yield to maturity of the fixed income portfolio is around 4%.
- Mr. Quigley discussed the macro forces on the fixed income market, especially the actions of central banks.
- Mr. Quigley added that the high-yield allocation has increased by approximately \$500 million for the fiscal year-to-date, bringing this allocation to \$1.1 billion.
- Mr. Quigley discussed the overall risk of the fixed income portfolio. There was a lengthy discussion of the risk of the current portfolio versus the risk relative to the fixed income benchmark. It was noted that risk has been measured and balanced and investments are made with the overall risk budget in mind.
- Mr. Quigley noted that Treasuries have been added to the portfolio.
- Mr. Quigley discussed the attractiveness of the bank loans and CLO securities at the present time.
- Mr. Quigley introduced Mr. Jeff Moore, Fixed Income Portfolio Manager, and Mr. Beau Coash, Fixed Income Institutional Portfolio Manager for Fidelity noting that their approach to the bond market is in harmony with the strategy of the fund.
- Mr. Quigley noted that Fidelity's portfolio strategy can be described as a tactical bond fund, meaning there are many tools used, but the expectation is diversification and bond-like volatility. He noted that the SMRS has been working the Fidelity for approximately ten years.

Fidelity Investments ~ Mr. Jeff Moore and Mr. Beau Coash

- Mr. Jeff Moore highlighted the relative values in the fixed income market.
- Mr. Moore noted that they believe that demographics are an under-appreciated secular driver of future lower rates.
- He noted that they do not believe that the low rates globally are primarily due to central bank actions.
- He discussed the biggest risk is for much higher wages leading to higher than expected inflation due to labor shortages in some sectors of the economy.
- Mr. Moore discussed how small the high yield and loan markets are relative to the whole fixed income market.
- He noted the relative return advantages afforded in these markets.
- There was a discussion on the Brexit vote. Mr. Moore believes either vote will not matter in the long run. There may be a short-term negative market reaction if the vote is to exit.
- Mr. Moore discussed the aging population and how the markets have been affected.
- He also discussed China and the stability of their currency.
- Mr. Moore provided a very informative presentation and overview of their strategy of the bond market. Everyone thanked Mr. Moore and Mr. Coash for their time.

Investment Reports: Absolute and Real Return/Opportunistic; Domestic Equity, International Equity, and Private Equity; Real Estate and Infrastructure; and Basket Clause

In the spirit of time, these reports were received and filed.

Closing Remarks

Chairman Nicholson thanked everyone for attending.

Next Meeting Date and Adjournment

The next Investment Advisory Committee Meeting is scheduled for Thursday, September 1, 2016. The meeting was adjourned by Chairman Nicholson at 11:00 a.m.

Approved:

James B. Nicholson, Chairman

State of Michigan Retirement Systems

EXECUTIVE SUMMARY

Investment Advisory Committee Meeting

September 1, 2016



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

EXECUTIVE SUMMARY

June 2016

Performance

An overview.

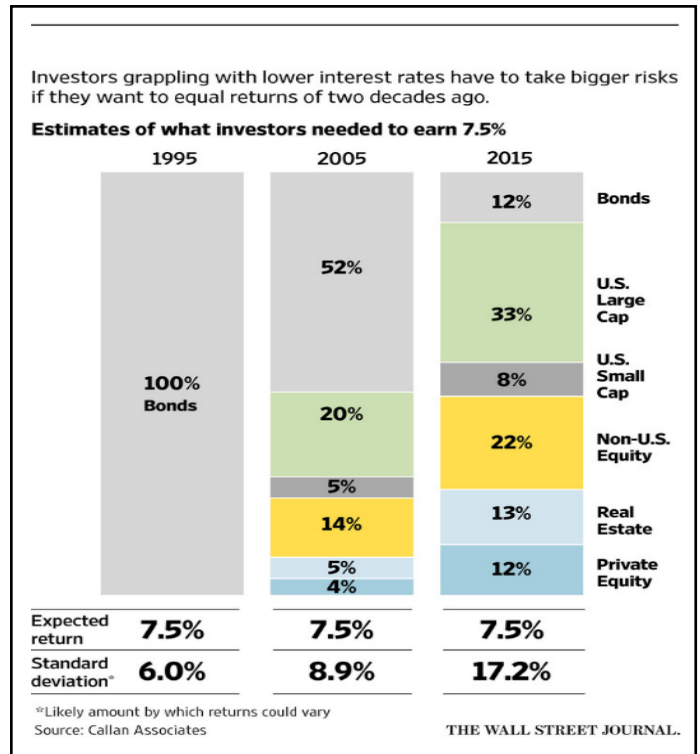
MPSERS Plan (6/30/16)	1-Year	3-Years	5-Years	7-Years	10-Years
Annualized Returns	1.5%	8.7%	8.1%	10.4%	6.3%
Policy Return	3.1%	8.6%	8.4%	11.0%	6.5%
Peer Median Return	1.3%	7.1%	7.0%	9.7%	5.9%

- The fund beat peers in all the above time periods. In the 3, 5, 7, and 10 year time periods, the fund was top quartile performing.
- The returns beat the peer median over the past year by 0.2%. Good selectivity in private equity helped to add relative returns as well as the overweight in real estate and the underweight to international equity.
- The returns fell below the policy benchmark over the past year by -1.6%. In general, it was a tough market for alpha strategies in the absolute return and the active domestic equity portfolio.

Asset Allocation

A low return environment.

- Given the historically low rates of return available in the capital markets for safe, short-term bonds, and in order for the assets to earn the long-term actuarial rate of return of 8%, additional risks (primarily equity risk) must be assumed.
- The chart to the right highlights the increased risk public pension funds are required to take as well as the increased complexity of the asset allocation compared to ten or twenty years ago.
- Liquidity is another fundamental risk assumed and it is managed through asset allocation. The plans have outstanding capital commitments to fund approximately \$10.3 billion in illiquid assets, primarily private equity. In the June 2016 quarter over \$1.7 billion of new commitments were made.



- The combined systems paid out approximately \$2.2 billion net of contributions over the past twelve months ending in June 2016.
- Over the past year, the allocation to short-term cash decreased by approximately \$1 billion. The plans put to work approximately \$1 billion in real return/opportunistic strategies, \$750 million in international equities, \$350 million in long-term fixed income, \$170 million into real estate, and absolute return received a minor allocation. Over the same time period, the plans reduced the allocation to domestic equity by \$2.6 billion and private equity by \$850 million.

Capital Markets

Risk assets in focus.

- Capital market assumptions used for determining strategic asset allocations are being reduced across the board. This is the general opinion for most consultants, investment banks, and other market participants. The reason for this 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 seven years after the depths of the Great Recession.
- Over the last twelve months the broad U.S. stock market return was 3.6%, due to dividends and multiple expansion. Year over year earnings growth in U.S. equities has averaged 0% over the past year-and-a-half. The recent ten-year stretch of growth stocks outperforming value stocks is one of the greatest on record rivaling the dot-com era and the Great Depression.
- On June 23, 2016, the citizens of the United Kingdom voted on “Brexit”. As a result of the leave vote, global markets collectively suffered \$2.1 trillion in losses and nearly another \$1 trillion in losses the following Monday. According to S&P Dow Jones Indices, this is the worst single loss of capital ever recorded. Prior to this, the worst was September 29, 2008, when the U.S. Congress failed to vote for a Wall Street bailout.
- The 10-year U.S. Treasury closed June 2016 at 1.5%, almost 90 basis points (bps) lower than one year prior. The curve is slightly below average in terms of steepness, and it is has not been this flat since October 2007.

Economic Backdrop

U.S. economy continues to slowly grow.

- After months of anticipation, at its December 2015 meeting, the Federal Reserve Board voted to increase short-term interest rates by 25 bps. This marks the first time in roughly seven years that the Fed Funds rate is higher than effectively zero percent. As of July 2016, the market was pricing in a 50% chance of additional tightening in the next twelve months.
- The most recent reading of the annualized U.S. GDP growth was 1.2%, below the consensus estimate of 2.5%. Current estimates for 2016 GDP growth for the U.S. is 1.9%. Coincidental economic indicators such as the Institute for Supply Management’s Manufacturing and Non-Manufacturing PMI Indexes are above 50, indicating that there currently is a modest expansion in the U.S. economy.

Investment Update*Highlighting the quarter.*

(\$ Millions)

NEW COMMITMENTS**April 1 – June 30, 2016**

Asset Class	Fund Name / (Managed By)	Commitment
Private Equity		
	KKR Americas Fund XII, L.P.	\$200.0
	Apax IX, L.P.	150.0
	Crescent Mezzanine Partners VII	150.0
	GSO Capital Opportunities Fund III, L.P.	150.0
	Thoma Bravo Fund XII, L.P.	150.0
	HarbourVest Partners Co-Investment Fund IV, L.P.	100.0
	Flagship Ventures Opportunities Fund I, L.P.	50.0
	FirstMark Capital IV, L.P.	35.0
	FirstMark Capital OF II, L.P.	35.0
	HVST-TOPE LLC (HarbourVest Partners)	35.0
	Warburg Pincus Private Equity XII Secondary, L.P.	25.0
	Vista Equity Foundation Fund III, L.P.	19.0
	Accel London V, L.P.	13.0
Real Estate & Infrastructure		
	KBS/SM Fund III, L.P. (KBS Advisors)	67.0
	Penmain Office, L.L.C. (Domain Advisors)	20.5
Real Return & Opportunistic		
	New Fortress Energy HLDGS	300.0
	Kayne P.E. Income Fund	150.0
	Orion Mine Finance II, L.P.	50.0
	Terra Co-Investment, L.L.C. (Kayne Private Energy)	40.0
TOTAL		\$1,739.5

State of Michigan Retirement Systems

PERFORMANCE

Investment Advisory Committee Meeting

September 1, 2016



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, 2016

	% of Portfolio 6/30/16	Ten Years ¹		Seven Years ¹		Five Years ¹		Three Years ¹		One Year		Current Quarter	
		Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank
TOTAL PLAN	100.0	6.3	17	10.4	23	8.1	11	8.7	5	1.5	42	1.5	74
Median - Greater than \$10 Billion ²		5.9		9.7		7.0		7.1		1.3		1.8	
MPERS Total Plan Policy		6.5		11.0		8.4		8.6		3.1		1.8	
DOMESTIC EQUITIES	26.7	7.4	40	14.4	45	11.5	20	11.0	31	1.1	45	1.9	72
Median ²		7.2		14.3		10.6		9.9		0.5		2.3	
S&P 1500 Index		7.5		15.1		11.9		11.5		3.6		2.6	
PRIVATE EQUITIES	15.8	11.6	6	15.5	6	12.4	4	13.5	16	5.9	23	0.4	72
Median ²		8.9		12.3		9.6		8.8		2.8		1.0	
Alternative Blended Benchmark ³		11.5		19.3		14.7		15.0		4.9		2.1	
INTERNATIONAL EQUITIES	15.1	1.8	90	6.7	46	1.7	56	2.8	46	-9.6	65	-1.1	74
Median ²		2.7		6.7		2.0		2.5		-9.2		-0.6	
International Blended Benchmark ⁴		0.7		5.0		0.4		1.3		-10.2		-0.6	
BONDS	13.2	5.9	32	5.6	63	4.3	57	4.6	29	5.9	41	2.6	49
Median ²		5.6		6.1		4.4		4.3		5.4		2.6	
Barclays Aggregate		5.1		4.6		3.8		4.1		6.0		2.2	
REAL ESTATE & INFRASTRUCTURE	10.7	5.2	44	6.7	74	11.9	47	13.7	26	11.1	58	2.7	25
Median ²		4.9		8.9		11.6		12.3		11.9		2.0	
NCREIF - Property Blended Index ⁵		6.0		8.9		10.1		10.2		9.2		1.7	
NCREIF Open Fund Index Net		5.2		9.9		11.7		12.0		10.8		1.9	
REAL RETURN AND OPPORTUNISTIC	8.7					8.9		12.0		3.4		1.6	
50% (CPI +500 bps) + 50% (8% actuarial rate)						7.2		7.1		7.0		2.2	
ABSOLUTE RETURN	7.0			6.1		4.0		3.3		-3.8		5.2	
HFR1 FOF Cons 1 month lagged				3.0		1.8		1.9		-3.4		1.2	
CASH EQUIVALENTS	2.8	1.0		0.6		0.4		0.5		0.7		0.2	
1 Month T-Bill		0.9		0.1		0.1		0.1		0.1		0.0	

¹ Annualized Returns and Percentile Rank.

² 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.

³ 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.

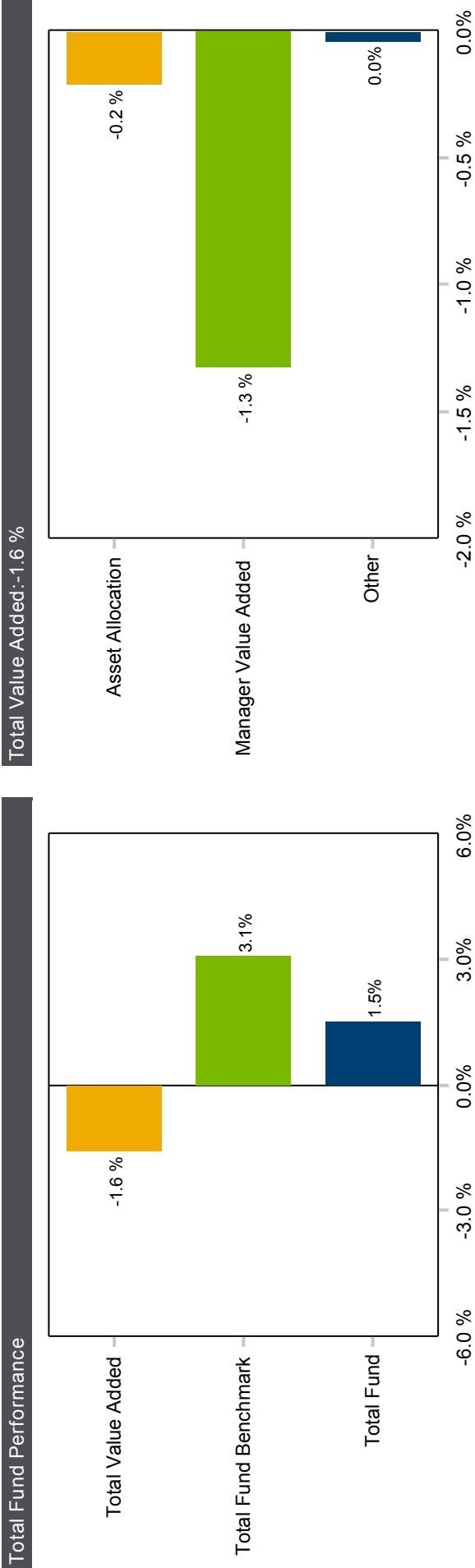
⁴ International blended benchmark is S&P Developed BMI-EPAC 50/50 prior to 1/1/2010. S&P Developed BMI-EPAC 75 USD / 25 Local, 1/1/2010 to 9/30/10. MSCI ACWI Ex USA Gross 10/1/2010 to present.

⁵ NCREIF - Property Blended Index is NPI minus 75 bps prior to October 2005; NPI minus 130 bps current.

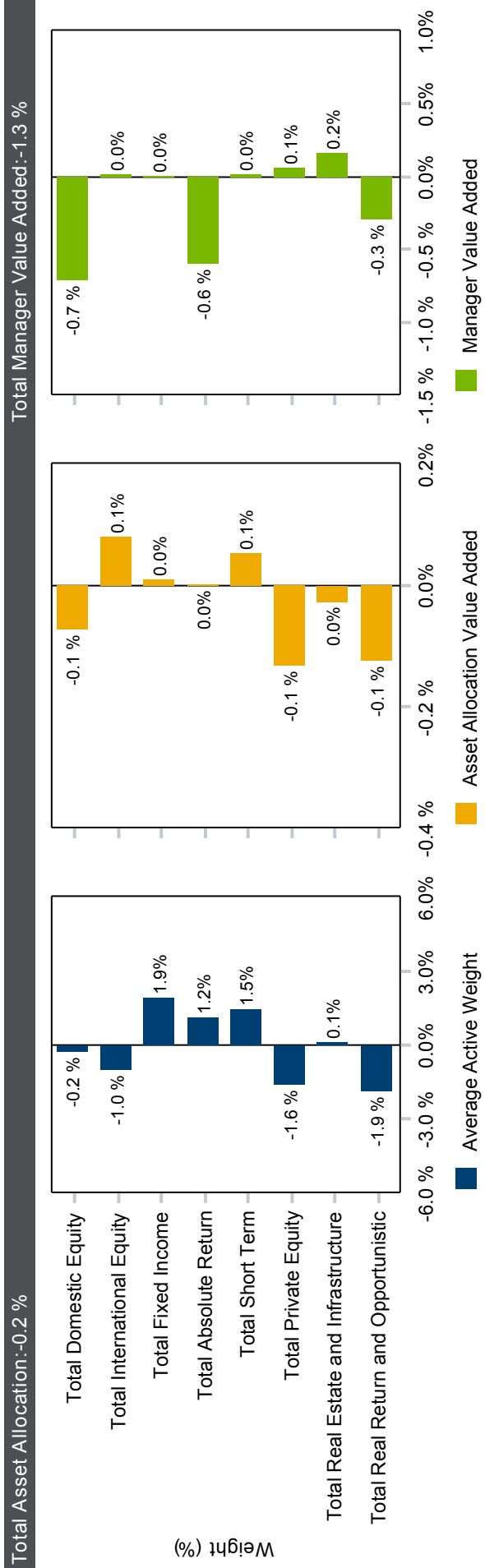
Source: State Street Analytics; the NCREIF - NPI (Property Index) source is NCREIF; the S&P BMI-EPAC Index source is S&P.

Total Fund Attribution

Total Michigan vs. Total Fund Benchmark



3



Cumulative and Consecutive Total Fund Returns

MPSERS										
Cumulative For Years Ending 6/30/16										
	1 Year	2 Year	3 Year	4 Year	5 Year	6 Year	7 Year	8 Year	9 Year	10 Year
MPSERS	1.5	3.9	8.7	9.6	8.1	10.3	10.4	6.1	5.0	6.3
Public Plan - Median (> \$10 billion)*	1.3	2.2	7.1	8.4	7.0	9.4	9.7	5.4	4.5	5.9
Rank	42	13	5	10	11	13	23	24	18	17
bp Difference - Median	23	162	158	120	112	92	67	71	47	45
Consecutive For Years Ending										
	6/16	6/15	6/14	6/13	6/12	6/11	6/10	6/09	6/08	6/07
MPSERS	1.5	6.2	19.1	12.2	2.6	21.7	10.9	-19.3	-4.0	19.3
Public Plan - Median (> \$10 billion)*	1.3	3.3	17.3	12.6	1.3	21.6	12.9	-19.3	-3.3	18.1
Rank	42	5	9	64	26	49	73	50	67	28
bp Difference - Median	23	293	184	-45	123	10	-202	1	-66	119

MSERS										
Cumulative For Years Ending 6/30/16										
	1 Year	2 Year	3 Year	4 Year	5 Year	6 Year	7 Year	8 Year	9 Year	10 Year
MSERS	1.5	3.9	8.7	9.6	8.1	10.2	10.3	6.0	4.9	6.2
Public Plan - Median (> \$1 billion)*	1.1	2.1	6.9	8.3	7.0	9.1	9.6	5.4	4.5	5.8
Rank	40	9	3	12	9	15	30	30	30	21
bp Difference - Median	41	175	178	124	112	110	68	65	36	41
Consecutive For Years Ending										
	6/16	6/15	6/14	6/13	6/12	6/11	6/10	6/09	6/08	6/07
MSERS	1.5	6.2	19.1	12.2	2.4	21.7	10.5	-19.5	-4.1	19.3
Public Plan - Median (> \$1 billion)*	1.1	3.2	17.2	12.6	1.1	22.1	12.9	-19.4	-3.0	17.8
Rank	40	3	9	60	23	52	76	51	68	26
bp Difference - Median	41	299	192	-44	131	-38	-239	-5	-105	146

*State Street Public Funds Universe

Cumulative and Consecutive Total Fund Returns

MSPRS										
Cumulative For Years Ending 6/30/16										
	1 Year	2 Year	3 Year	4 Year	5 Year	6 Year	7 Year	8 Year	9 Year	10 Year
MSPRS	1.5	3.8	8.7	9.5	8.1	10.2	10.3	6.0	4.9	6.2
Public Plan - Median (> \$1 billion)*	1.1	2.1	6.9	8.3	7.0	9.1	9.6	5.4	4.5	5.8
Rank	40	9	5	14	11	15	31	33	30	21
bp Difference - Median	40	173	175	119	109	109	67	63	37	44
Consecutive For Years Ending										
	6/16	6/15	6/14	6/13	6/12	6/11	6/10	6/09	6/08	6/07
MSPRS	1.5	6.2	19.0	12.1	2.5	21.8	10.4	-19.5	-3.9	19.5
Public Plan - Median (> \$1 billion)*	1.1	3.2	17.2	12.6	1.1	22.1	12.9	-19.4	-3.0	17.8
Rank	40	3	9	62	22	51	76	52	66	22
bp Difference - Median	40	297	184	-55	135	-31	-242	-7	-86	163

MJRS										
Cumulative For Years Ending 6/30/16										
	1 Year	2 Year	3 Year	4 Year	5 Year	6 Year	7 Year	8 Year	9 Year	10 Year
MJRS	1.5	3.8	8.4	9.4	7.9	10.2	9.9	5.8	4.7	6.0
Public Plan - Median (> \$1 billion)*	1.1	2.1	6.9	8.3	7.0	9.1	9.6	5.4	4.5	5.8
Rank	40	9	7	19	14	18	43	39	36	30
bp Difference - Median	38	172	150	104	95	102	26	38	19	23
Consecutive For Years Ending										
	6/16	6/15	6/14	6/13	6/12	6/11	6/10	6/09	6/08	6/07
MJRS	1.5	6.2	18.2	12.2	2.4	22.1	8.0	-18.9	-3.6	19.0
Public Plan - Median (> \$1 billion)*	1.1	3.2	17.2	12.6	1.1	22.1	12.9	-19.4	-3.0	17.8
Rank	40	3	36	59	23	49	98	40	60	34
bp Difference - Median	38	296	104	-39	125	4	-484	49	-56	113

*State Street Public Funds Universe

State of Michigan Retirement Systems

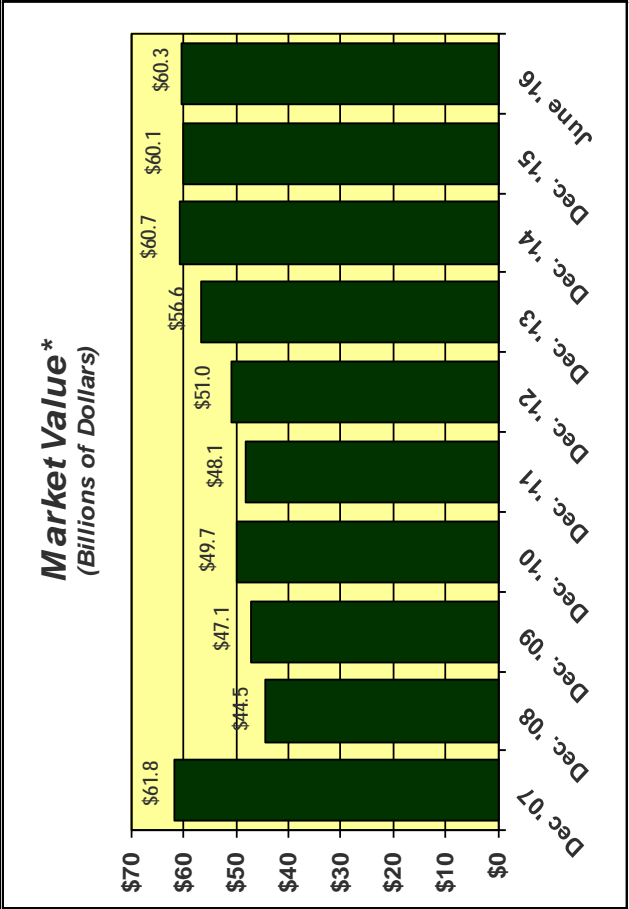
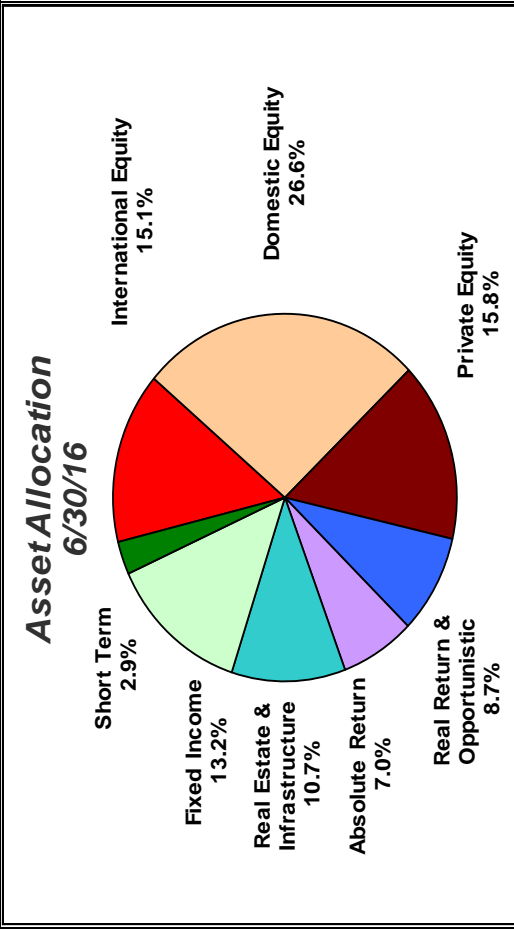
ASSET ALLOCATION REVIEW

Investment Advisory Committee Meeting
September 1, 2016



Jon M. Braeutigam
Chief Investment Officer
Bureau of Investments

STATE OF MICHIGAN RETIREMENT SYSTEMS PROFILE – JUNE 2016



Asset Allocation By Market Value (In Millions)

Investment Strategies	6/30/16	3/31/16
Domestic Equity	\$16,059	\$16,294
Private Equity	9,506	9,553
International Equity	9,127	9,208
Fixed Income	7,973	7,771
Real Estate & Infra.	6,443	6,276
Real Return & Opport.	5,220	4,852
Absolute Return	4,191	4,012
Short Term***	1,743	1,904
TOTAL	\$60,262	\$59,870


Short Term Equivalents (in Billions)

Short Term Strategy***	\$1.7
Short Term in Other Inv. Strategies	0.7
TOTAL SHORT TERM	\$2.4


4.0% of Total Funds

Market Value By Plan ~ 6/30/16 (in Millions)

	Pension Plan Mkt. Value	OPEB** Mkt. Value	Combined Mkt. Value	%
MPERS	\$42,413	\$4,072	\$46,485	77.2%
MSERS - (closed)	10,727	1,446	12,173	20.2%
MSPRS	1,247	106	1,353	2.2%
MJRS - (closed)	250	1	251	0.4%
TOTAL	\$54,637	\$5,625	\$60,262	100.0%



18th Largest DB Public Pension Fund in the U.S.
19th Largest DB Pension Fund in the U.S.



Pensions & Investments Survey - February 8, 2016 Issue

*The combined net payout for the plans for FY 2015 was \$2.2 billion with \$19.9 billion paid out since 2008 (SOMCAFR). This represents the amount paid to beneficiaries in excess of employer and employee contributions
**OPEB - Other Post Employment Benefits

Asset Allocation Targets

As of 6/30/16

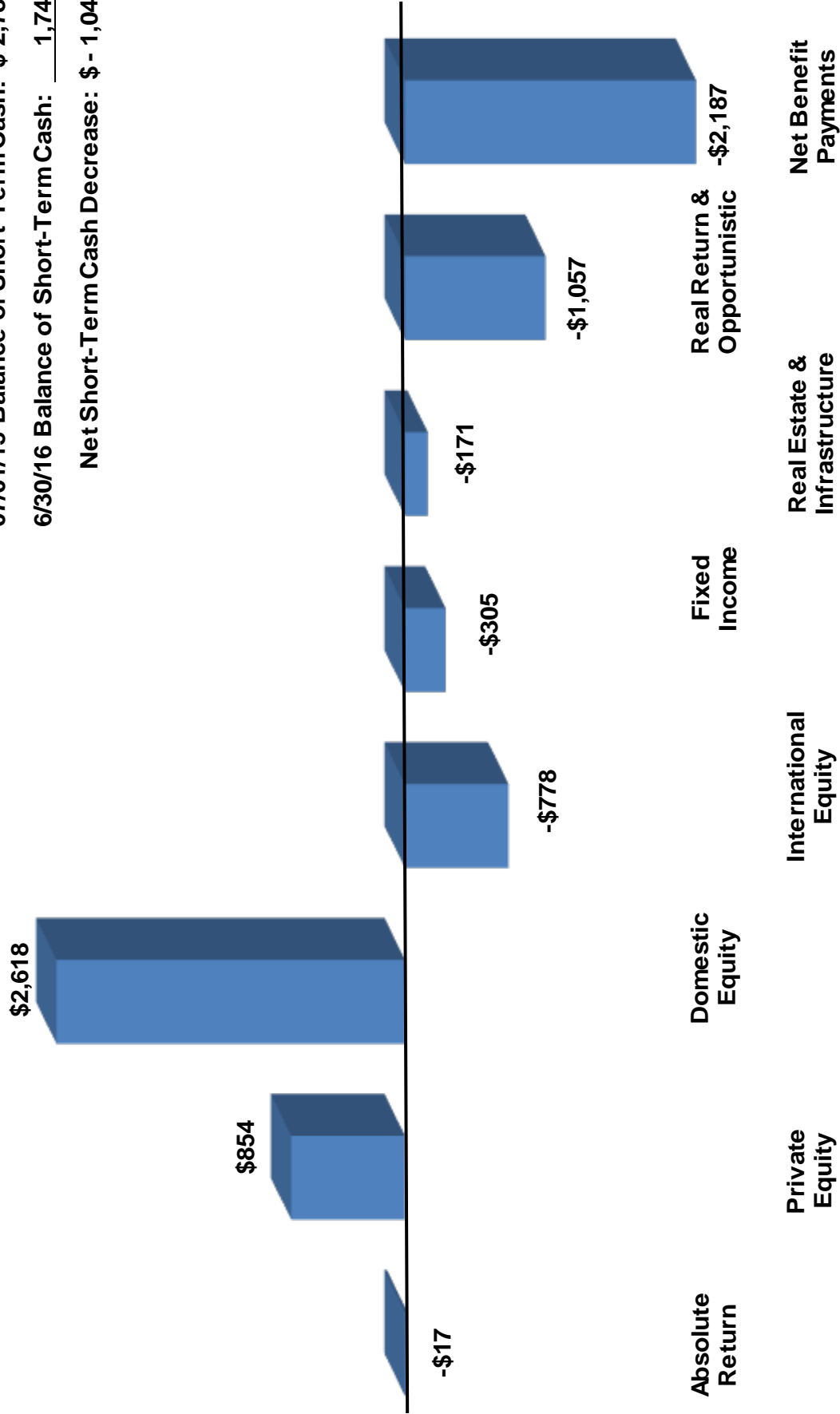
Asset Class	MPSERS			MSERS			MSPRS			MJRS			SMRS
	Actual 6/30/16	Target 9/30/16	Target* 9/30/17	Actual 6/30/16	Target 9/30/16	Target* 9/30/17	Actual 6/30/16	Target 9/30/16	Target* 9/30/17	Actual 6/30/16	Target 9/30/16	Target* 9/30/17	Ranges
Broad U.S. Equity	26.7%	28.0%	28.0%	26.7%	28.0%	28.0%	26.6%	28.0%	28.0%	26.8%	28.0%	28.0%	20% - 50%
Private Equity	15.8%	17.0%	18.0%	15.8%	17.0%	18.0%	15.8%	17.0%	18.0%	15.9%	17.0%	18.0%	10% - 25%
Broad Int'l Equity	15.1%	15.5%	16.0%	15.1%	15.5%	16.0%	15.1%	15.5%	16.0%	15.2%	15.5%	16.0%	10% - 20%
U.S. Fixed Income Core	13.2%	11.5%	10.5%	13.2%	11.5%	10.5%	13.2%	11.5%	10.5%	13.3%	11.5%	10.5%	8% - 25%
Real Estate / Infrastructure	10.7%	10.0%	10.0%	10.7%	10.0%	10.0%	10.7%	10.0%	10.0%	10.8%	10.0%	10.0%	0% - 15%
Real Return / Opportunistic	8.7%	8.5%	9.5%	8.7%	8.5%	9.5%	8.7%	8.5%	9.5%	8.7%	8.5%	9.5%	0% - 15%
Absolute Return	7.0%	7.0%	6.0%	7.0%	7.0%	6.0%	6.9%	7.0%	6.0%	7.0%	7.0%	6.0%	0% - 12%
Cash	2.8%	2.5%	2.0%	2.8%	2.5%	2.0%	3.0%	2.5%	2.0%	2.3%	2.5%	2.0%	1% - 9%
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

*Complies with basket clause and international restrictions.

Sources and Uses of Cash

July 2015 ~ June 2016

07/01/15 Balance of Short-Term Cash: \$ 2,786
 6/30/16 Balance of Short-Term Cash: 1,743
 Net Short-Term Cash Decrease: \$ - 1,043



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

State of Michigan Retirement Systems

MARKETS REVIEW AND OUTLOOK

Investment Advisory Committee Meeting

September 1, 2016



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	11.0%	24.0%	11.6%	Hold
International Equity	9.5%	20.9%	2.3%	Hold
Domestic Equity	7.9%	17.4%	7.5%	Trim
Real Estate (Core)	5.7%	11.5%	6.0%	Trim
Absolute Return	5.2%	9.0%	4.9%	Hold
Real Ret/Opportunistic	7.0%	12.1%	6.9%	Add
Long-Term Fixed Income	2.2%	3.5%	5.1%	Hold
Short-Term	1.4%	1.0%	0.9%	Hold

* Aon Hewitt Investment Consultants 2016 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

Softening the outlook for risk assets.

- 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 five years after the depths of the Great Recession.
- Over the last twelve months, the broad U.S. stock market return was 3.6%, due to dividends and multiple expansion. Year over year earnings growth in U.S. equities has averaged 0% over the past year-and-a-half. The recent ten-year stretch of growth stocks outperforming value stocks is one of the greatest on record rivaling the dot-com era and the Great Depression.
- On June 23, 2016, the citizens of the United Kingdom voted on “Brexit”. As a result of the leave vote, global markets collectively suffered \$2.1 trillion in losses and nearly another \$1 trillion in losses the following Monday. According to S&P Dow Jones Indices, this is the worst single loss of capital ever recorded. Prior to this, the worst was September 29, 2008, when the U.S. Congress failed to vote for a Wall Street bailout.
- The 10-year U.S. Treasury closed June 2016 at 1.5%, almost 90 basis points (bps) lower than one year prior. The curve is slightly below average in terms of steepness, and it is has not been this flat since October 2007.
- The publicly traded FTSE Nareit REITs Index was up 23.8% over the past year ending June 2016, out returning the broad domestic equity market by over 20%. On an annualized basis, over the past three and five years, the index is up 13.3% and 12.5% respectively.
- At the end of June 2016, commodity prices, as measured by the Thomson Reuters CRB Index, were 15% lower than one year prior, however they are almost 25% higher than the February 2016 lows and up more than 9% for the first half of the year.

Domestic Equity

Is value at a turning point?

- Since the seven year anniversary of the stock market bottom of 2009, the value of the U.S. stock market is up three-fold. On an annualized basis, this equates to more than 17% per year on average.
- Over the last twelve months the broad U.S. stock market return was 3.6%, due to dividends and multiple expansion. Year over year earnings growth in U.S. equities has averaged 0% over the past year-and-a-half. However, perhaps in anticipation of future growth in profits, from a technical perspective the market is attempting to break out of its recent weakening trend.
- Valuation metrics are 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.
- Over the past year, ending June 2016, large cap stocks outperformed small cap stocks by 10.7%, one of the best relative 12-month periods since the late 1990s. Over the past three, five, seven, and ten years large has outperformed small-cap returns by 4.6%, 3.8%, 0.5%, and 1.2% on an annualized basis. In spite of the performance differences, small-cap stocks continue to look slightly expensive relative to large caps.
- Over the past year, value beat growth by 0.5%; however, over the past three, five, seven, and ten years growth has out earned value by 1-3% annually. The recent ten-year stretch of growth stocks outperforming value stocks is one of the greatest on record rivaling the dot-com era and the Great Depression. In the next five years subsequent to those prior two periods of fantastic growth style outperformance, value went on to outperform by more than 10% annualized.

International Equity

Brexit vote shocks the market.

- On June 23, 2016, the citizens of the United Kingdom voted on a non-binding referendum to gauge support for the country's continued membership in the European Union, otherwise known as the Brexit vote. The vote to leave was 52% of the vote, greatly surprising the market.
- The following day, as a result of the Brexit vote, global markets collectively suffered \$2.1 trillion in losses and nearly another \$1 trillion in losses the following Monday. According to S&P Dow Jones Indices, this is the worst single loss of capital ever recorded. Prior to this, the worst was September 29, 2008, when the U.S. Congress failed to vote for a Wall Street bailout.
- Notably, the massive losses suffered after Brexit vote have been recovered by the end of July 2016.
- International equities continue to underperform domestic. Over the past one, three, five, seven, and ten years ending March 2016, the international market index, MSCI ACWI ex USA, underperformed the S&P 1500 index by -13.9%, -10.4%, -11.8%, -9.7%, and -5.7% annualized respectively.
- Within international equities, developed markets continue to outperform emerging markets. Over the past one, three, five, and seven years developed has outperformed emerging by 2.5%, 3.5%, 5.2% and 1.9% on an annualized basis, though underperformed emerging the past ten years by 1.9%.
- The plan is underweight international equity against a global benchmark (approximately 36% versus 47%) and it is also slightly underweight peers; 15.1% versus 17.2%. Over the past year ending June 2016, an additional \$750 million has been invested into primarily developed international markets.
- Based on a price-to-earnings valuation multiple, excluding non-earning companies, developed international equity markets trade at a 14% discount to the U.S. counterparts, while emerging markets trade at over a 35% discount.

Interest Rates

A flattening curve.

- The 10-year U.S. Treasury closed June 2016 at 1.5%, almost 90 bps lower than one year prior. The curve is slightly below average in terms of steepness, and it has not been this flat since October 2007.
- Spreads in both high yield and investment grade securities were wider than average at the end of the June quarter. At the end of June 2016, investment grade was about 15 bps and high-yield spreads were about 125 bps above their long-term averages.
- Asset backed securities are becoming more attractively priced as interest rates fall and spreads narrow.
- Inflation expectations are being priced lower in the bond markets. The ten-year breakeven rates at the end of June 2016 were priced at 1.4%, 60 bps below the average of the past five years and 20 bps lower than a year ago. This is also lower than the Fed's target rate of long-term 2% inflation; the market is betting against the Fed.
- The Index's sensitivity to changes in interest rates has slightly decreased since last year as measured by the modified adjusted duration. At the end of June 2016, the Barclays Aggregate Index had a duration of 5.4 compared to 5.9 a year ago. Credit risk offers some selective value.

Real Estate

Rich valuations and following the bond market.

- The publicly traded FTSE Nareit REITs Index was up 23.8% over the past year ending June 2016, outperforming the broad domestic equity market by over 20%. On an annualized basis, over the past three and five years, the index is up 13.3% and 12.5% respectively.
- The index hit an all-time high in June 2016, and has rallied over 25.5% from its 2016 market lows.
- The REIT Index is priced modestly cheap relative to bonds, while other valuation metrics indicate that the index is very expensively priced. In other words, real estate is not expected to deliver high absolute returns over the longer term. However stretched the valuations have become, timing of the softer than normal returns is tricky.

Commodities

Rebounding some.

- At the end of June 2016, commodity prices, as measured by the Thomson Reuters CRB Index, were 15% lower than one year prior, however they are almost 25% higher than the February 2016 lows and up more than 9% for the first half of the year. Since its peak in 2008, prices are down by about -60%, and prices are now around the March 2009 levels.
- The U.S. dollar has been range bound over the past year ending June 2016. As measured by the DXY Index, the U.S. dollar has fluctuated around +/- 3.5% and it ended June at the middle of its 12-month price range.
- The price of precious metals has found some strength recently. Gold ended June at a price of \$1,320 per ounce, its highest month-end value since October 2013 and 24.5% higher than the beginning of the year. The dollar value for silver is up more than 35% for the first half of the year.

ECONOMIC OUTLOOK

Select Historic Economic Growth with Forecasts

An eye to 2017.

Real GDP Growth Actual/Forecasts	2014	2015	2016	2017	2018
World	3.4	3.1	2.9	3.2	3.3
U.S.	2.4	2.6	1.9	2.2	2.1
Developed (G8)	1.7	1.8	1.5	1.6	1.7
Asia	4.8	4.8	4.4	4.8	4.9
EMEA	2.2	0.9	1.8	2.6	2.6
Europe	0.9	1.7	1.5	1.2	1.5
Latin America	0.6	-0.5	-1.3	1.9	2.6
China	7.3	6.9	6.5	6.3	6.4

*Source: Bloomberg

Economic Overview

U. S. economy remains the bright spot.

- The most recent reading of the annualized U.S. GDP growth was 1.2%, below the consensus estimate of 2.5%. Current estimates for 2016 GDP growth for the U.S. is 1.9%. Coincidental economic indicators such as the Institute for Supply Management's Manufacturing and Non-Manufacturing PMI Indexes are above 50, indicating that there currently is a modest expansion in the U.S. economy.
- The jobs market is fairly healthy. The national unemployment rate is 4.9% and the 3-month average figures for both initial jobless and continuing claims continue to stay near the lowest levels in over 40 years. Anecdotally, wages are increasing across the U.S. However, wage growth has been depressed for a number of years prior, so it is difficult to become too concerned about wage-cost inflation right now.
- U.S. housing is a bright spot. At nearly 5.6 million, total existing home sales is at its highest level in nine years. Demand is more robust than supply; housing inventory-to-sales ratios are at the low end of a 25-year range. At 1.1 million, new housing starts are also at late 2007 levels. Existing home sales median price hit an all-time high at just under \$250 thousand.

State of Michigan Retirement Systems

ABSOLUTE AND REAL RETURN REVIEW

Investment Advisory Committee Meeting

September 1, 2016



James L. Elkins
Senior Investment Manager
Short-Term, Absolute and Real Return Division

EXECUTIVE SUMMARY

Absolute Return

Performance

MPSERS Plan	1-Year	3-Years	5-Years	7-Years	10-Years
Absolute Return	-3.8%	3.3%	4.0%	6.1%	N/A
HFRI FOF Conservative*	-3.4%	1.9%	1.8%	3.0%	N/A

*One month lag on the index

- Total Absolute Return value was \$4.2 billion with a total one-year return of -3.8% and a total 7-year annualized net return of 6.1%. All strategies across the portfolio contributed to the weak result, but the performance can be primarily attributed to poor performance for the broader equity long-short space, which experienced the most challenged alpha environment in observed history.

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 hedge out unwanted risk.
- In terms of strategy allocations, we remain cautious on taking material directional risks in the portfolio and continue to shift towards more diversifying, lower net exposures in fundamental and quantitative strategies. Given recent dynamics in credit markets, giving way to substantial dislocations, we expect the liquid strategies to be a potential source of opportunity going forward. Tactically, we intend to shift capital into this space in hopes of better capturing these opportunities.
- Redemption requests of \$500 million have been made in order to fund net benefit payments.
- No new investments were made this quarter.

Market Environment

- Multi-Strategy/Event – The strategy performed positively for the quarter, with much of the positive performance observed across April and May, and ended the period as the largest contributor to performance. Positive performance was driven primarily by managers with select energy exposure which was evenly distributed amongst midstream and upstream positions.
- Credit – Performance for credit managers was positive for the quarter, as the strategy closed out the period as the second largest contributor to performance. Spreads across credit products tightened during the quarter, driven primarily by an improvement in fundamentals and investors' desire for yield.
- Equity – Performance for equity managers over the course of the second quarter was mixed, but overall ended the quarter positively at the strategy level. Strong relative performance in April and May was offset by challenged performance in June, during which alpha was negative, as many equity managers faced similar headwinds to what was observed earlier in the first quarter of the year. Many sectors to which the equity managers in the portfolio were typically positioned short, including materials, energy, consumer staples, and utilities, exhibited strong positive performance during June, causing losses in many short-books.

Real Return and Opportunistic

Performance

MPSERS Plan	1-Year	3-Years	5-Years	7-Years	10-Years
Real Return and Opport.	3.4%	12.0%	8.9%	N/A	N/A
Custom Benchmark	7.0%	7.1%	7.2%	N/A	N/A

- Total Real Return and Opportunistic value was \$5.1 billion with a total one-year return of 3.4%. The portfolio held up in weak performance period for energy and other commodity exposures.

Strategy Update

- The objective of the Real Return & Opportunistic portfolio is to provide an inflation hedge or to gain exposure to attractive opportunities that may not fit in another plan portfolio.
- In terms of strategy allocations, we continue to favor private credit opportunities over equity in most situations due to the expected return for the level of risk. This has been a consistent theme for many quarters that has continually yielded a healthy pipeline of opportunities as financial markets evolve in the current regulatory environment.
- The Real Return & Opportunistic portfolio has approximately \$2.5 billion of unfunded commitments. New commitments closed during the quarter include:
 - \$300 million to New Fortress Energy HLDGS, a provider of liquefied natural gas.
 - \$150 million to Kayne P.E. Income Fund, an energy fund focused on acquiring long-lived, low-risk upstream natural gas assets.
 - \$50 million to Orion Mine Finance II LP, a fund focused on providing capital solutions to mining companies.
 - \$40 million Terra Co-Investment LLC, a co-investment from the Kayne Private Energy Income Fund LP.

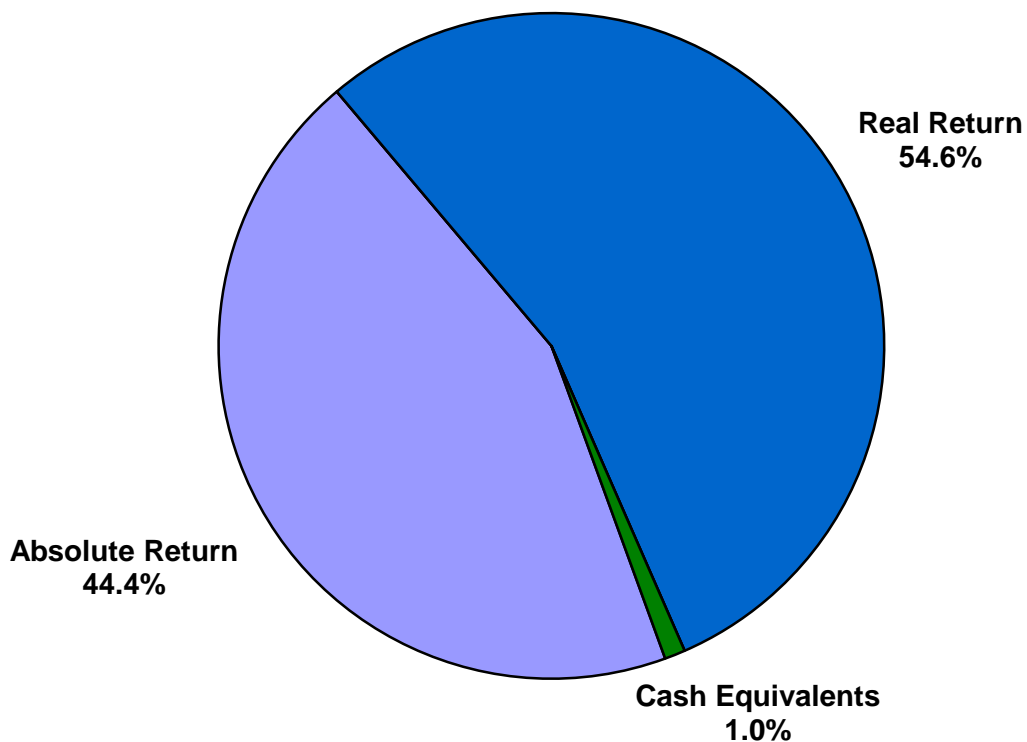
Market Environment

- Senior Secured Credit – At the end of June, the spread on the LSTA Leveraged Loan Index was L+531, 92 basis points tighter than at the start of 2016. The yield on the Merrill Lynch High Yield Master II Index stood at 7.36%, 140 bps tighter than at the start of 2016. No issuers defaulted in June, bringing the default rate by principal amount to an annualized rate of 1.97%, still well below the long-term average of 3.1%. Some uncertainty has permeated the market following the Brexit vote, which has caused the forward new issue calendar to fall to its lowest levels since early 2015.
- Direct Lending – The private credit opportunity continues to offer a premium over more broadly syndicated loan markets. The combination of regulatory scrutiny and public market volatility forced the banks to move up-market and shy away from smaller transactions they would typically underwrite in a stable environment. This move away from these financings has allowed the middle market direct lending space to remain exceptionally attractive halfway through 2016.
- Energy Funds – For the quarter, Spot WTI crude prices were up 26% with long-dated contracts up 10-15 percent. Spot natural gas prices were up 49% for the quarter, while long-dated contracts showed very little price movement. STARR was able to invest capital in the space during the quarter with very attractive levels and on advantageous terms. With approximately 27% of our energy commitments presently invested, a substantial amount of uncalled commitments remain ready to capitalize on the opportunities presented by lower energy prices should they persist.

SMRS

Absolute, Real Return and Opportunistic

6/30/16



Market Value in Millions				
	6/30/16		3/31/16	
Absolute Return	\$4,181	44.4%	\$4,002	45.2%
Real Return	5,139	54.6%	4,772	53.8%
Cash Equivalents	91	1.0%	90	1.0%
Total Investments	\$9,411	100.0%	\$8,864	100.0%

SMRS
Absolute Return
6/30/16

Net Market Values By Entity

	<u>Net Market Value</u>
Apollo Offshore Credit Strategies Fund Ltd.	\$ 146,981,461
Drawbridge Opportunities Fund	193,421,785
* EnTrust White Pine Partners L.P.	337,578,593
JM IV, LP	43,802,295
MP Securitized Credit Master Fund, L.P.	64,752,221
Spartan Partner LP	170,254
* Tahquamenon Fund L.P.	3,303,465,402
Visium Balanced Fund LP	90,777,369
<u>Total Market Value</u>	<u>\$ 4,180,949,380</u>

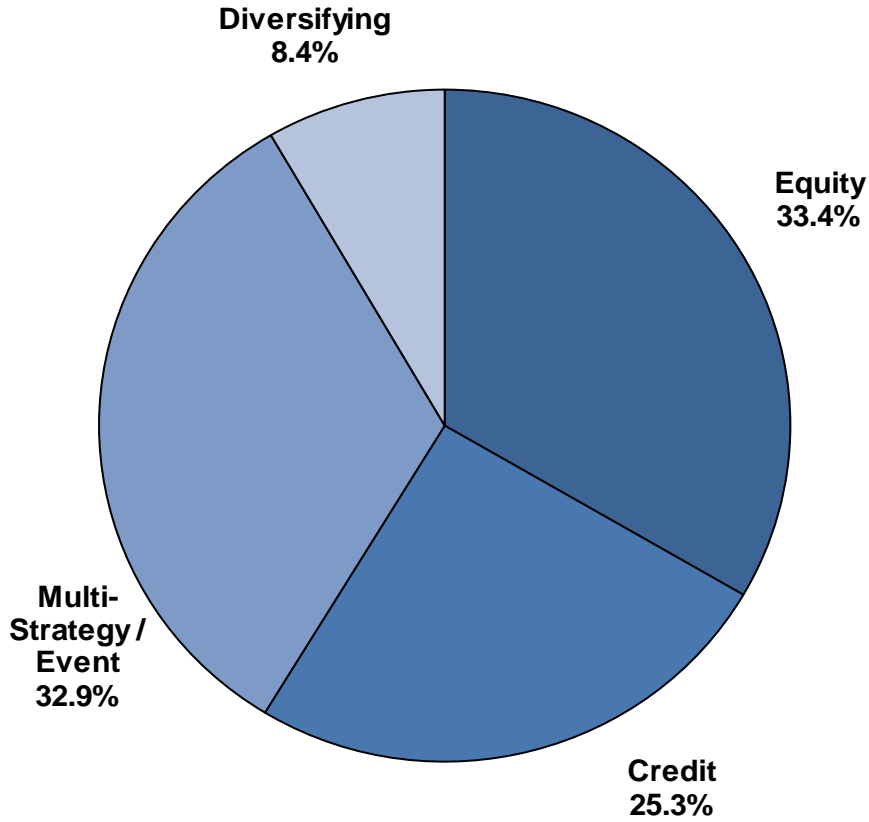
* Fund of Funds

SMRS

Absolute Return

6/30/16

Investments By Strategy



Strategy Breakdown			
Underlying Funds:	96	Median Position Size:	0.4%
Strategies:	4	Average Position Size:	1.0%
Relationships:	8	Largest Position Size:	12.0%

SMRS

Real Return and Opportunistic

6/30/16

Net Market Values By Entity

	<u>Net Market Value</u>	<u>Unfunded Commitment</u>
* Abernathy Fund I, LLC	\$ 303,348,826	\$ 52,815,145
Apollo Credit Opportunities Fund III LP	67,692,205	11,374,718
Apollo European Principal Finance Fund II	47,114,687	12,940,972
Apollo Financial Credit Investments Fund II	386,260,104	90,115,858
Apollo HK TMS Investments Holdings LP	19,220,563	-
Apollo Offshore Credit Fund Ltd	251,842,850	-
Apollo Offshore Structured Credit Recovery Fund II	4,173,591	-
Apollo Offshore Structured Credit Recovery Fund III	127,361,024	87,737,039
Blackstone Strategic Capital Holdings LP	21,315,998	104,297,296
Blue Peninsula Fund LP	67,319,641	133,214,100
Carlyle Intl Energy Partners LP	12,006,584	44,249,752
Carlyle Energy Mezzanine Opportunity Fund	3,258,086	46,547,611
* Content Holdings LLC	550,068,853	113,669,203
Elegantree Fund SPC	44,970,533	5,076,770
Energy Recapitalization and Restructuring Fund LP	34,549,000	18,700,269
ERR Michigan Holdings LP	5,635,800	2,335,070
* Fairfield Settlement Partners, LLC	69,991,523	14,683,546
FCO MA MI LP	42,819,580	158,020,566
Fortress MSR Opportunities Fund I A LP	110,093,653	-
Fortress Transport	34,709,923	-
* Galaxie Ave. Partners, LLC	99,900,000	-
GSO Credit Alpha Fund LP	52,994,068	44,819,608
Highbridge Principal Strategies - Specialty Loan Fund III	130,194,832	13,229,351
Hopen Life Sciences Fund II	5,141,541	3,175,000
HPS Red Cedar Fund	27,255,193	196,045,747
Innocor	30,000,000	-
JP Morgan Global Maritime Investment Fund LP	64,077,039	22,853,795
KANG Fund LP	11,608,717	-
** Kayne P.E. Income Fund	20,449,830	129,000,000
KKR EI&G Fund	22,497,410	33,431,154
KKR Lending Partners I LP	60,345,424	13,282,965
KKR Lending Partners II LP	32,874,922	67,156,238
Lakewater LLC, Series 1	145,615,972	4,585,656
Lakewater LLC, Series 2	252,822,682	14,111,838
Lakewater LLC, Series 3	312,769,449	-
Lakewater LLC, Series 4	64,186,349	15,997,454
Lakewater LLC, Series 5	58,696,899	191,438,155
Merit Energy Partners LP	25,719,753	9,201,858
MidCap FinCo Holdings LTD	299,703,322	-
Napier Park Aircraft Leasing Vehicle I, LLC	42,771,391	58,825,274
** New Fortress Energy HLDGS	300,000,000	-
Orion Coinvest III LP	19,395,154	2,236,552

	<u>Net Market Value</u>	<u>Unfunded Commitment</u>
Orion Mine Finance Fund 1A LP	44,458,221	7,875,521
Orion Mine Finance Fund I LP	107,513,254	10,498,712
** Orion Mine Finance II LP	3,010,908	46,989,092
Renaissance Venture Cap Fund II LP	7,827,617	16,500,000
REOG Fund II Coinvest LP	12,409,788	11,924,817
Ridgewood Energy Oil & Gas II	68,492,649	38,960,962
Ridgewood Energy Oil & Gas III	9,126,437	215,485,114
RPEP SMRS Holdings, LLC	64,999,525	1,876,850
SJC Direct Lending Fund I, LP	41,355,126	17,165,637
SJC Direct Lending Fund II, LP	250,894,660	82,158,651
SJC Direct Lending Fund III, LP	36,275,336	204,663,053
Square Inc.	102,710,170	-
* Social Network Holdings, LLC	58,578,539	-
Specialty Equity Strategy LP	1,814,985	18,387,384
** Terra Co-Investment LLC	26,000,000	14,000,000
Varo Coinvestment LP	12,564,697	18,787,825
Warwick Energy Partners III	3,195,449	34,876,863
Warwick (SMRS) Co-Invest, L.P.	4,534,669	20,464,081
Income Accruals	394,517	
Total Market Value	\$ 5,138,929,518	\$ 2,475,783,121

* Fund of Funds

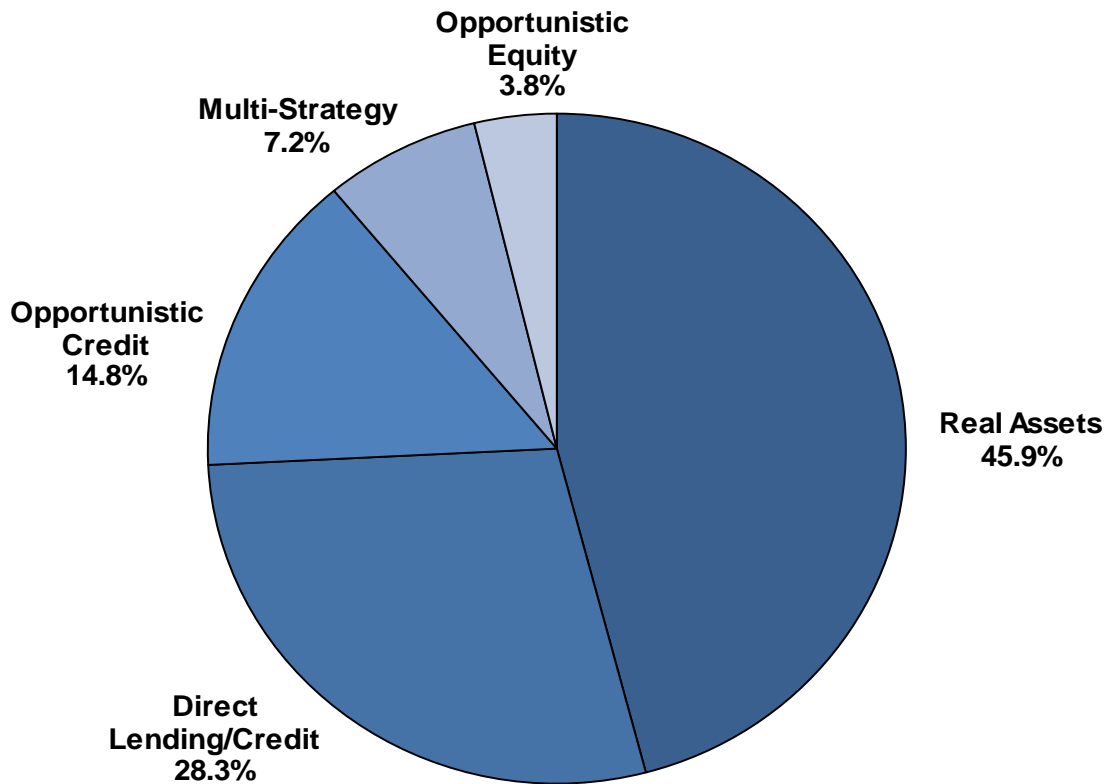
** **New Commitment**

SMRS

Real Return and Opportunistic

6/30/16

Investments By Strategy



Investment Strategy	
Real Assets	\$2,358,180,036
Direct Lending/Credit	\$1,455,782,133
Opportunistic Credit	\$758,330,499
Multi-Strategy	\$370,668,467
Opportunistic Equity	\$195,573,865

State of Michigan Retirement Systems

DOMESTIC EQUITY REVIEW

Investment Advisory Committee Meeting

September 1, 2016



Jack A. Behar, CFA
Senior Investment Manager
Stock Analysis Division

EXECUTIVE SUMMARY

Performance

Total Domestic Equity, Gross	1-Year	3-Years	5-Years	7-Years	10-Years
Annualized Returns	1.0%	11.0%	11.5%	14.4%	7.4%
S&P 1500	3.6%	11.5%	11.9%	15.1%	7.5%
Peer Median Return	0.5%	9.9%	10.6%	14.3%	7.2%
Rank vs. Peers	45	31	20	45	40

Total Domestic Equity, Net	1-Year	3-Years	5-Years	7-Years
Annualized Returns	1.0%	10.9%	11.4%	14.3%
S&P 1500	3.6%	11.5%	11.9%	15.1%
Lipper Multi Core	-2.0%	8.9%	9.5%	13.3%
Rank vs. Lipper Multi Core	25	18	26	34

Total Active Equity, Net	1-Year	3-Years	5-Years	7-Years
Annualized Returns	-1.3%	10.3%	11.0%	13.7%
S&P 1500	3.6%	11.5%	11.9%	15.1%
Lipper Multi Core	-2.0%	8.9%	9.5%	13.3%
Rank vs. Lipper Multi Core	43	32	29	45

- Total domestic equities outperformed peers in all time periods.
- In a difficult stretch for active management, both total domestic equity and its peers trailed the S&P 1500 in all time periods.
 - Gross of fees, total domestic equity's performance was in the top third of its peer group over three and five years and the top half of its peer group over all other time periods.
 - Net of fees, total domestic equity's performance versus peers was significantly better than described above, because SMRS pays roughly 6 basis points (bps) per year in domestic equity management fees versus its peer group at 30 bps.
 - Performance versus the Lipper Multi Core Universe, a net of fees proxy, was in the top quartile over one, three, and five years and near the top third over seven years.
- Total active equity also underperformed its benchmark in all time periods. Such performance, while not satisfactory, was generally near the top third or the top half of its peer group depending on the time period.
 - Growth stocks have outperformed value stocks by a cumulative 65% over the past ten years, which has been a headwind to performance.

- Historically value stocks have outperformed growth stocks over extended periods of time.
- Total active equity remains significantly over-weighted to value stocks, which will provide the portfolio with a substantial tailwind if and when this trend reverses.

Strategy Update

- The division is researching the impact of lower portfolio turnover on the performance of active managers, both internal and external, with initial research indicating a measurable effect on returns for most portfolios.
- The division continues to pay 12 bps per year in fees across all managers, both internal and external.
- Total active equity's portfolio continues to trade at roughly a 20% discount to the S&P 1500 on the basis of normalized earnings, with similar volatility and rates of growth going forward.
 - Six of the division's top ten holdings trade at PE ratios of 13x or less. All are high quality companies with significant competitive advantages.
 - Total active equity remains over-weighted to both the financial sector and to defensive stocks. It is now also slightly over-weighted to the technology sector.
 - We expect total active equity's PE ratio to at least partially converge with that of the S&P 1500 over the next five years, driving annualized outperformance.
 - If PE ratios do not converge, we nonetheless expect long-term outperformance on the basis of a higher net dividend yield (dividends + buybacks) than the benchmark alongside similar or faster rates of earnings reinvestment.

Market Environment and Outlook

- At ~19x normalized earnings, equity markets are on the rich side relative to history, but still attractively priced for an environment where bond yields stay abnormally low.
- Assuming a 2.0% normalized dividend yield, expected share count reductions of 1.4% via share buybacks and 4.7% long-term expected earnings growth, the S&P 1500 is poised to return approximately 8.1% over the long-term.
 - This compares to the 30-year U.S. Treasury at 2.3%, and a historical average return for the S&P 500 of 9.5% from 1928 - 2015.

SMRS
Domestic Equities
6/30/16

Markets	Amount	Total	% of Total
Internal (in millions)			
Indexed Portfolios	\$7,434		
Total Indexed		\$7,434	46.3%
Internal			
Active Portfolios	\$5,015		
Total Active		\$5,015	31.2%
Active			
Los Angeles Capital	\$1,087		
Fisher Investments	616		
Seizert Capital Partners	526		
Clarkston Capital Partners	479		
Attucks Asset Management	227		
ARK Investments	219		
Bivium Capital	210		
Munder Capital Management	138		
Northpointe Capital	108		
Total Active		\$3,610	22.5%

TOTAL

\$16,059

100.0%

Combined Active Equity Portfolio, Return Expectations 6/30/16

Return Assumption Estimates

	<u>Expected Return ****</u>	<u>Normal Dividend Yield **</u>	<u>LT Growth Rate ***</u>
SAD Combined Active Equity	9.3%	4.8%	4.5%
S&P 1500 All-Cap	8.1%	3.4%	4.7%
S&P 500 Large-Cap	8.2%	3.7%	4.5%
S&P 500 Historical Average	9.5%		
S&P 400 Mid-Cap	8.1%	2.1%	6.0%
S&P 600 Small-Cap	7.8%	0.8%	7.0%
US 30-Year Treasury	2.3%	2.3%	0.0%

Normal Dividend Yield Decomposition

	<u>Normal Price/Earnings</u>	<u>Normal Earnings Yield*</u>	<u>Normal Payout Ratio</u>	<u>Normal Dividend Yield**</u>
SAD Combined Active Equity	14.8	6.8%	71%	4.8%
S&P 1500 All-Cap	19.4	5.1%	66%	3.4%
S&P 500 Large-Cap	19.0	5.3%	69%	3.7%
S&P 400 Mid-Cap	20.8	4.8%	44%	2.1%
S&P 600 Small-Cap	22.6	4.4%	18%	0.8%

Portfolio and Benchmark Risk Estimates

	<u>Expected Return ****</u>	<u>Standard Deviation</u>	<u>Expected Return/Volatility</u>
SAD Combined Active Equity	9.3%	17.1%	0.6
S&P 1500 All-Cap	8.1%	17.0%	0.5
S&P 500 Large-Cap	8.2%	17.0%	0.5
S&P 400 Mid-Cap	8.1%	17.9%	0.5
S&P 600 Small-Cap	7.8%	19.0%	0.4
US 30-Year Treasury	2.3%	27.8%	0.1

*Earnings Yield = Earnings/Price

**Includes Share Buybacks

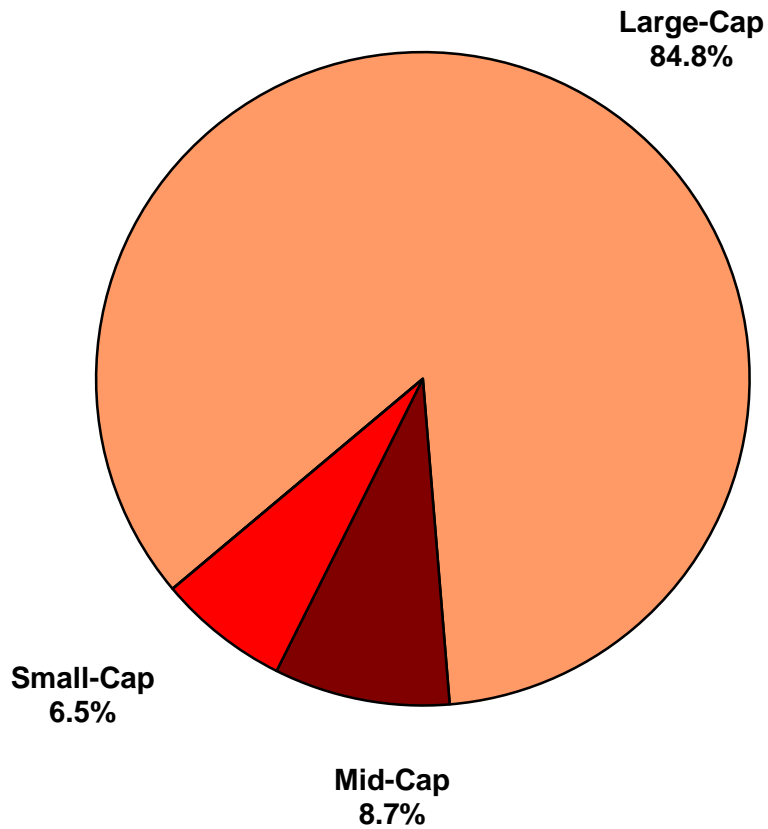
***LT Growth Rate Calculation: Return on Equity * (1-Dividend Payout Ratio)

****Expected Return Formula: Dividend Yield + LT Growth Rate

SMRS

Domestic Equity Exposure By Market Cap

6/30/16



Market Value in Millions			
	<u>6/30/16</u>		
	<u>Assets</u>	<u>Percent</u>	<u>S&P 1500</u>
Large-Cap (>\$10B)	\$13,618	84.8%	86.1%
Mid-Cap (>\$4 <\$10B)	1,397	8.7%	7.7%
Small-Cap (<\$4B)	1,044	6.5%	6.2%
Total Domestic Equity	<u><u>\$16,059</u></u>	<u><u>100.0%</u></u>	<u><u>100.0%</u></u>

SMRS

Domestic Equities Composite

6/30/16

Date:	<u>6/30/16</u>	<u>3/31/16</u>	<u>12/31/15</u>	<u>9/30/15</u>
Assets (\$million):	\$16,059	\$16,294	\$16,724	\$16,605
Number of Securities:	1,329	1,305	1,258	1,217
Active Share:	33%	35%	34%	34%

Benchmark: S&P 1500

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

Characteristics:	<u>SMRS</u>	<u>S&P 1500</u>
Weighted Average Capitalization (\$billion):	\$139.1	\$123.6
Trailing 12-month P/E:	17.1x	19.6x
Forecast P/E:	15.8x	17.4x
Price/Book:	2.5x	2.6x
Beta:	0.99	1.00
Dividend Yield:	2.2%	2.1%
3-5 Year EPS Growth Estimate:	10.2%	10.0%
Return on Equity:	14.6%	13.3%

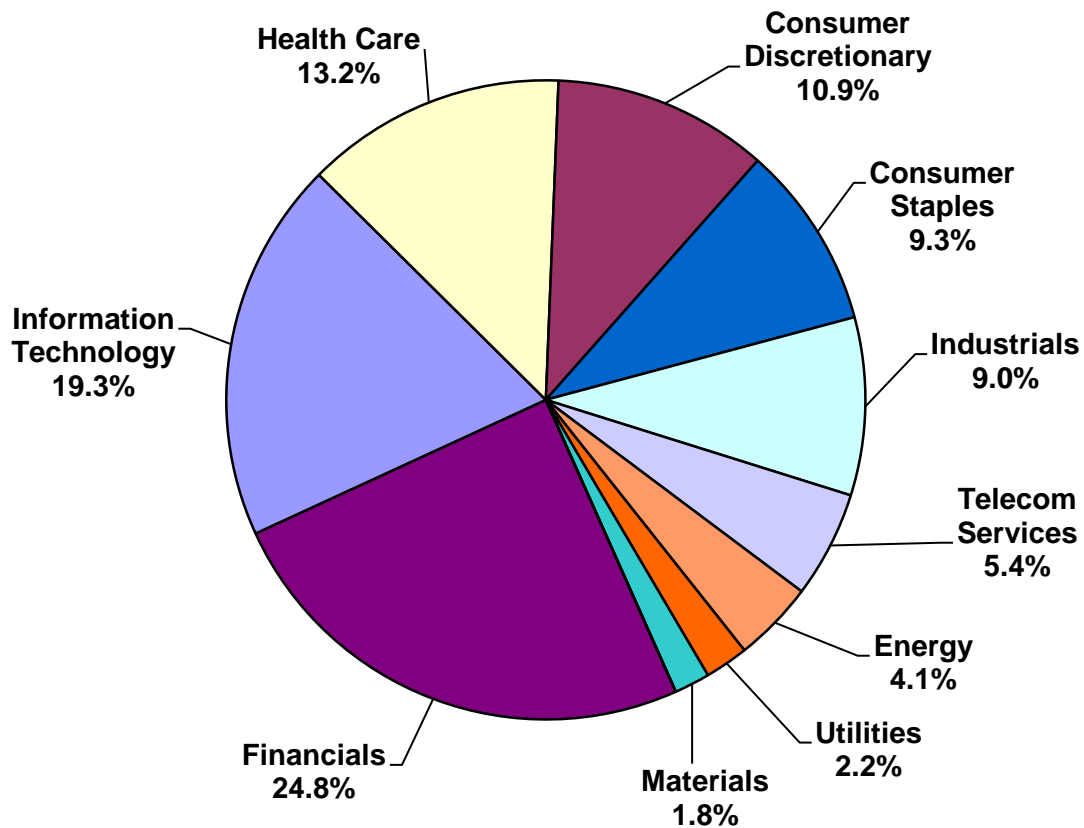
TOP TEN HOLDINGS - Domestic Equities 6/30/16

	<u>Portfolio Weight</u>	<u>Total Shares</u>	<u>6/30/16 Price</u>	<u>YTD16 Total Return</u>	<u>Market Value</u>
Verizon Communications, Inc.	4.4%	12,699,840	\$55.84	23.6%	\$709,159,066
Apple, Inc.	3.4%	5,627,526	\$95.60	-8.1%	537,991,486
Wells Fargo & Company	2.9%	9,927,175	\$47.33	-11.6%	469,853,193
SPDR S&P 500 ETF Trust	2.9%	2,189,950	\$209.48	3.8%	458,739,776
Berkshire Hathaway Inc. Class B	2.7%	3,032,746	\$144.79	9.7%	439,111,293
U.S. Bancorp	2.2%	8,840,838	\$40.33	-4.3%	356,550,997
Wal-Mart Stores, Inc.	2.0%	4,451,640	\$73.02	20.9%	325,058,753
Microsoft Corporation	1.9%	5,869,779	\$51.17	-6.5%	300,356,591
Gilead Sciences, Inc.	1.6%	3,040,051	\$83.42	-16.7%	253,601,054
Aflac, Inc.	<u>1.4%</u>	3,063,436	\$72.16	22.1%	<u>221,057,542</u>
TOTAL	<u>25.4%</u>	6			<u>\$4,071,479,750</u>

SMRS

Domestic Equity By Sector

6/30/16



Market Value in Millions				
6/30/16				
	<u>Assets</u>	<u>Percent</u>	<u>Benchmark</u>	<u>Difference</u>
Financials	\$3,979	24.8%	16.8%	8.0%
Information Technology	3,090	19.3%	19.4%	-0.1%
Health Care	2,120	13.2%	14.5%	-1.3%
Consumer Discretionary	1,754	10.9%	12.3%	-1.4%
Consumer Staples	1,497	9.3%	9.9%	-0.6%
Industrials	1,442	9.0%	10.3%	-1.3%
Telecom Services	873	5.4%	2.7%	2.7%
Energy	652	4.1%	7.0%	-2.9%
Utilities	358	2.2%	3.9%	-1.7%
Materials	294	1.8%	3.2%	-1.4%
Total	<u>\$16,059</u>	<u>100.0%</u>	<u>100.0%</u>	

Benchmark: S&P 1500

SMRS

Actively Managed Composite

6/30/16

Date:	<u>6/30/16</u>	<u>3/31/16</u>	<u>12/31/15</u>	<u>9/30/15</u>
Assets (\$million):	\$8,625	\$9,018	\$9,517	\$9,118
Numbers of Securities:	1,023	969	922	888
Active Share:	62%	63%	59%	62%

Benchmark: S&P 1500

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.

Characteristics:	<u>SMRS</u>	<u>S&P 1500</u>
Weighted Average Capitalization (\$billion):	\$148.0	\$123.6
Trailing 12-month P/E:	15.5x	19.6x
Forecast P/E:	14.7x	17.4x
Price/Book:	2.3x	2.6x
Beta:	0.99	1.00
Dividend Yield:	2.3%	2.1%
3-5 Year EPS Growth Estimate:	10.4%	10.0%
Return on Equity:	14.8%	13.3%

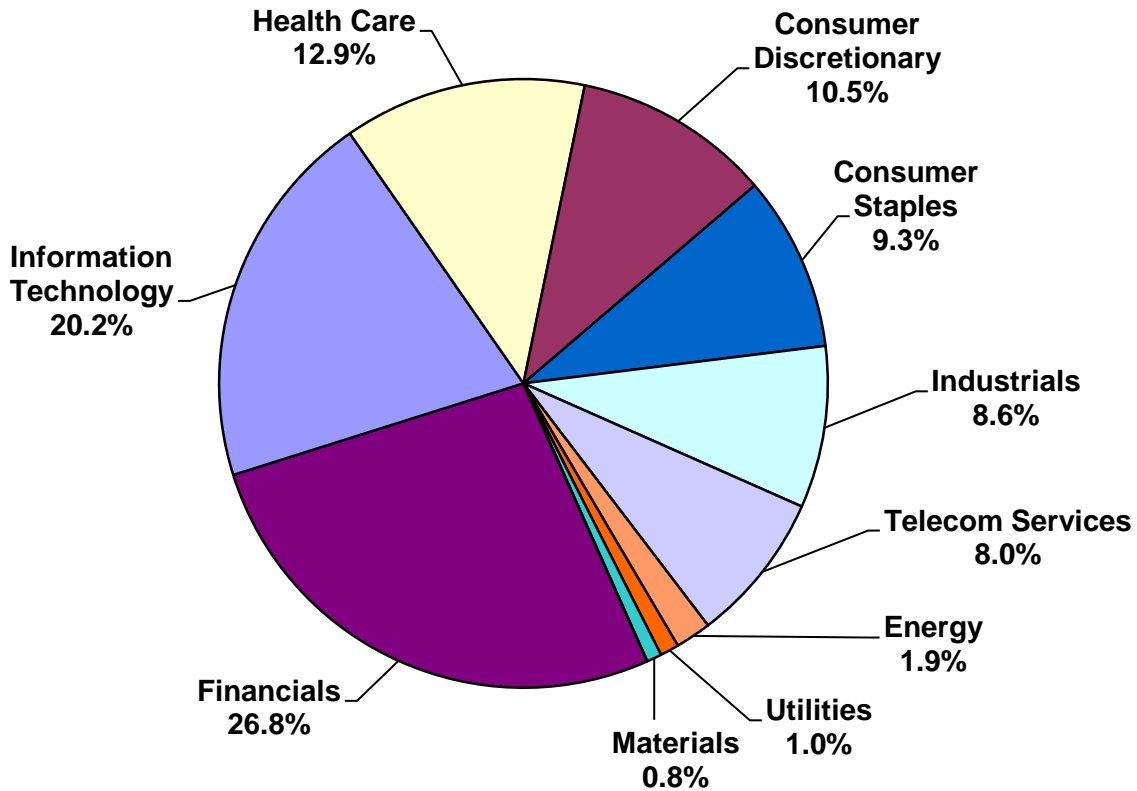
TOP TEN HOLDINGS - Actively Managed 6/30/16

	<u>Portfolio Weight</u>	<u>Total Shares</u>	<u>6/30/16 Price</u>	<u>YTD16 Total Return</u>	<u>Market Value</u>
Verizon Communications, Inc.	7.3%	11,283,769	\$55.84	23.6%	\$630,085,661
Wells Fargo & Company	4.6%	8,322,241	\$47.33	-11.6%	393,891,667
Berkshire Hathaway Inc. Class B	4.3%	2,555,880	\$144.79	9.7%	370,065,865
Apple, Inc.	4.1%	3,724,695	\$95.60	-8.1%	356,080,842
U.S. Bancorp	3.9%	8,277,100	\$40.33	-4.3%	333,815,443
Wal-Mart Stores, Inc.	3.3%	3,921,106	\$73.02	20.9%	286,319,160
Gilead Sciences, Inc.	2.5%	2,577,439	\$83.42	-16.7%	215,009,961
Aflac, Inc.	2.4%	2,919,627	\$72.16	22.1%	210,680,284
Validus Holdings, Ltd.	2.0%	3,522,943	\$48.59	6.6%	171,179,800
Willis Towers Watson Public Ltd. Co.	<u>1.9%</u>	1,315,987	\$124.31	-2.6%	<u>163,590,344</u>
TOTAL	<u>36.3%</u>				<u>\$3,130,719,028</u>

SMRS

Active Equity By Sector

6/30/16



Market Value in Millions				
6/30/16				
	<u>Assets</u>	<u>Percent</u>	<u>Benchmark</u>	<u>Difference</u>
Financials	\$2,314	26.8%	16.8%	10.0%
Information Technology	1,739	20.2%	19.4%	0.8%
Health Care	1,114	12.9%	14.5%	-1.6%
Consumer Discretionary	906	10.5%	12.3%	-1.8%
Consumer Staples	801	9.3%	9.9%	-0.6%
Industrials	740	8.6%	10.3%	-1.7%
Telecom Services	688	8.0%	2.7%	5.3%
Energy	163	1.9%	7.0%	-5.1%
Utilities	91	1.0%	3.9%	-2.9%
Materials	69	0.8%	3.2%	-2.4%
Total	<u>\$8,625</u>	<u>100.0%</u>	<u>100.0%</u>	

Benchmark: S&P 1500

Manager Performance - Net of Fees
6/30/16

<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>
SMRS Large-Cap Core	\$2,153,157,510	-5.4%	9.6%	11.7%	13.9%	6.3%	8/31/07
S&P 500		4.0%	11.7%	12.1%	14.9%	6.5%	
Style & Risk Adjusted Benchmark		1.0%	8.4%	10.3%	13.8%	5.7%	
Lipper Large-Cap Core		1.1%	9.7%	10.4%	13.4%	5.7%	
<i>Excess Return</i>		-9.3%	-2.0%	-0.4%	-1.1%	-0.2%	
<i>Alpha</i>		-6.3%	1.3%	1.4%	0.1%	0.6%	
<i>Pct Rank vs Lipper Large-Cap Core</i>		94	54	23	40	28	
SMRS Large-Cap Growth	1,497,404,562	-2.0%	12.9%	12.7%	14.6%	8.4%	5/31/05
S&P 500 Growth Index		4.2%	13.4%	12.9%	15.6%	8.6%	
Style & Risk Adjusted Benchmark		4.1%	13.5%	12.9%	15.9%	8.7%	
Lipper Large Growth		-1.4%	11.5%	10.8%	14.0%	8.0%	
<i>Excess Return</i>		-6.2%	-0.5%	-0.2%	-1.0%	-0.3%	
<i>Alpha</i>		-6.0%	-0.6%	-0.2%	-1.3%	-0.3%	
<i>Pct Rank vs Lipper Large-Cap Growth</i>		59	26	13	36	37	
SMRS All-Cap Garp	950,881,947	-2.3%	10.7%	12.9%	--	12.9%	4/30/11
S&P 1500 Super Composite		3.6%	11.5%	11.9%	--	11.3%	
Style & Risk Adjusted Benchmark		2.3%	10.7%	11.5%	--	10.9%	
Lipper Multi Core		-2.0%	8.9%	9.5%	--	9.0%	
<i>Excess Return</i>		-6.0%	-0.9%	1.0%	--	1.5%	
<i>Alpha</i>		-4.7%	-0.1%	1.4%	--	1.9%	
<i>Pct. Rank vs. Lipper Multi Core</i>		51	28	5	--	3	
LA Capital Deep Value	634,730,541	0.5%	--	--	--	0.3%	4/1/15
S&P 1500 Value		3.1%	--	--	--	2.6%	
Style & Risk Adjusted Benchmark		2.6%	--	--	--	2.2%	
Lipper Multi-Cap Value		-2.4%	--	--	--	-2.3%	
<i>Excess Return</i>		-2.6%	--	--	--	-2.3%	
<i>Alpha</i>		-2.0%	--	--	--	-1.9%	
<i>Pct. Rank vs. Lipper Multi-Cap Value</i>		28	--	--	--	26	
Fisher All-Cap	616,785,664	1.0%	10.9%	8.6%	14.9%	9.5%	10/31/04
S&P 1500/S&P 600 Value Blend		3.6%	11.5%	11.4%	15.8%	8.4%	
Style & Risk Adjusted Benchmark		4.3%	12.5%	13.2%	17.0%	9.1%	
Lipper Multi Core		-2.0%	8.9%	9.5%	13.3%	7.1%	
<i>Excess Return</i>		-2.7%	-0.6%	-2.9%	-1.0%	1.1%	
<i>Alpha</i>		-3.3%	-1.5%	-4.6%	-2.1%	0.4%	
<i>Pct. Rank vs. Lipper Multi Core</i>		28	24	67	22	4	
Seizert Capital Partners	525,892,575	-4.2%	6.2%	9.3%	--	13.1%	11/30/09
S&P 1500/S&P 400 Value Blend		3.6%	11.5%	11.9%	--	15.9%	
Style & Risk Adjusted Benchmark		2.6%	9.8%	11.7%	--	13.2%	
Lipper Multi Core		-2.0%	8.9%	9.5%	--	11.9%	
<i>Excess Return</i>		-7.9%	-5.3%	-2.6%	--	-2.8%	
<i>Alpha</i>		-6.8%	-3.6%	-2.4%	--	-0.1%	
<i>Pct. Rank vs. Lipper Multi Core</i>		68	85	57	--	32	
LA Capital All-Cap Growth	451,916,092	11.1%	16.7%	14.1%	18.5%	11.5%	5/31/05
S&P 1500 Growth		3.8%	13.1%	12.6%	15.7%	8.7%	
Style & Risk Adjusted Benchmark		2.4%	10.1%	10.5%	15.0%	9.1%	
Lipper Multi-Cap Growth		-4.4%	9.7%	9.1%	13.7%	7.9%	
<i>Excess Return</i>		7.2%	3.5%	1.5%	2.7%	2.7%	
<i>Alpha</i>		8.7%	6.6%	3.6%	3.5%	2.3%	
<i>Pct. Rank vs. Lipper Multi-Cap Growth</i>		1	1	1	1	1	

<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>
Clarkston Capital Large-Cap	270,889,873	7.7%	--	--	--	7.0% #	4/1/15
S&P 500		4.0%	--	--	--	3.4%	
Style & Risk Adjusted Benchmark		2.5%	--	--	--	2.1%	
Lipper Large-Cap Core		1.1%	--	--	--	0.9%	
<i>Excess Return</i>		3.7%	--	--	--	3.6%	
<i>Alpha</i>		5.2%	--	--	--	4.9%	
<i>Pct. Rank vs. Lipper Large-Cap Core</i>		6	--	--	--	3	
Attucks Asset Management	227,586,660	-1.4%	8.4%	9.2%	13.3%	5.0%	11/30/07
S&P 1500 Super Composite		3.6%	11.5%	11.9%	15.1%	6.0%	
Style & Risk Adjusted Benchmark		3.3%	10.8%	11.2%	14.7%	6.8%	
Lipper Multi Core		-2.0%	8.9%	9.5%	13.3%	4.7%	
<i>Excess Return</i>		-5.1%	-3.1%	-2.8%	-1.8%	-1.0%	
<i>Alpha</i>		-4.7%	-2.4%	-2.0%	-1.4%	-1.7%	
<i>Pct. Rank vs. Lipper Multi Core</i>		45	61	59	53	46	
Ark Investments	\$218,579,255	--	--	--	--	9.3%	3/1/16
S&P 1500 Growth		--	--	--	--	8.1%	
Style & Risk Adjusted Benchmark		--	--	--	--	9.1%	
Lipper All-Cap Growth		--	--	--	--	7.0%	
<i>Excess Return</i>		--	--	--	--	1.1%	
<i>Alpha</i>		--	--	--	--	0.2%	
<i>Pct. Rank vs. Lipper All-Cap Growth</i>		--	--	--	--	20	
Clarkston Capital Small-Cap	207,844,922	5.6%	--	--	--	11.2%	1/1/14
S&P 600		0.0%	--	--	--	3.9%	
Style & Risk Adjusted Benchmark		1.7%	--	--	--	5.0%	
Lipper Small-Cap Core		-5.5%	--	--	--	0.8%	
<i>Excess Return</i>		5.6%	--	--	--	7.3%	
<i>Alpha</i>		3.9%	--	--	--	6.2%	
<i>Pct. Rank vs. Lipper Small-Cap Core</i>		2	--	--	--	1	
Bivium Capital Partners	209,977,609	-6.9%	7.6%	8.5%	13.2%	4.5%	11/30/07
S&P 1500 Value		3.1%	9.7%	11.2%	14.4%	4.5%	
Style & Risk Adjusted Benchmark		1.2%	10.4%	11.4%	15.2%	6.3%	
Lipper Multi Cap Value		-2.4%	7.4%	8.7%	12.7%	4.2%	
<i>Excess Return</i>		-10.0%	-2.1%	-2.7%	-1.1%	0.1%	
<i>Alpha</i>		-8.1%	-2.8%	-2.9%	-1.9%	-1.8%	
<i>Pct. Rank vs. Lipper Multi-Cap Value</i>		84	54.0%	63.0%	46.0%	39	
Munder Concentrated SMID Cap	137,918,151	-18.0%	5.8%	7.4%	13.4%	15.2%	4/30/09
S&P 400 Mid-Cap Growth		1.2%	10.8%	10.1%	16.6%	18.7%	
Style & Risk Adjusted Benchmark		-0.5%	11.0%	10.7%	15.4%	17.3%	
Lipper Mid-Cap Growth		-6.6%	8.3%	7.9%	13.8%	15.8%	
<i>Excess Return</i>		-19.2%	-5.0%	-2.7%	-3.1%	-3.5%	
<i>Alpha</i>		-17.6%	-5.2%	-3.3%	-2.0%	-2.0%	
<i>Pct. Rank vs. Lipper Mid-Cap Core</i>		96	85	57	64	68	
Concentrated Equity	115,043,388	-13.7%	-3.8%	--	--	-2.3%	4/30/09
S&P 1500 Super Composite		3.6%	11.5%	--	--	11.2%	
Style & Risk Adjusted Benchmark		3.2%	13.0%	--	--	13.4%	
Lipper Multi Core		-2.0%	8.9%	--	--	8.9%	
<i>Excess Return</i>		-17.3%	-15.3%	--	--	-13.6%	
<i>Alpha</i>		-16.8%	-16.8%	--	--	-15.8%	
<i>Pct. Rank vs. Lipper Multi Core</i>		98	100	--	--	100	

<u>Fund Name</u>	<u>Market Value</u>	<u>1-Year</u>	<u>3-Years</u>	<u>5-Years</u>	<u>7-Years</u>	<u>Inception</u>	<u>Inception Date</u>
SMRS Large-Cap Value	108,032,452	0.5%	6.8%	8.7%	11.3%	2.5%	7/31/07
S&P 500 Value Index		3.4%	9.7%	11.2%	14.2%	4.1%	
Style & Risk Adjusted Benchmark		2.1%	8.7%	10.0%	12.7%	4.3%	
Lipper Large Value		-0.4%	8.3%	9.7%	12.7%	3.9%	
<i>Excess Return</i>		-2.8%	-2.8%	-2.5%	-2.9%	-1.6%	
<i>Alpha</i>		-1.6%	-1.9%	-1.3%	-1.4%	-1.8%	
<i>Pct. Rank vs. Lipper Large-Cap Value</i>		42	80	73	83	82	
NorthPointe All- Cap core	108,316,283	-0.6%	9.1%	7.7%	12.8%	6.7%	10/31/04
NorthPointe Blended Benchmark		0.0%	10.2%	11.2%	15.6%	8.4%	
Style & Risk Adjusted Benchmark		-0.5%	9.8%	11.5%	16.7%	9.1%	
Lipper Multi Core		-2.0%	8.9%	9.5%	13.3%	7.1%	
<i>Excess Return</i>		-0.6%	-1.1%	-3.5%	-2.8%	-1.6%	
<i>Alpha</i>		-0.1%	-0.7%	-3.8%	-3.9%	-2.4%	
<i>Pct. Rank vs. Lipper Multi Core</i>		38	51	79	64	64	
Large-Cap Consistent Growth	29,469,322	6.1%	--	--	--	5.8%	3/1/15
S&P 500		4.0%	--	--	--	2.0%	
Style & Risk Adjusted Benchmark		3.8%	--	--	--	1.9%	
Lipper Large-Cap Core		1.1%	--	--	--	-0.3%	
<i>Excess Return</i>		2.1%	--	--	--	3.8%	
<i>Alpha</i>		2.2%	--	--	--	3.9%	
<i>Pct. Rank vs. Lipper Large-Cap Core</i>		11	--	--	--	2	
Concentrated All-Cap Growth	25,134,376	-15.1%	-7.4%	--	--	5.8%	5/31/13
S&P 600		0.0%	10.2%	--	--	11.1%	
Style & Risk Adjusted Benchmark		0.5%	8.5%	--	--	8.4%	
Lipper Small-Cap Core		-5.5%	6.8%	--	--	7.5%	
<i>Excess Return</i>		-15.0%	-17.6%	--	--	-16.9%	
<i>Alpha</i>		-15.6%	-15.9%	--	--	-14.2%	
<i>Pct. Rank vs. Lipper Small-Cap Core</i>		96	100	--	--	100	

State of Michigan Retirement Systems

FIXED INCOME REVIEW

Investment Advisory Committee Meeting

September 1, 2016



Daniel J. Quigley
Senior Investment Manager
Long-Term Fixed Income Division

EXECUTIVE SUMMARY

Performance

MPSERS Plan	1-Year	3-Years	5-Years	7-Years	10-Years
Long-Term Fixed Income	5.9%	4.6%	4.3%	5.6%	5.9%
Barclays Aggregate	6.0%	4.1%	3.8%	4.6%	5.1%
Peer Median Return	5.4%	4.3%	4.4%	6.1%	5.6%
Rank vs. Peers	41	29	57	63	32

- Long-Term Fixed Income performed in line with the Barclay's Aggregate benchmark and outperformed its peer group on a one-year basis. The fixed income portfolio has outperformed the benchmark across all longer-term time periods. Performance was aided by an overweight to corporate bonds and structured securities over longer time periods and by strong security selection on a one-year basis. The shorter duration of the portfolio hindered relative performance slightly on a one-year basis as long-term interest rates declined.

Strategy Update

- Allocation to Long-Term Fixed Income has increased by \$305 million over the past twelve months. This increase has been invested primarily in high yield strategies.
- Long-Term Fixed Income continues to look to increase the overall rate of return by allocating to securities with attractive risk-adjusted yields when the market allows. The portfolio currently maintains an out-of-benchmark exposure to high yield credit managers (11.7% of portfolio assets) as well as securitized credit mandates (15.0% of portfolio assets). The portfolio also has a modest allocation to a global bond strategy (2.7% of portfolio assets). These strategies increase the credit risk of the portfolio, however, this risk is offset by relatively lower interest rate risk due to the portfolio's lower duration.
- The portfolio addresses liquidity concerns by maintaining an allocation to U.S. Treasuries and U.S. TIPS (18.6% of portfolio assets). This government bond allocation also increases the portfolio's diversification.
- As opportunities present themselves, Long-Term Fixed Income will look to diversify from Barclay's Aggregate and Barclay's Investment Grade Credit focused investment strategies. This is due to the relatively lower yield levels and longer durations of these benchmarks when compared with historical levels. These changes will occur at the margin as the overall characteristics of the fund will continue to meet the diversification requirements of a core bond portfolio.

Market Environment and Outlook

- The U.S. Treasury yield curve has flattened on a year-over-year (YOY) basis as long-term interest rates have declined while short-term interest rates have increased. The spread between 2-year and 10-year U.S. Treasuries declined by 88 basis points (bps) during the year. Lower inflation, reduced global growth expectations, and central bank intervention have contained long-term interest rates. The Federal Reserve increased short-term interest rates as they tightened monetary policy during their December FOMC meeting.

- U.S. investment grade credit spreads continued to narrow during the second quarter. Spreads ended the quarter at 156 bps. These levels have tightened by 10 bps YTD, although they are 11 bps wider on a YOY basis.
- High-yield spreads decreased by 66 bps YTD despite weakness in the first six weeks of the year. Spreads ended the quarter at 594 bps after reaching a level of 830 bps in February. Overall HY spread levels are still 119 bps higher on a YOY basis. Energy spreads continued to drive the market, narrowing by 517 bps YTD to 780 bps.
- Global weakness continued to suppress inflation expectations in developed markets. The breakeven inflation expectation implied by the yield of the 10-year U.S. TIPS ended the quarter at 1.43%, lower than the stated 2% inflation target of the Federal Reserve. These inflation expectations are at their lowest levels since 2009.
- U.S. interest rates continued to trade at higher levels than those in many developed markets. This has been driven by the relative strength of the U.S. economy as well as the possibility of tightening of monetary policy by the Federal Reserve. This tightening has been contrasted by quantitative easing and lower interest rates by many of the major global central banks. This relative yield pickup is highlighted by ten-year yields of -0.22% in Japan and -0.13% in Germany.
- The portfolio remains defensively positioned for interest rate increases. The duration remains short of the benchmark as we focus on intermediate securities. We have offset this short position by holding a larger allocation to securitized and corporate debt securities in order to increase the interest income of the portfolio.

Conclusion

- Given the current level and shape of the yield curve, it seems appropriate to focus on intermediate duration securities. This area of the yield curve offers the best risk-adjusted return in this environment. We will continue to target investments that offer attractive yield pick-up for the portfolio as we believe that price appreciation opportunities are limited in a low yield environment. We will also look to maintain our overweight to securitized assets and high yield bonds within the portfolio.

SMRS

Long-Term Fixed Income

6/30/16

Markets	Amount	Total	% of Total
Core (in millions)			
LTFID Internal Dodge & Cox	\$4,688 232		
Total Core		\$4,920	61.7%
Credit			
Prudential	\$221		
Total Credit		\$221	2.8%
Securitized Debt			
Mid West Securitized Ops Principal Global Napier Park ABS Income	\$572 487 136		
Total Securitized Debt		\$1,195	15.0%
High Yield			
Columbia Management Prudential High Yield	\$547 387		
Total High Yield		\$934	11.7%
Tactical			
Pyramis Loomis Core Plus	\$276 215		
Total Tactical		\$491	6.2%
Global			
T.Rowe Global Multi-Sector	\$213		
Total Global		\$213	2.7%

TOTAL

\$7,973

100.0%

SMRS
Fixed Income Holdings
Portfolio Characteristics
Benchmark: Barclays Aggregate
6/30/16

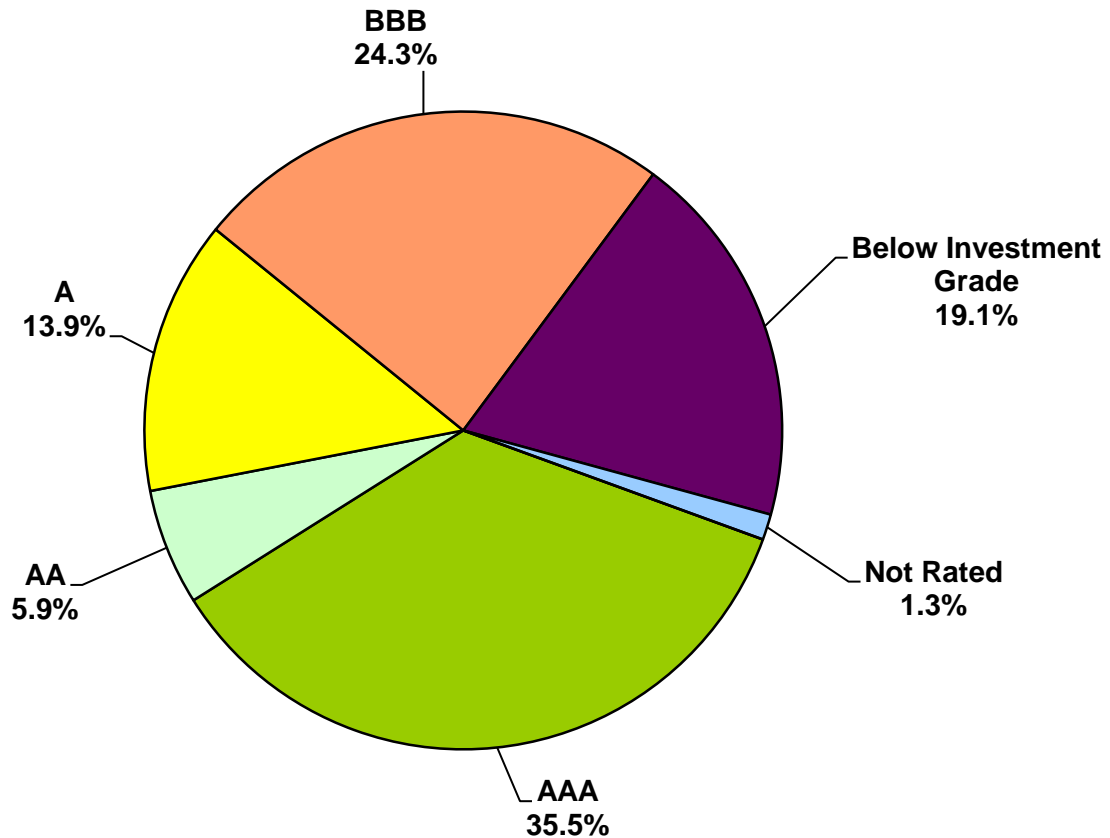
<u>Characteristic</u>	<u>Portfolio</u>	<u>Benchmark</u>	<u>Relative (%)</u>
Average Life	7.0	8.7	81
Average Life w/Cash Equiv.	6.9	8.7	79
Duration (Yrs)	5.1	5.4	93
Duration (Yrs) w/Cash Equiv.	5.0	5.4	94
Coupon (%)	3.6	3.2	113
Yield to Maturity (%)	3.6	1.9	189
Moody's Credit Rating	Baa1	Aa2	
S&P Credit Rating	BBB	AA-	

SMRS

Fixed Income By Rating

Total U.S. Long-Term Fixed Income

6/30/16



Market Value in Millions				
6/30/16				
	<u>Assets</u>	<u>Percent</u>	<u>Benchmark</u>	<u>Difference</u>
AAA	\$2,830	35.5%	70.5%	-35.0%
AA	468	5.9%	5.5%	0.4%
A	1,108	13.9%	11.2%	2.7%
BBB	1,939	24.3%	11.7%	12.6%
Not Rated	103	1.3%	1.1%	0.2%
* Below Investment Grade	1,525	19.1%	0.0%	19.1%
Total Investments	<u>\$7,973</u>	<u>100.0%</u>	<u>100.0%</u>	

* Comprised of approximately 13.9% High Yield Credit and 5.2% High Yield RMBS/ABS

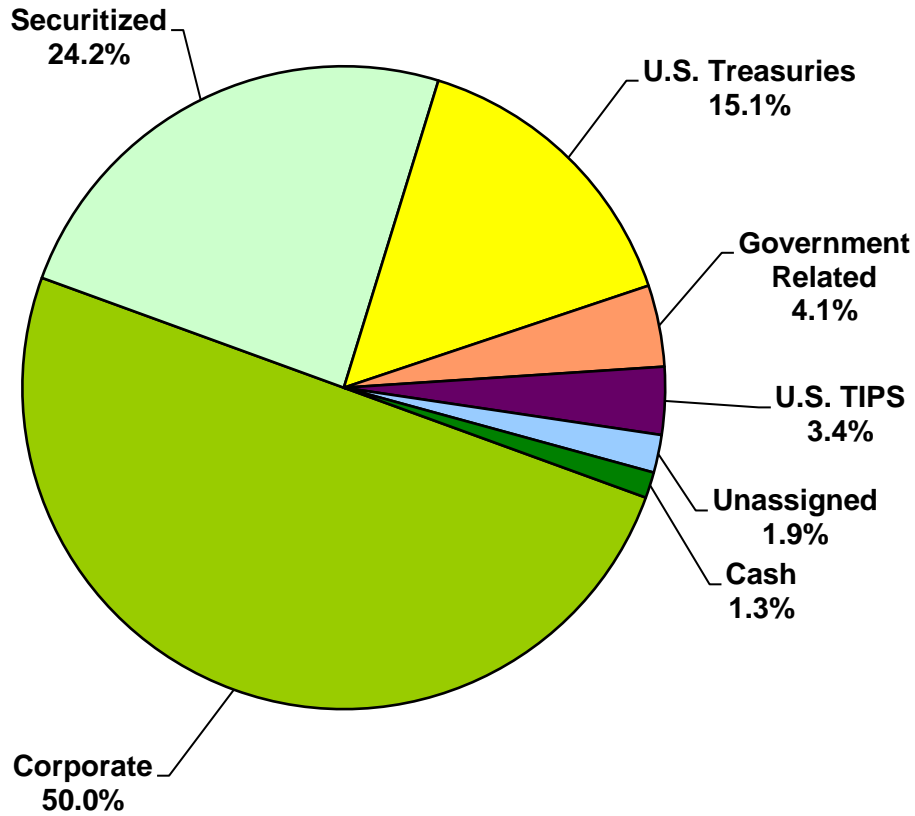
Benchmark: Barclays US Aggregate

SMRS

Fixed Income By Asset Type

Total U.S. Long-Term Fixed Income

6/30/16



Market Value in Millions				
6/30/16				
	<u>Assets</u>	<u>Percent</u>	<u>Benchmark</u>	<u>Difference</u>
Corporate	\$3,985	50.0%	25.3%	24.7%
Securitized	1,925	24.2%	30.0%	-5.8%
U.S. Treasuries	1,207	15.1%	36.5%	-21.4%
Government Related	324	4.1%	8.2%	-4.1%
U.S. TIPS	274	3.4%	0.0%	3.4%
Unassigned	155	1.9%	0.0%	1.9%
Cash	103	1.3%	0.0%	1.3%
Total Investments	<u>\$7,973</u>	<u>100.0%</u>	<u>100.0%</u>	

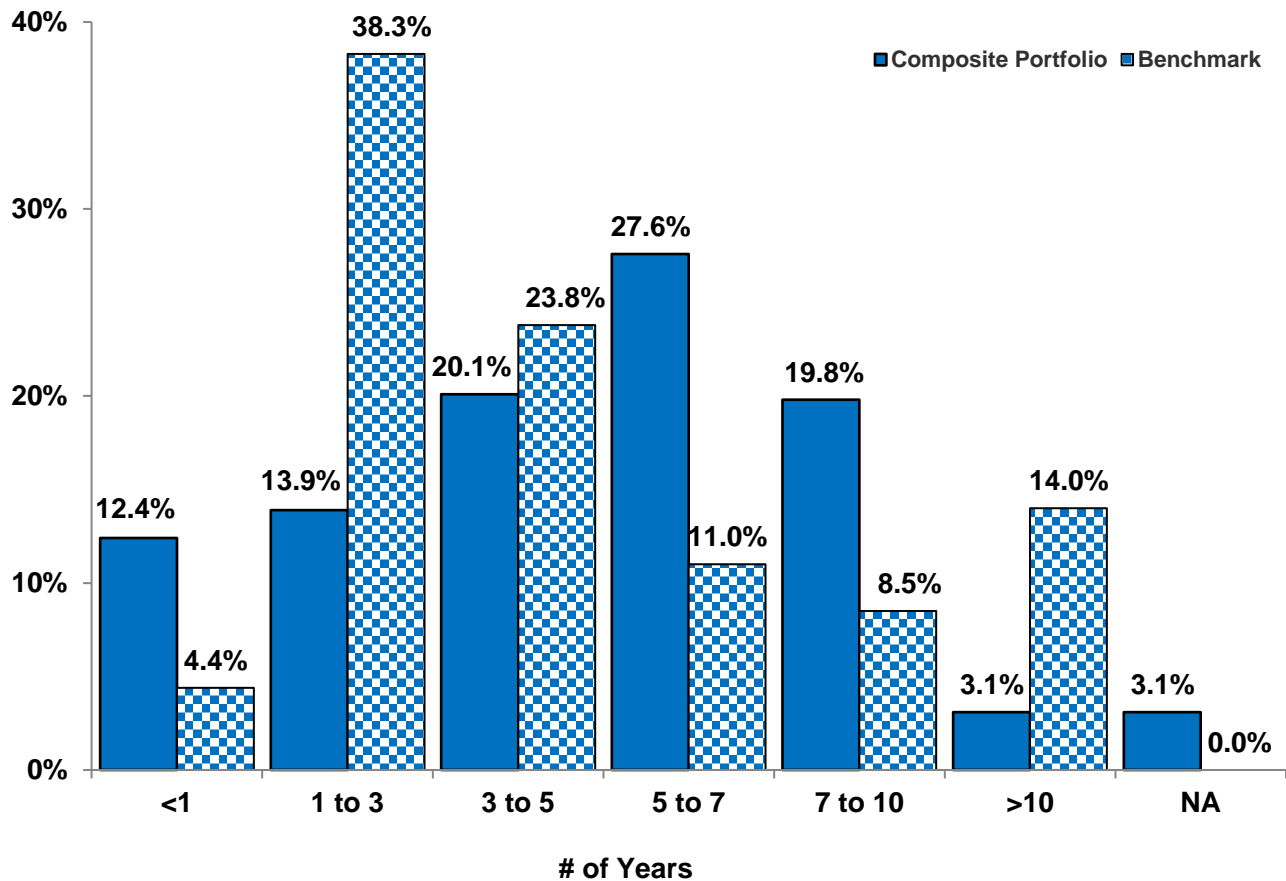
Benchmark: Barclays US Aggregate

SMRS

Duration Distribution

Fixed Income Composite Versus Benchmark

6/30/16



Source: Factset

Market Value in Millions					
Duration	Assets	Portfolio Weight	Benchmark Weight	Portfolio Duration*	Benchmark Duration*
<1	\$991	12.4%	4.4%	0.4	0.6
1 to 3	1,107	13.9%	38.3%	2.2	2.1
3 to 5	1,603	20.1%	23.8%	4.1	3.9
5 to 7	2,204	27.6%	11.0%	6.0	6.0
7 to 10	1,576	19.8%	8.5%	8.0	8.1
>10	244	3.1%	14.0%	15.1	16.3
NA	248	3.1%	0.0%	0.0	0.0
Total	\$7,973	100.0%	100.0%	5.0	5.4

* Effective Duration

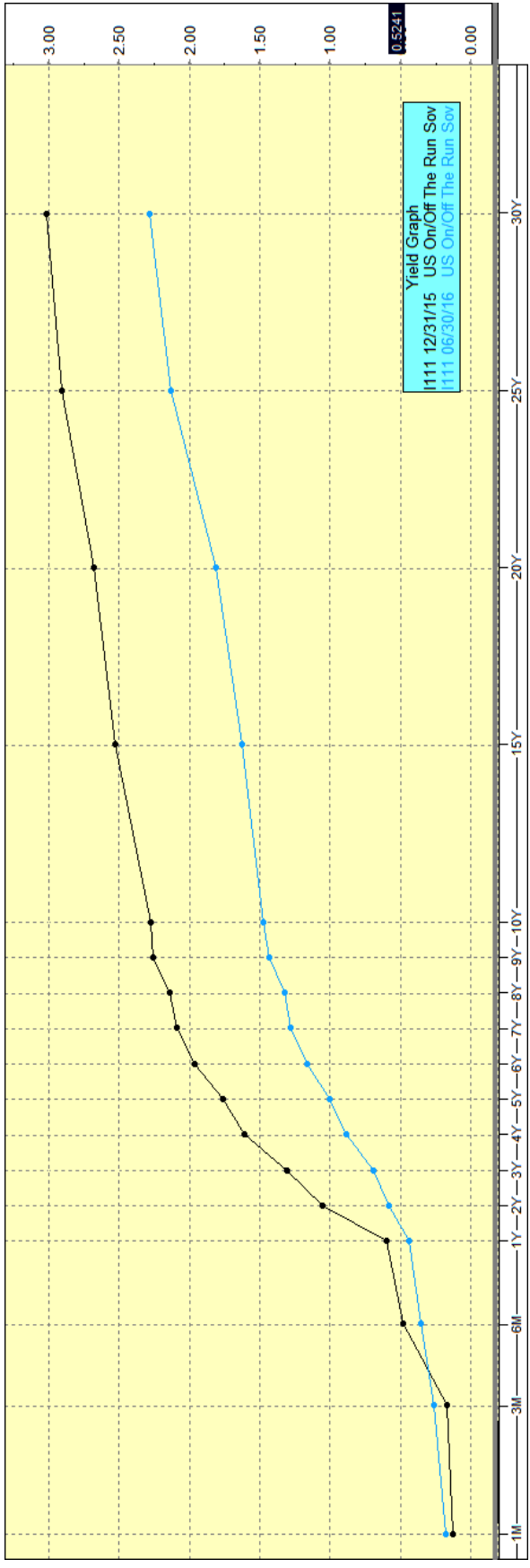
SMRS Internal/External Manager Performance – Net of Fees

6/30/16

Total Fixed Income Performance, Net of Fees (MPSERS)

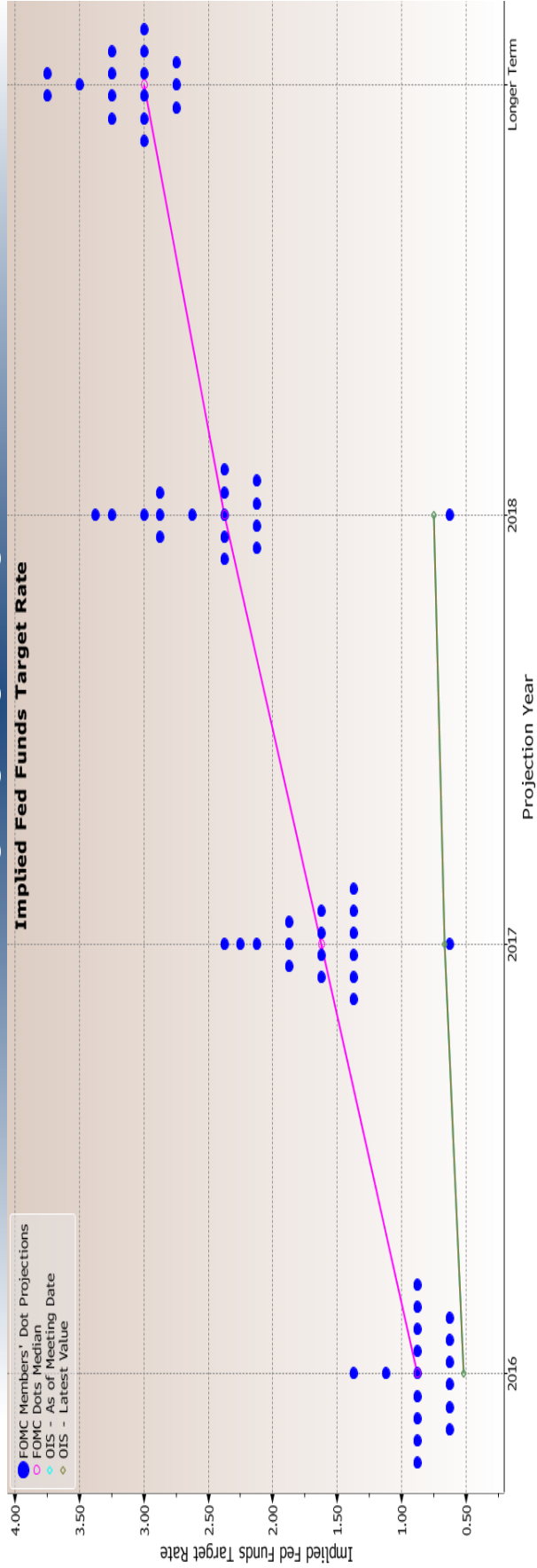
	<u>Market Value</u>	<u>1-Year</u>	<u>3-Years</u>	<u>5-Years</u>	<u>7-Years</u>	<u>10- Years</u>
Total Fixed Income	\$7,973,481,533	5.78%	4.41%	4.16%	5.20%	5.82%
<i>Barclays Aggregate Bond Index</i>	<i>N/A</i>	<i>6.00%</i>	<i>4.06%</i>	<i>3.76%</i>	<i>4.58%</i>	<i>5.13%</i>
Internal Fixed Income	\$4,688,161,869	7.09%	4.60%	4.09%	5.20%	5.82%
External Fixed Income	\$3,285,319,664	3.57%	4.16%	4.42%	5.95%	5.49%
MetWest Securitized Opportunities	571,769,102	0.50%	--	--	--	--
Principal CMBS	486,691,486	2.99%	6.31%	7.12%	20.99%	--
Pyramis Tactical Bond Fund	276,243,904	4.17%	--	--	--	--
Prudential Investment Grade	221,345,696	7.93%	5.77%	5.82%	7.30%	--
Dodge & Cox Core	231,875,273	4.91%	4.38%	4.24%	5.54%	5.74%
Loomis Sayles CorePlus	215,151,883	4.02%	--	--	--	--
Napier Park ABS Income	135,797,946	5.45%	--	--	--	--
T. Rowe Global Multi-Sector	212,787,135	N/A	--	--	--	--
<i>Barclays Aggregate Bond Index</i>	<i>N/A</i>	<i>6.00%</i>	<i>4.06%</i>	<i>3.76%</i>	<i>4.58%</i>	<i>5.13%</i>
Columbia Management High Yield	546,930,161	3.35%	--	--	--	--
Prudential High Yield	386,727,079	3.05%	--	--	--	--
<i>Barclays US HY BA/B 2% Cap</i>	<i>N/A</i>	<i>1.89%</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>

U.S. Yield Movement



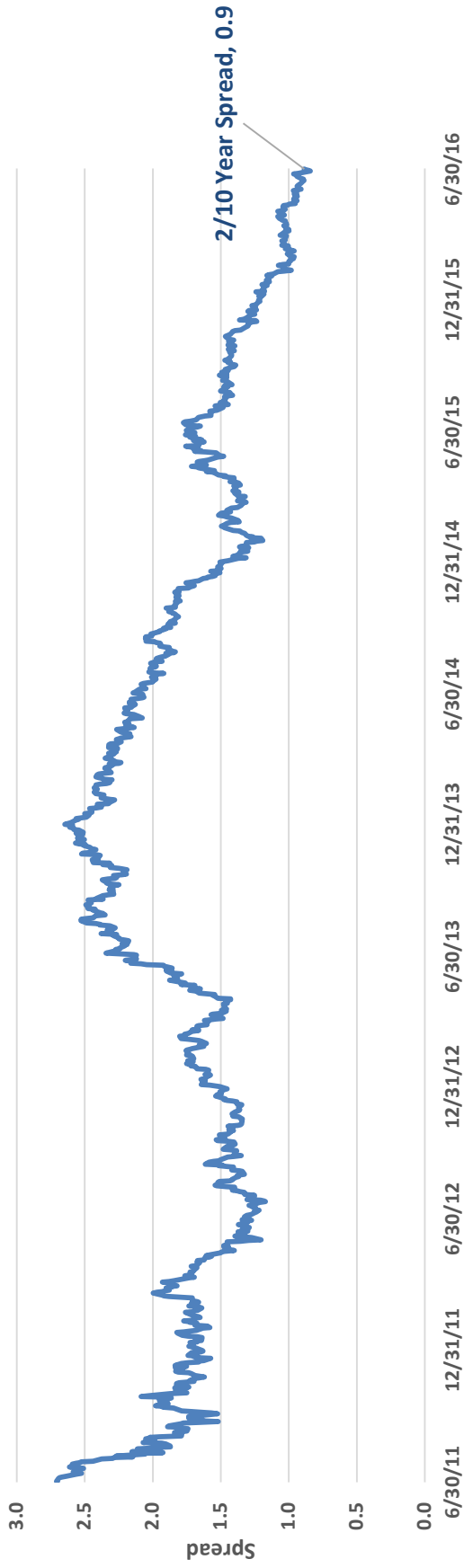
9

FOMC DOT PLOT

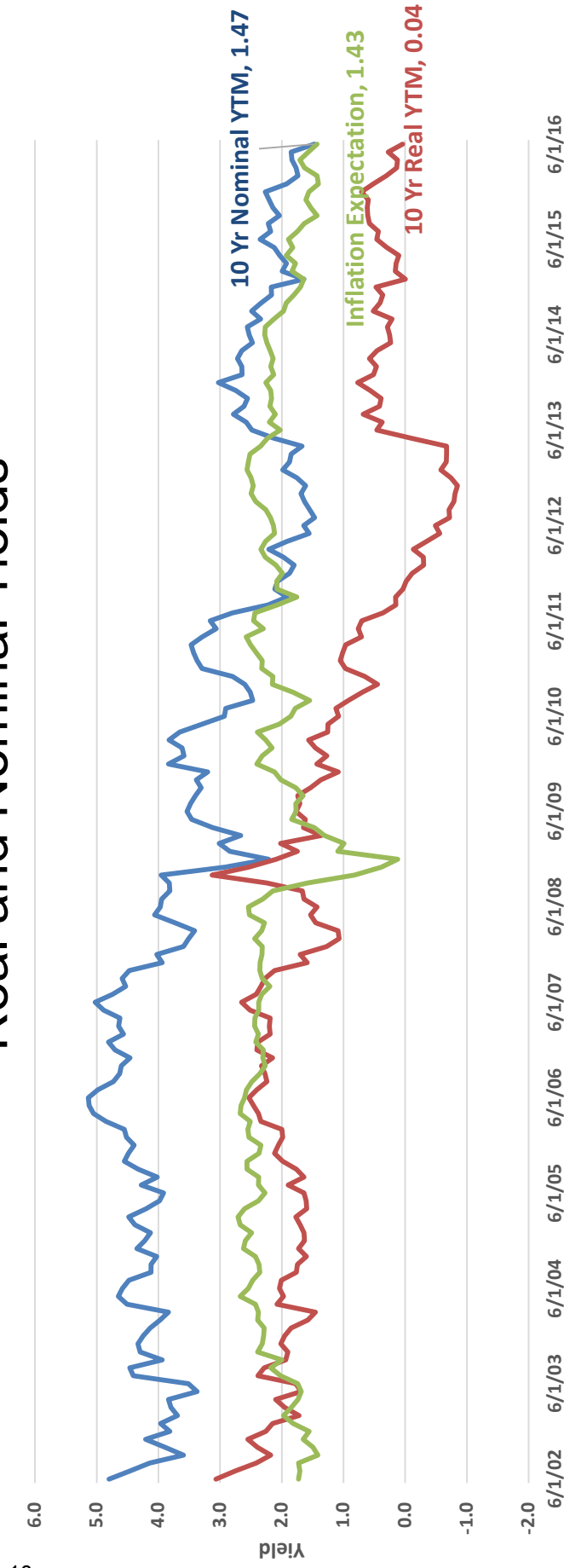


Source: Factset, Bloomberg

2-Year / 10-Year Spread

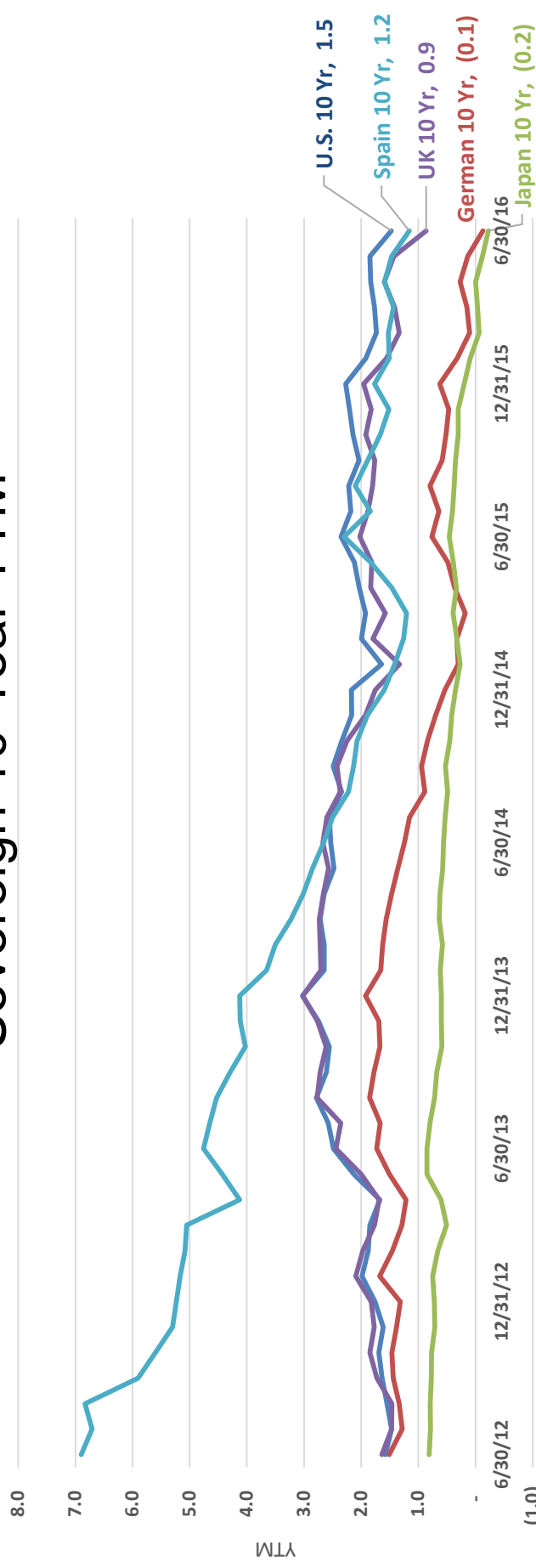


Real and Nominal Yields

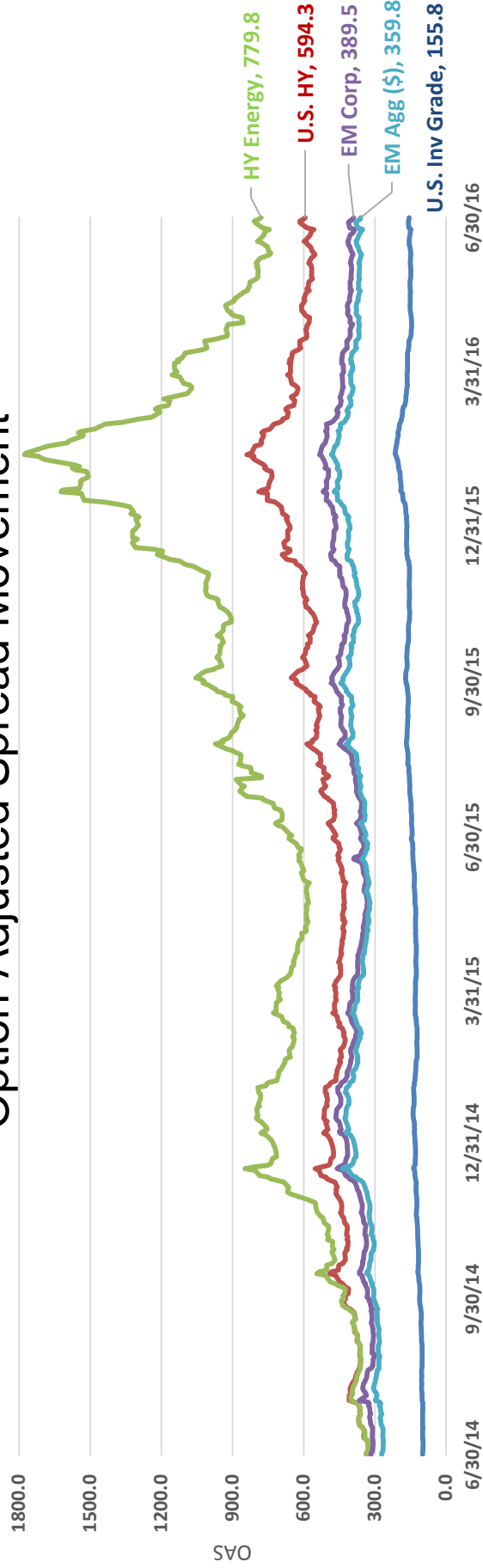


Source: Bloomberg

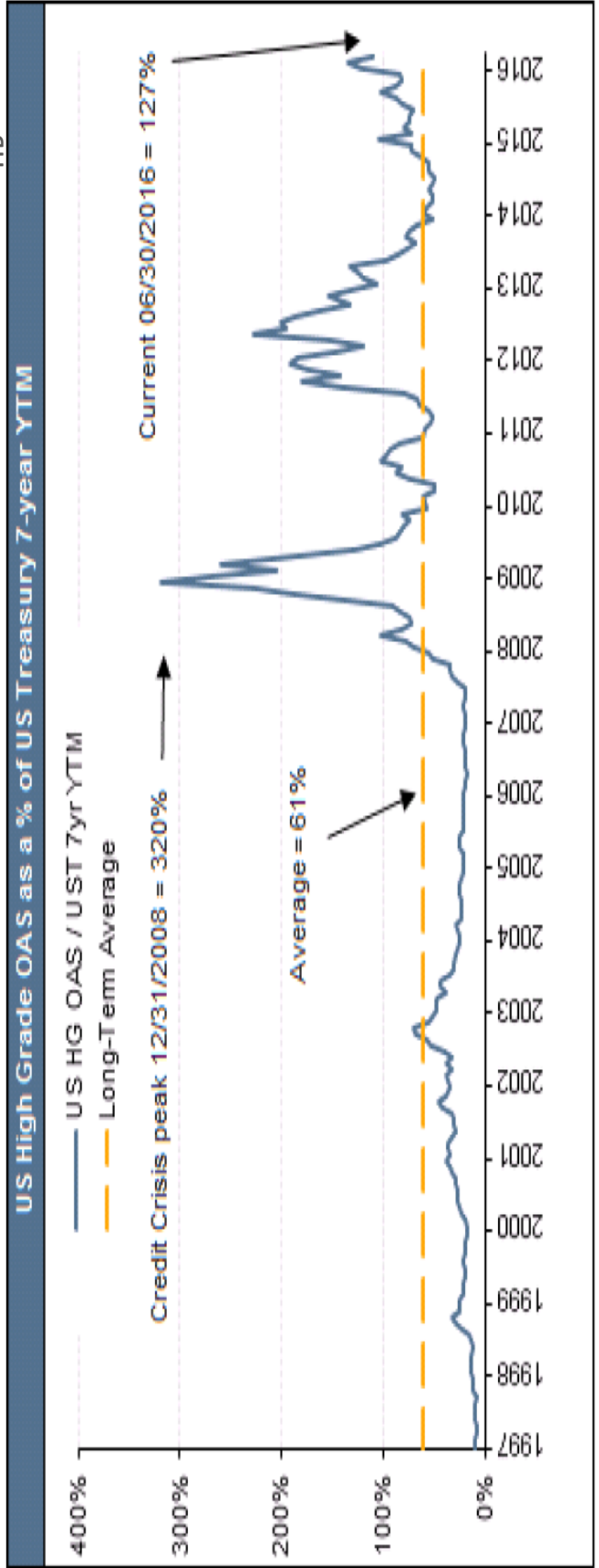
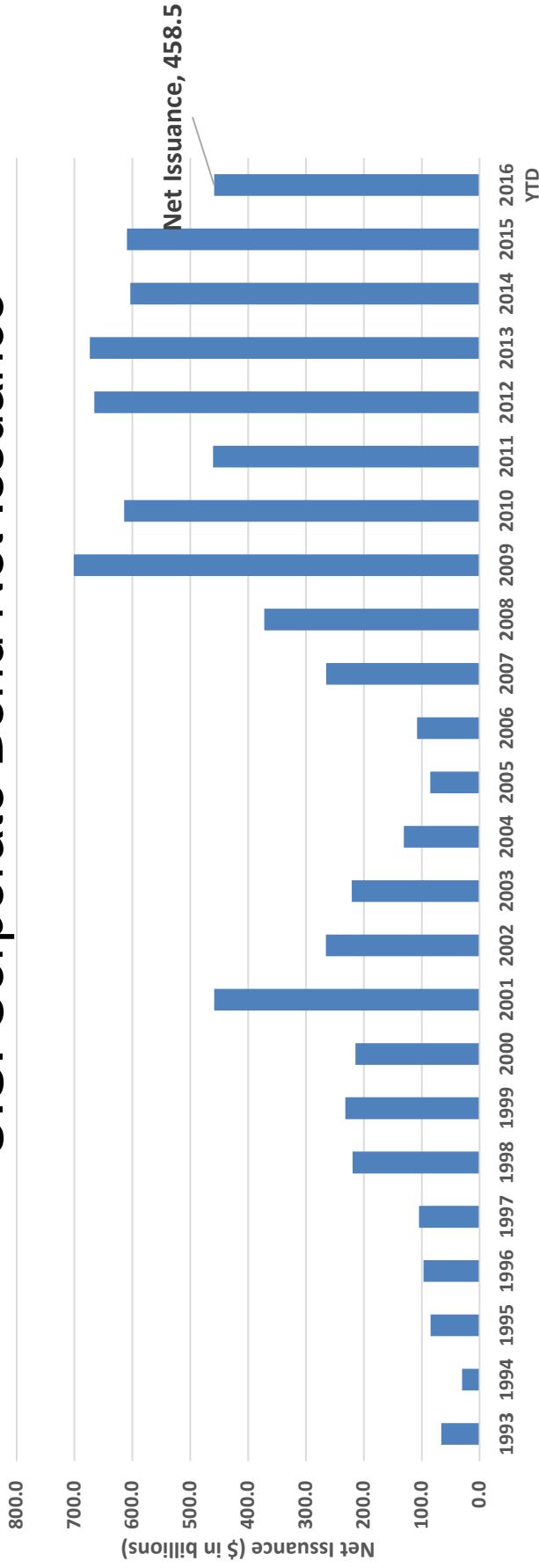
Sovereign 10-Year YTM



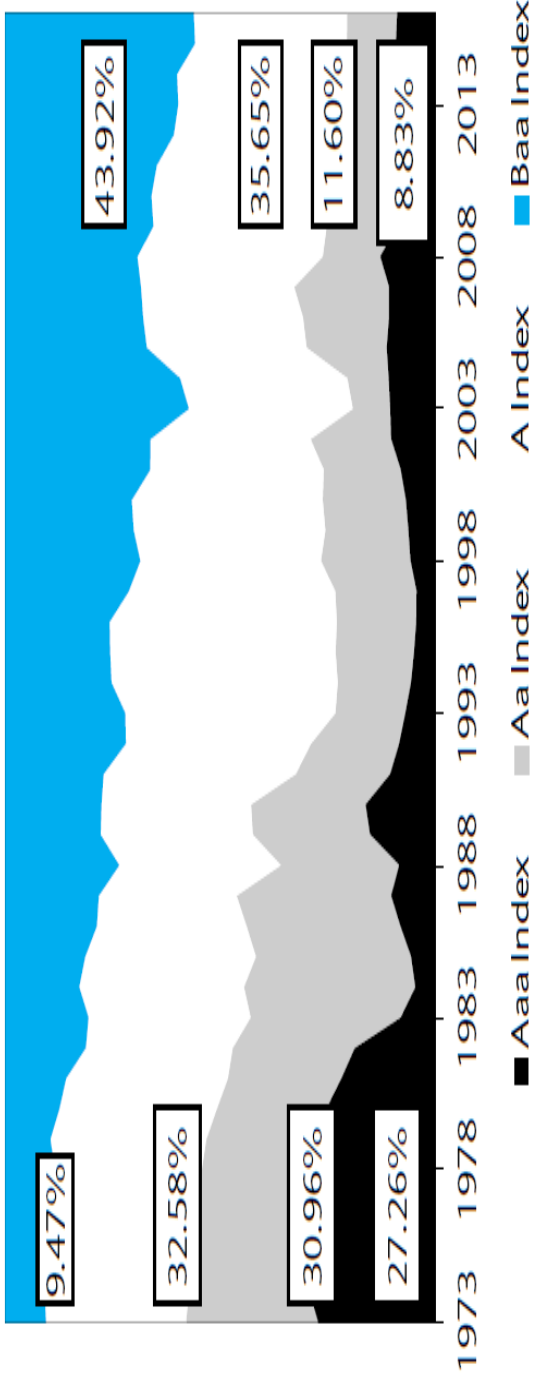
Option-Adjusted Spread Movement



U.S. Corporate Bond Net Issuance



Quality Analysis of Barclays Credit Index, 1973-2016



Source: Barclays Risk Analytics and Index Solutions, Barclays Research

State of Michigan Retirement Systems

INTERNATIONAL EQUITY REVIEW

Investment Advisory Committee Meeting

September 1, 2016



Richard J. Holcomb, CFA
Senior Investment Manager
Quantitative Analysis Division

EXECUTIVE SUMMARY

Performance

MPSERS Plan	1-Year	3-Years	5-Years	7-Years	10-Years
Annualized Returns	-9.6%	2.8%	1.7%	6.7%	1.8%
Benchmark Return	-10.2%	1.3%	0.4%	5.0%	0.7%
Peer Return	-9.2%	2.5%	2.0%	6.7%	2.7%
Rank vs. Peers	65	46	56	46	90

- Second quarter international equity returns in developed markets reflected the additional uncertainty caused by the British referendum choice to leave the European Union (Brexit) and continued slow economic growth. Emerging market returns benefited from a bounce in both energy and commodity prices, and the continued, if slowing growth, in China. Japan continued to benefit from the strength of the Yen. The U.S. dollar showed strength against most currencies except the Yen, and the British Pound declined by 7.3%. Chinese stocks remained weak in the quarter as economic growth remained an issue and debt levels were very high. Significant geopolitical risks remain unresolved throughout the world, and the impact of widespread populist political movements on future global trade are an undefined negative. Our international portfolio returns have exceeded their benchmark over all time periods.
- Performance comparisons with peer group returns are stable, and reflect positive contributions from all three strategic investment approaches. Indexed investments have benefited from an overweight to smaller capitalization stocks. Stock Plus strategy returns have benefited from internal fund rebalancing of collateral assets to improve their absolute return. Active managers have taken advantage of a more favorable investment environment for their individual disciplines, but were negatively affected by underweights to the energy and commodities bounce.
- Internally-managed stock plus funds experienced volatility in dividend stocks and Libor note spreads in the second quarter, but have outperformed their benchmarks. Stock Plus funds represent 32.7% of international equity exposure, and had a return of 0.9% in the second quarter, and -9.7% for the year. Currency hedging of the internal swap overlay had been reduced to more closely match the 25% hedge level of its internal benchmark. All counterparties used for swap agreements, and all fixed income securities held as collateral continue to be rated investment grade.
- Indexed investments represent 30.6% of international equity exposure, and had a return of -0.6% in the second quarter, and -8.5% for the year. The positive relative performance can be attributed to an overweight of small capitalization stocks in the selection of index fund exposure components.

- Active international managers represent 36.7% of international equity exposure, and had a return of -3.1% for the difficult second quarter, and -10.2% for the year. The manager strategies are diversified with a combination of fundamental analysis driven and quantitative factor approaches. The Wellington Emerging Markets Local Equity fund continued to contribute significantly to excess returns for the year through its focus on EM local demand beneficiaries. The cumulative active exposure is designed to produce a positive ensemble alpha through multiple expert processes.

Outlook

- The outlook for international equities is positive based on expected slow improvement in the European economies, continued European Central Bank support and stimulus through QE actions, and attractive valuation with the U.S. market. Emerging markets, which have now discounted lower energy and commodity prices and slower demand will benefit from growing local consumer demand. Political instability and threats to global trade will remain important issues.
- External managers, diversified by style, are benefiting and will continue to benefit from a good environment for active stock selection with wide universe return dispersion and many opportunities. Small and mid-cap international stocks will continue to experience greater volatility, but will continue to have more of a positive shareholder focus than the larger state-owned or influenced group that dominate capitalization-weighted benchmark indices. Stock Plus absolute return strategies have been impacted by interest rate and risk uncertainties, but will continue to achieve returns in excess of overlay costs.
- Emerging markets performance will continue to benefit from growing local consumer demand trends and access to technology. Positive governance, regulation, and financial system changes will gradually improve investment opportunities in many countries. Political instability, systemic corruption, rule of law, and unfavorable tax regimes will remain concerns. Infrastructure projects should stimulate emerging market economies, and China's plans for the Asian Infrastructure Investment Bank will be very positive for regional and global trade. Commodity rates will continue to improve as capacity is reduced.

Investment Plan

- Move toward longer-term asset allocation objectives as political uncertainties are better defined, a slow global recovery develops and relative valuations of international markets remain positive.
- Take advantage of opportunities to enhance returns in internal stock plus strategies to achieve absolute returns in excess of equity overlay costs. Collaborate with internal fixed income and equities staff for an effective hybrid approach to security research and selection.
- Prepare for derivative market regulatory and structural changes, and focus on further development of counterparty relationships as a strategic advantage.

SMRS
International Equities
6/30/16

Markets	Amount	Total	% of Total
Indexed (in millions)			
Ssga	\$1,710		
Vanguard	1,088		
Total Indexed		\$2,798	30.6%
Stock Plus			
Internal Swaps	\$1,679		
PIMCO	1,303		
Total Stock Plus		\$2,982	32.7%
Active			
Los Angeles Capital	\$1,086		
Wellington	755		
Marathon London	577		
SSgA	532		
Lazard	206		
Effissimo	191		
Total Active		\$3,347	36.7%

TOTAL

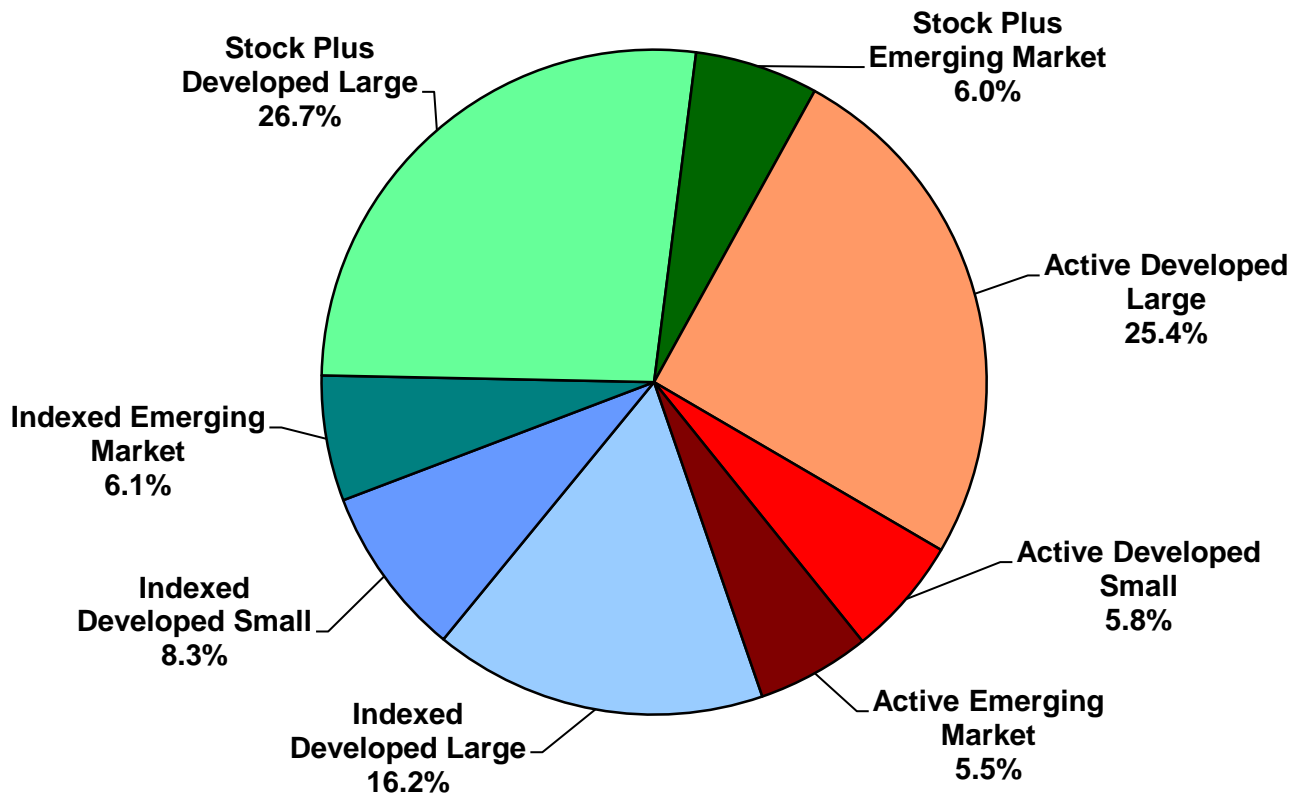
\$9,127

100.0%

SMRS

International Equity Exposure By Category

6/30/16



Market Value in Millions				
	6/30/16		3/31/16	
<u>Indexed</u>				
Developed Large	\$1,479	16.2%	\$1,487	16.1%
Developed Small	761	8.3%	782	8.5%
Emerging Market	558	6.1%	546	5.9%
Total Indexed Equity	\$2,798	30.6%	\$2,815	30.5%
<u>Stock Plus</u>				
Developed Large	\$2,437	26.7%	\$2,416	26.3%
Emerging Market	545	6.0%	538	5.8%
Total Stock Plus Equity	\$2,982	32.7%	\$2,954	32.1%
<u>Active</u>				
Developed Large	\$2,316	25.4%	\$2,412	26.2%
Developed Small	532	5.8%	558	6.1%
Emerging Market	499	5.5%	469	5.1%
Total Active Equity	\$3,347	36.7%	\$3,439	37.4%
Total International Equity	\$9,127	100.0%	\$9,208	100.0%

Michigan Department of Treasury, Bureau of Investments

SMRS

Active International Equities

6/30/16

Date:	<u>6/30/16</u>	<u>3/31/16</u>	<u>12/31/15</u>	<u>9/30/15</u>
Assets (\$million):	\$3,348	\$3,242	\$2,410	\$2,906
Numbers of Securities:	1,507	1,558	1,707	1,717
Active Share:	63%	63%	57%	63%

Benchmark: MSCI ACWI ex USA

Description: The Active International Equities Composite represents the profile of cumulative investments by active international managers with developed market large and small cap, and emerging market mandates. The manager returns are well diversified and reflect a combination of fundamental analysis driven and quantitative management approaches. The cumulative exposure, supported by multiple expert processes, is constructed to produce a positive, long-term ensemble alpha with control of assumed risk.

Characteristics:	<u>SMRS</u>	<u>S&P 1500</u>
Weighted Average Capitalization (\$billion):	\$3.0	\$19.8
Trailing 12-month P/E:	16.2x	11.6x
Forecast P/E:	15.1x	15.1x
Price/Book:	1.4x	1.5x
Beta:	0.89	1.00
Dividend Yield:	3.0%	3.3%

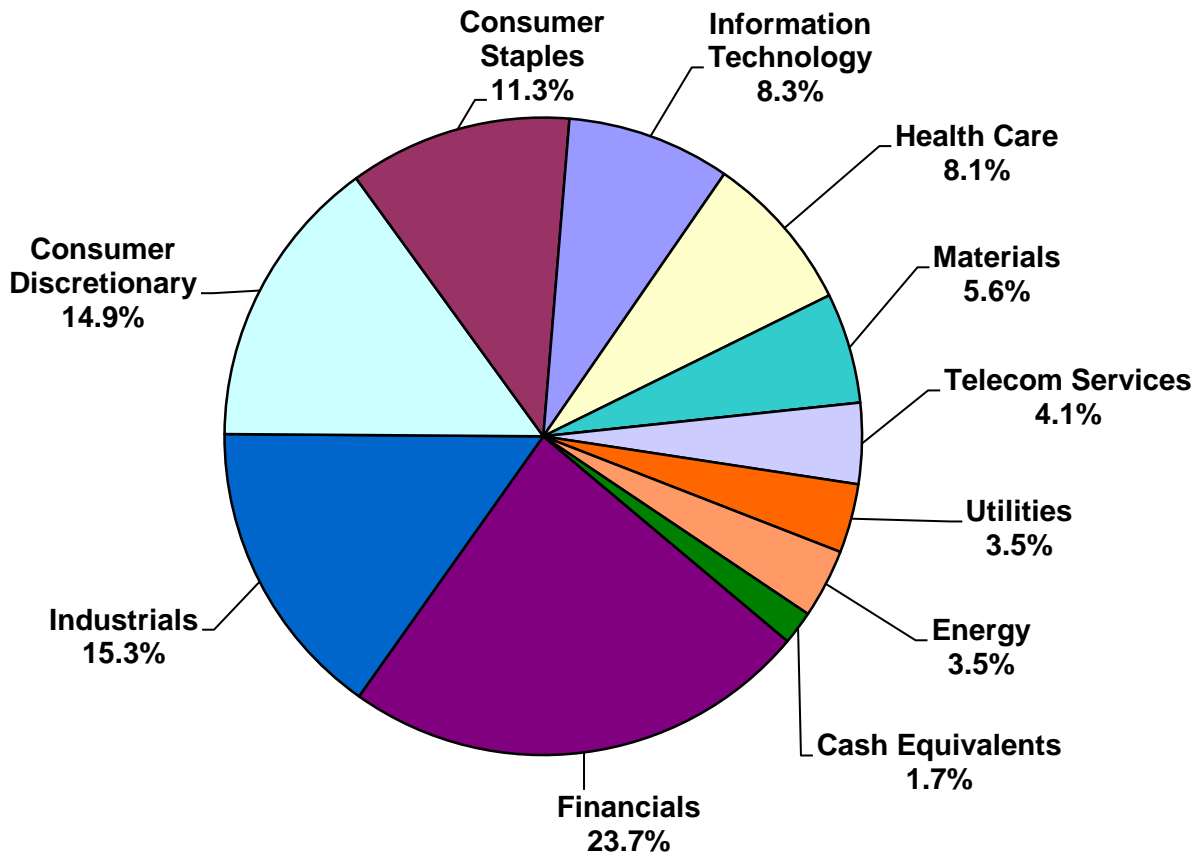
TOP TEN HOLDINGS – Active International Equities 6/30/16

	<u>Portfolio Weight</u>	<u>Market Value</u>
Dai-ichi Life Insurance Co Ltd/The	1.7%	\$57.7
Kawasaki Kisen Kaisha Ltd Ordinary JPY	1.2%	\$41.5
Ricoh Co Ltd	1.1%	\$37.8
Yamada Denki Co Ltd	1.1%	\$36.3
Novartis AG	0.8%	\$26.6
Lonza Group AG	0.7%	\$24.4
Anheuser-Busch InBev SA/NV	0.6%	\$21.3
Adecco Group AG	0.6%	\$21.1
Swedish Match AB	0.6%	\$19.2
Direct Line Insurance Group PLC	0.6%	\$19.2
TOTAL	<u>8.8%</u>	<u>\$305.1</u>

SMRS

Active International Equity By Sector

6/30/16



Market Value in Millions				
6/30/16				
	<u>Assets</u>	<u>Percent</u>	<u>Benchmark</u>	<u>Difference</u>
Financials	\$794	23.7%	24.4%	-0.7%
Industrials	512	15.3%	11.3%	4.0%
Consumer Discretionary	499	14.9%	11.4%	3.5%
Consumer Staples	378	11.3%	11.6%	-0.3%
Information Technology	278	8.3%	9.0%	-0.7%
Health Care	271	8.1%	9.4%	-1.3%
Materials	188	5.6%	7.1%	-1.5%
Telecom Services	137	4.1%	5.3%	-1.2%
Utilities	117	3.5%	3.6%	-0.1%
Energy	117	3.5%	6.9%	-3.4%
Total Investments	\$3,291	98.3%	100.0%	
Cash Equivalents	57	1.7%	0.0%	1.7%
Total	\$3,348	100.0%	100.0%	

Benchmark: MSCI ACWI ex USA

International Active Manager Performance - Net of Fees
6/30/16

<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 Date</u>
PIMCO Intl StocksPlus TR Strategy MSCI EAFE Net Div Index (unhedged)	\$901,116,623	-13.1% -10.2%	1.3% 2.1%	2.5% 1.7%	-- --	10/1/10
LA Capital World MSCI ACWI Ex-US	800,164,489	--	--	--	--	10/30/15
Marathon-London Intl Fund MSCI EAFE Index	576,590,837	-5.9% -10.2%	5.1% 2.1%	-- --	-- --	2/1/12
Wellington Intl Research Equity S&P BMI World Ex-US Index	541,904,992	-11.3% -8.7%	2.9% 2.7%	1.8% 1.6%	7.1% 6.5%	12/1/05
SSGA Small Cap Intl Alpha Strategy S&P Developed Ex-US Small Cap	530,659,823	-7.3% -4.2%	6.0% 6.7%	4.9% 3.8%	10.8% 9.5%	5/1/07
Pimco EM Stock Plus MSCI Emerging Market Index	401,784,763	-14.5% -12.1%	--	--	--	3/31/15
LA Capital Emerging Market MSCI Emerging Market Index	286,429,974	-11.8% -12.1%	-1.4% -1.6%	-2.4% -3.8%	-- --	12/8/09
Wellington Emerging Local Equity MSCI Emerging Market Index	213,055,262	-8.0% -12.1%	0.3% -1.6%	-- --	-- --	12/1/11
Lazard Wilmington Intl Equity Portfolio MSCI EAFE Net Div Index (unhedged)	206,325,001	-8.1% -10.2%	-- --	-- --	-- --	5/1/14
Effissimo Capital Management Japan MSCI EAFE Net Div Index (unhedged)	191,256,050	--	--	--	--	10/30/15

International Indexed Manager Performance, Net of Fees
6/30/16

<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 Date</u>
SSgA PMI Fund S&P Developed Ex-US Large/Midcap	\$948,825,083	-9.2% -9.6%	1.9% 1.9%	1.4% 1.2%	-- --	4/1/10
SSgA EMI Fund - Europe/Pacific S&P EPAC Small Cap	760,814,719	-4.5% -4.8%	7.4% 7.3%	4.9% 4.6%	-- --	4/1/10
Vanguard Emerging Market Spliced Emerging Market Index **	558,413,201	-12.1% -12.9%	-0.7% -1.0%	-3.5% -3.5%	-- --	7/1/09
Vanguard Developed Mkts Fund Spliced Developed Ex-US Index *	530,076,643	-8.5% -8.9%	2.8% 2.6%	2.4% 2.0%	-- --	4/1/10

* Spliced Developed Ex-US Index: MSCI EAFE Index through May 29, 2013; FTSE Developed Ex North America Index through December 20, 2015; FTSE Developed All-Cap Ex-US Transition Index thereafter. Benchmark returns are adjusted for withholding taxes.

** Spliced Emerging Market Index: Select Emerging Markets Index through August 23, 2006; MSCI Emerging Markets Index through January 9, 2013; FTSE Emerging Transition Index through June 27, 2013; FTSE Emerging Index through November 1, 2015; and FTSE Emerging Markets All-Cap China A Transition Index thereafter. Benchmark returns are adjusted for withholding taxes.

State of Michigan Retirement Systems

PRIVATE EQUITY REVIEW

Investment Advisory Committee Meeting

September 1, 2016



Peter A. Woodford
Senior Investment Manager
Private Equity Division

EXECUTIVE SUMMARY

Performance

MPSERS Plan	1-Year	3-Years	5-Years	7-Years	10-Years
Annualized Returns	5.9%	13.5%	12.4%	15.5%	11.6%
Benchmark Return	4.9%	15.0%	14.7%	19.3%	11.5%
Peer Median Return	2.8%	8.8%	9.6%	12.3%	8.9%
Rank vs. Peers	23	16	4	6	6

- The Private Equity Division annualized return was 5.9% for the year, beating its benchmark by 100 basis points.
- Private Equity returns have been strong relative to peer median returns over all time periods over the past ten years, ranking in the top 4% and 6% of peers over the past five and ten years respectively.
- It is not unusual for private equity returns to lag the public market benchmark return in a strong up market; the past several years have been no exception. However, over the past ten years, a full market cycle, the Private Equity Division has delivered 4.2% annualized excess returns over the S&P 500 (10-year S&P 500 return 7.4%).

Strategy Update

For the twelve months ending 6/30/16, the Private Equity Division returned approximately \$900 million, net of contributions, to the pension fund (9.5% cash yield on \$9.5 billion AUM). The pace of distributions is expected to slow for the remainder of 2016, as dividend recaps have largely played out and the IPO market continues to be challenged.

- Commitments closed during the second quarter include:
 - \$200 million to KKR Americas Fund XII, a large diversified buyout fund
 - \$150 million to Apax IX, a middle market buyout fund
 - \$150 million to Crescent Mezzanine Partners VII, a mezzanine debt fund
 - \$150 million to GSO Capital Opportunities Fund III, a mezzanine debt fund
 - \$150 million to Thoma Bravo Fund XII, a technology and software buyout fund
 - \$100 million to HarbourVest Partners Co-Investment Fund IV, a co-invest fund
 - \$50 million to Flagship Ventures Opportunities Fund I, a health venture fund
 - \$35 million to FirstMark Capital IV, an early stage tech/tech enabled venture fund
 - \$35 million to FirstMark Capital OF II, series C and later follow-on venture fund
 - \$35 million to HVST-TOPE LLC, a separate account for co-investments managed by HarbourVest Partners
 - \$25 million to Warburg Pincus Private Equity XII, a secondary fund investment
 - \$19 million to Vista Equity Foundation Fund III, enterprise software/tech buyout
 - \$13 million to Accel London V, a technology venture/growth fund

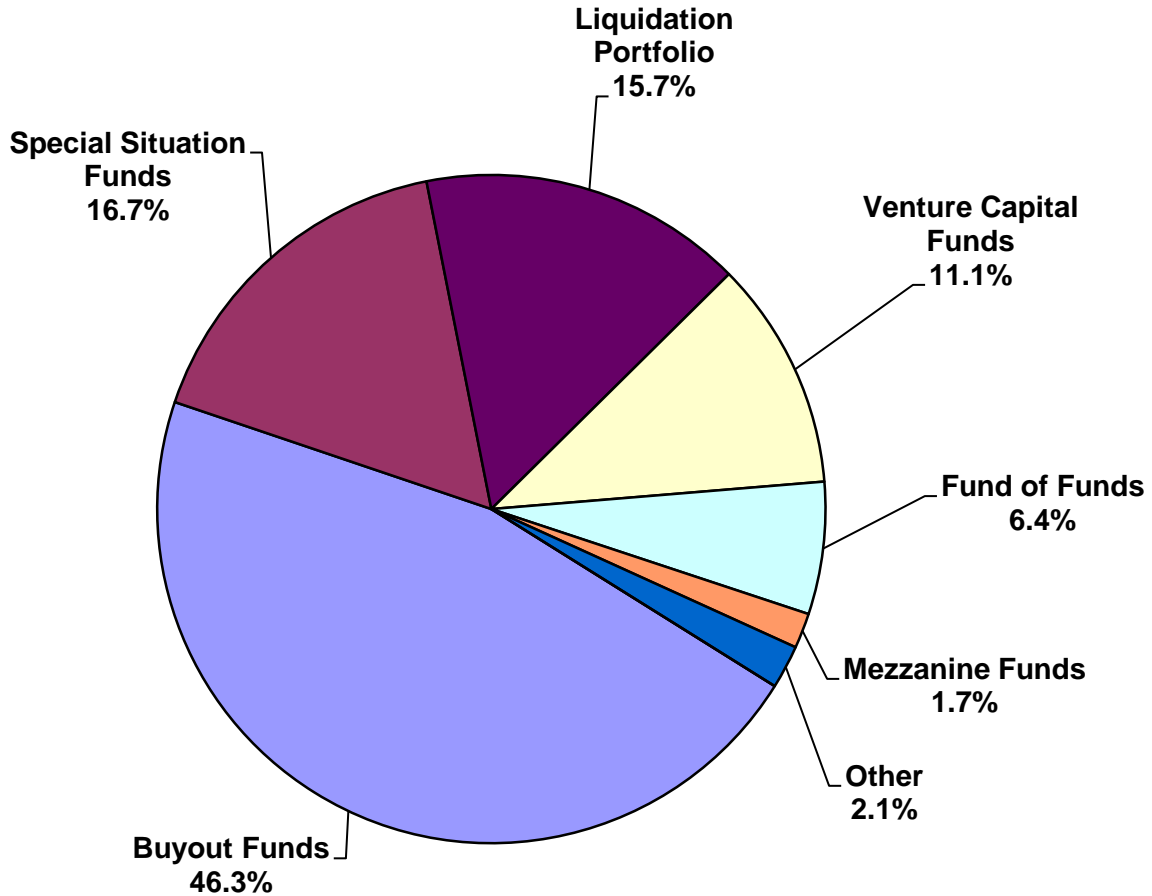
Market Environment

- Accommodative monetary policy and low interest rates continue to be major issues impacting private equity. Central banks around the world have been flooding markets with liquidity, driving interest rates down and valuations up, in an attempt to stimulate economic growth. Soaring stock markets and intense competition from corporate buyers make it harder for private-equity firms to reap the kind of profits they have historically enjoyed. In addition, increased regulation aimed at limiting risky lending by Wall Street Banks has reduced the amount of debt available, forcing private equity firms to contribute more equity. These headwinds will impact private equity returns.
- Private Equity's strategy for the next three to six months will continue to focus on credit and opportunistic investing. This may include direct co-investments, secondary funds and other opportunities. Credit remains attractive, because of leveraged loan and high yield debt issuance, attractive coupon rates, low default rates, potential for equity upside and co-investment.

SMRS

Private Equity

6/30/16



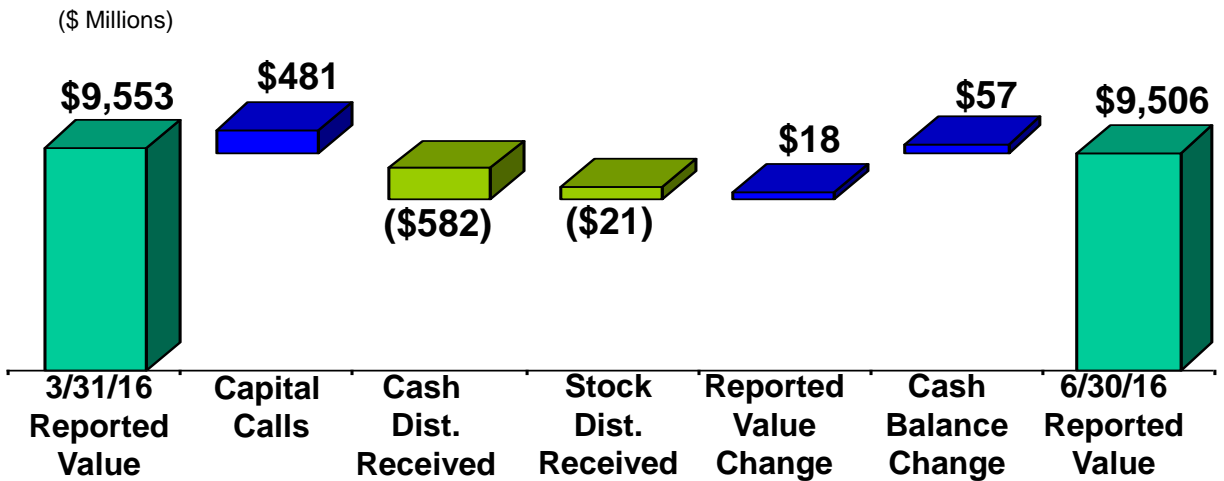
Market Value in Millions				
	<u>6/30/16</u>		<u>3/31/16</u>	
Buyout Funds	\$4,404	46.3%	\$4,454	46.6%
Special Situation Funds	1,590	16.7%	1,634	17.1%
Liquidation Portfolio	1,488	15.7%	1,533	16.1%
Venture Capital Funds	1,056	11.1%	1,077	11.3%
Fund of Funds	610	6.4%	558	5.8%
Mezzanine Funds	157	1.7%	157	1.6%
Other	201	2.1%	140	1.5%
Total	<u>\$9,506</u>	<u>100.0%</u>	<u>\$9,553</u>	<u>100.0%</u>

SMRS

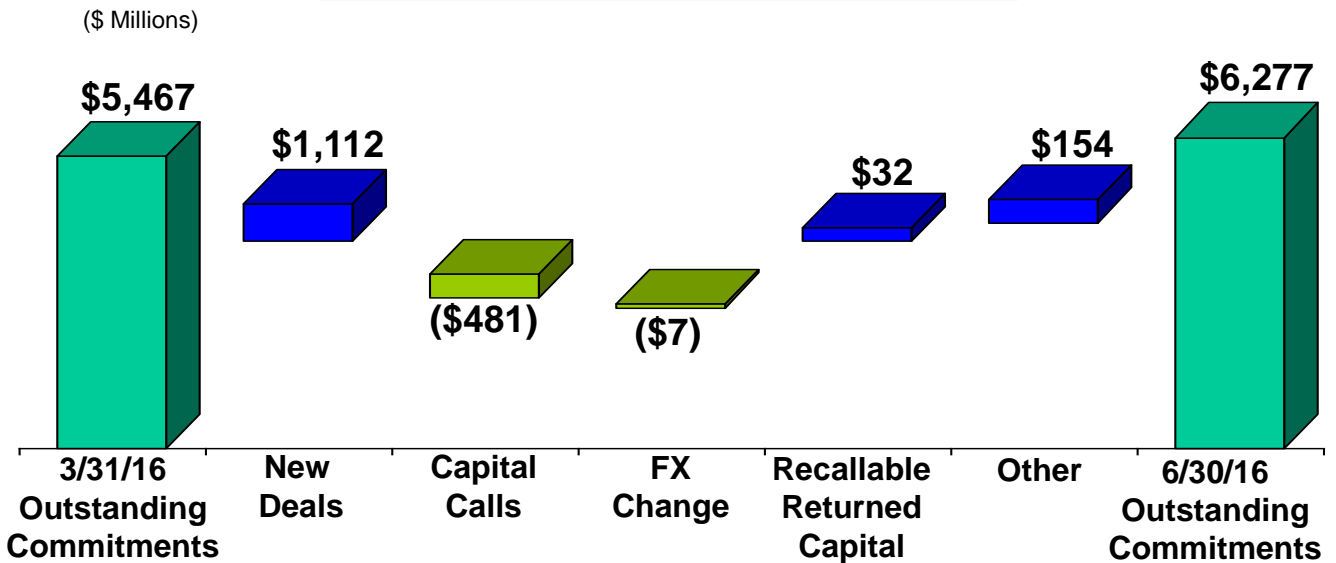
Private Equity

6/30/16

Invested Commitments



Outstanding Commitments

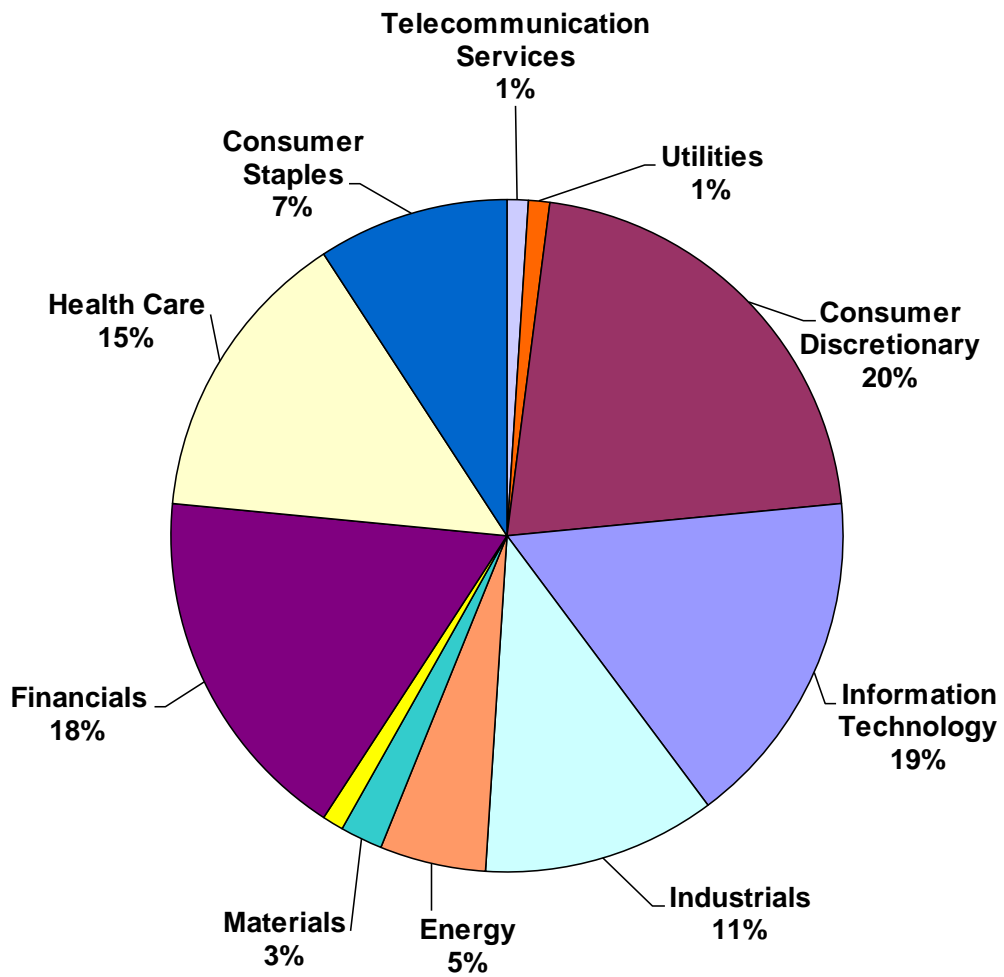


SMRS

Private Equity

6/30/16

Investments by Industry



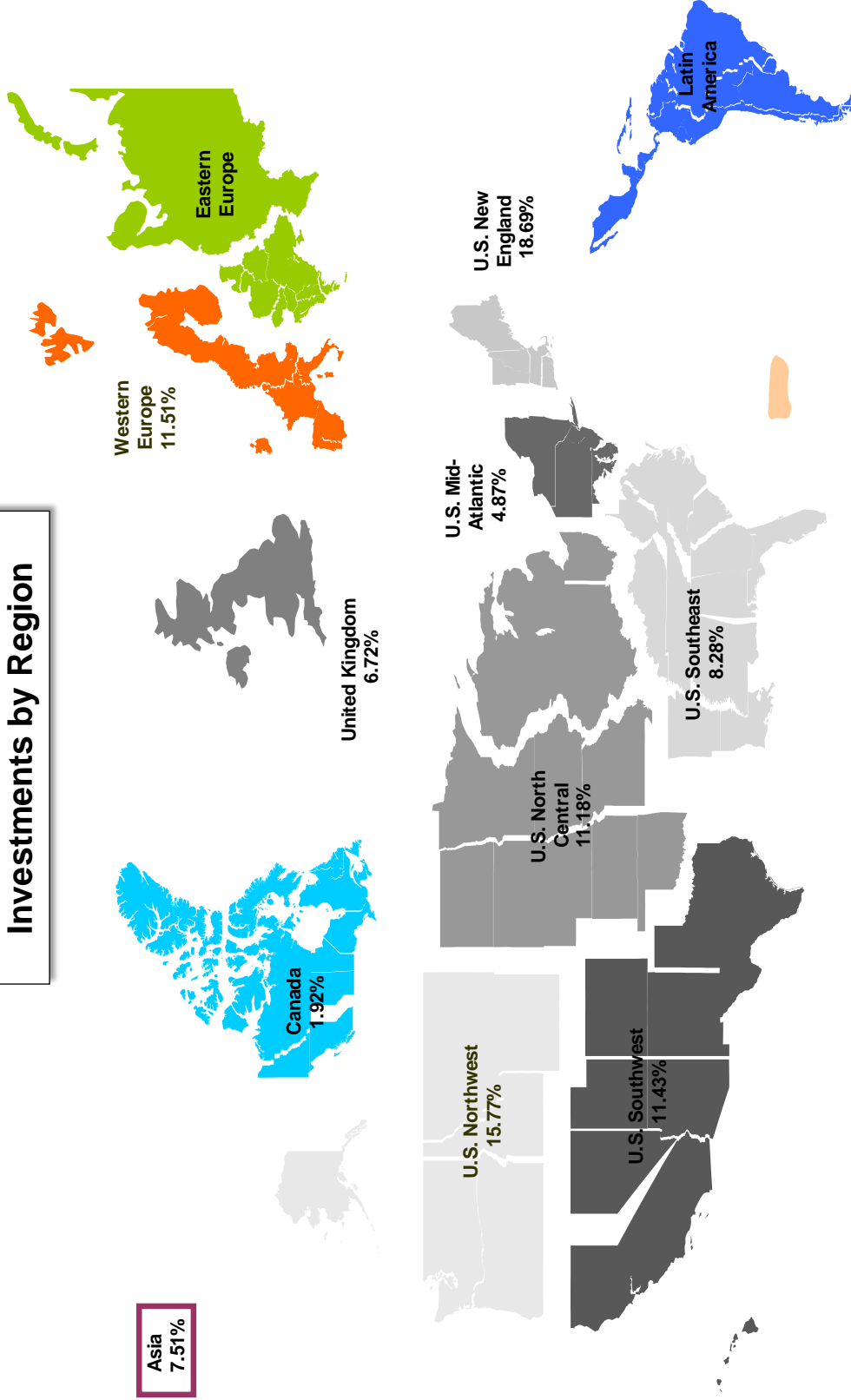
These numbers are based on the most recent available General Partner Data; primarily 12/31/15 and are subject to change.

SMRS

Private Equity

6/30/16

Investments by Region



Geographic Report: North America 72%, Europe 19%, Asia 8%, Other 1%

SMRS

Private Equity

6/30/16

Portfolio by Vintage Year

(\$ Millions)

Asset Vintage	Reported Value	Outstanding Commitment	Total Exposure
1986-98	\$ 16	\$ 12	\$ 28
1999	27	10	37
2000	73	28	101
2001	217	38	255
2002	59	9	68
2003	23	18	41
2004	153	46	199
2005	417	25	442
2006*	1,156	272	1,428
2007	996	163	1,159
2008	1,042	199	1,241
2009	72	2	74
2010	333	28	361
2011	727	191	918
2012	1,076	397	1,473
2013	409	307	716
2014	676	699	1,375
2015	1,795	2,011	3,806
2016	38	1,822	1,860
Income Accruals	1		1
Cash	194	-	194
Act. Small Cap - Stock Dist	6	-	6
Total	\$ 9,506	\$ 6,277	\$15,783

*Liquidation portfolio is 2006 vintage

FX Exposure

(\$ Millions)

	Reported Value	Outstanding Commitment	Total Exposure	Total (USD)
Euro (\$1.11/ €)	€ 400	€ 252	€ 652	\$724
Pound (\$1.33/ £)	£12	£1	£13	\$17

SMRS

Private Equity

6/30/16

Top 10 Sponsors

(\$ Millions)

<u>Asset Type</u>	<u>Reported Value</u>	<u>Outstanding Commitment</u>	<u>Total</u>
HarbourVest Partners	\$ 1,491	\$ 411	\$1,902
KKR	437	548	985
Blackstone Capital Partners	593	199	792
Grosvenor Capital Management	630	235	865
Warburg Pincus Capital	442	301	744
Advent International	365	323	688
The Carlyle Group	335	250	584
Leonard Green & Partners	305	252	557
TPG	331	177	508
Berkshire Partners	206	241	447
Top 10 Total Value	<u>\$5,135</u>	<u>\$2,937</u>	<u>\$8,072</u>

Cash Weighted Rates of Return*

<u>(Net IRR)</u>	<u>Current Qtr.</u>	<u>1-Year</u>	<u>3-Years</u>	<u>5-Years</u>	<u>10-Years</u>
Buyout	0.1%	2.8%	14.5%	11.8%	12.4%
Fund of Funds	-0.1%	5.5%	12.3%	10.0%	9.3%
Mezzanine	0.0%	-5.8%	4.8%	9.9%	8.5%
Special Situations	-0.1%	-0.7%	8.8%	8.7%	8.2%
Venture Capital	-0.2%	-4.1%	15.3%	11.5%	16.0%

*These numbers are based on most recent available General Partner reported data; primarily 3/31/16 and are subject to change.

SMRS

Private Equity

6/30/16

Net Market Values by Ownership Entity

	<u>Adjusted Reported Value</u>	<u>Unfunded Commitment</u>
Accel Europe I, L.P.	\$ 17,492,461	\$ 1
Accel Europe II	16,523,958	3,300,000
Accel Growth Fund II, L.P.	12,316,764	1,260,000
Accel Growth Fund III, L.P.	10,602,713	3,360,000
Accel Growth Fund IV L.P.	-	22,000,000
Accel IX, L.P.	8,893,037	3,000,000
Accel Leaders Fund L.P.	-	5,500,000
** Accel London V L.P.	-	13,000,000
Accel VI-S	2,566,474	652,611
Accel VI, L.P.	1,387,211	-
Accel VII, L.P.	1,182,206	5,000,000
Accel VIII, L.P.	3,183,336	4,782,499
Accel X, L.P.	20,486,085	400,000
Accel XI, L.P.	6,948,252	1,680,000
Accel XII, L.P.	4,582,049	2,625,000
Accel XIII, L.P.	-	10,000,000
Advent Global Private Equity III	1,038,333	20
Advent Global Private Equity IV	15,866	-
Advent Global Private Equity V	11,887,165	8,700,000
Advent International GPE VI-A LP	154,048,705	5,199,980
Advent International GPE VII-B, L.P.	192,797,207	29,300,000
Advent International GPE VIII-B, L.P.	-	250,000,000
Advent Latin American Private Equity Fund VI, L.P.	4,769,220	30,187,500
Affinity Asia Pacific Fund II, L.P.	-	5,288,237
Affinity Asia Pacific Fund III, L.P.	67,953,333	13,543,674
Affinity Asia Pacific Fund IV, L.P.	47,197,396	81,189,271
APA Excelsior V	114,231	545,625
Apax Europe Fund VI	27,740,281	2,349,435
Apax Europe V, L.P.	175,383	-
Apax Europe VII, L.P.	67,478,593	2,774,629
Apax Excelsior VI	75,002	1,614,434
** Apax IX, L.P.	-	150,000,000
Apax US VII	20,222,972	417,509
Apax VIII - B, L.P.	96,946,046	20,562,207
Apollo Investment Fund VIII L.P.	43,585,267	57,275,589
Arboretum Ventures II	2,578,481	-
Arboretum Ventures III, L.P.	12,939,118	1,167,185
Arboretum Ventures IV, L.P.	3,177,905	25,710,000
Ares Corporate Opportunities Fund II	18,224,242	11,457,604
Ares Corporate Opportunities Fund III, LP	87,128,833	10,283,337

	<u>Adjusted Reported Value</u>	<u>Unfunded Commitment</u>
Ares Corporate Opportunities Fund IV, L.P.	80,633,752	26,579,129
AXA ASF Miller Co-Investment	48,730,090	22,721,187
Axiom Asia IV, L.P.	2,062,435	47,795,082
Axiom Asia Private Capital Fund III, L.P.	25,346,462	15,101,764
BC European Capital IX	64,182,361	19,269,179
BC European Capital VII, L.P.	546,487	-
BC European Capital VIII, L.P.	30,871,112	8,687,629
Berkshire Fund IX, L.P.	-	200,000,000
Berkshire Fund V, L.P.	257,478	3,281,560
Berkshire Fund VI, L.P.	41,817,692	6,922,675
Berkshire Fund VII, L.P.	68,859,269	2,453,549
Berkshire Fund VIII, L.P.	95,462,847	28,269,829
Blackstone Capital Partners IV	40,162,420	5,043,497
Blackstone Capital Partners V	81,814,001	16,142,412
Blackstone Capital Partners V-S	11,875,477	707,564
Blackstone Capital Partners VI, LP	282,144,402	60,276,098
Blackstone Capital Partners VII, L.P.	-	300,000,000
Bridgepoint Europe IV	41,707,777	6,706,191
Carlyle Europe Partners II	5,116,190	4,054,840
Carlyle Europe Partners III	47,782,556	12,205,369
Carlyle Europe Partners IV, L.P.	38,191,666	70,929,254
Carlyle Partners IV, L.P.	17,423,234	16,009,296
Carlyle Partners V L.P.	141,084,689	57,309,519
Carlyle Partners VI, L.P.	84,939,843	89,147,528
Castle Harlan Partners IV	7,156,298	5,286,319
Castle Harlan Partners V	38,117,742	38,442,690
CCMP Capital Investors II	77,566,971	10,346,490
CCMP Capital Investors III, L.P.	26,470,393	25,295,332
Centerbridge Capital Partners III, LP	20,934,511	55,819,789
Cerberus SMRS Partners, L.P.	105,292,120	11,804,657
CM Liquidity Fund, L.P.	-	25,000,000
CMEA Ventures VI	-	-
Coller International Partners IV	3,932,399	1,000,000
Coller International Partners V, L.P.	52,978,560	43,600,000
Coller International Partners VI, L.P.	73,706,455	29,723,267
Coller International Partners VII, L.P.	5,533,585	144,720,189
Crescent Mezzanine Partners VI, L.P.	60,215,189	12,904,535
** Crescent Mezzanine Partners VII	-	150,000,000
DLJ Investment Partners II	161,071	-
DLJ Investment Partners III	11,357,494	57,712,985
Dover Street IX, L.P.	-	100,000,000
EDF Ventures III	1,480,411	-
EnCap Energy Capital Fund X, L.P.	8,631,512	35,412,270
Entertainment IP Fund, L.P.	2,425,533	47,086,216
FIMI Opportunity 6, L.P.	-	50,000,000
FirstMark Capital I, L.P.	83,459,200	196,596
** FirstMark Capital IV, L.P.	-	35,000,000
FirstMark Capital OF I, L.P.	9,263,230	9,900,000

	<u>Adjusted Reported Value</u>	<u>Unfunded Commitment</u>
** FirstMark Capital OF II, L.P.	-	35,000,000
FirstMark Capital P2, L.P.	168,159,757	-
Flagship Ventures Fund 2004	11,364,871	-
Flagship Ventures Fund 2007, L.P.	37,742,565	-
Flagship Ventures Fund IV, L.P.	79,191,879	900,000
Flagship Ventures Fund V	16,361,736	19,600,000
** Flagship Ventures Opportunities Fund I, L.P.	-	50,000,000
Fox Paine Capital Fund II, LP	24,983,388	15,539,184
FS Equity Partners VII, L.P.	51,899,720	46,014,439
G-II Acquisition Holdings Note	6,932,579	-
G-IV Acquisition Holdings, LLC	20,936,296	-
GCM Grosvenor Fund Investment Program I, L.P.	16,509,013	1,422,440
GCM Grosvenor Fund Investment Program II, L.P.	61,497,801	15,959,746
GCM Grosvenor Fund Investment Program III - 2004	70,380,795	5,002,008
GCM Grosvenor Fund Investment Program III - 2006	98,155,969	10,562,946
GCM Grosvenor Fund Investment Program V, L.P.	106,129,117	16,486,513
GCM Grosvenor Fund Investment Program VI, L.P.	14,411,462	19,620,399
GCM Grosvenor SeasPriFIP LP (PIS06-10)	88,120,324	27,753,029
GCM Grosvenor SeasPriFIP LP (PIS14)	104,825,920	124,310,750
GCM Grosvenor SeasPriFIP LP (Seed)	70,208,965	13,933,191
Green Equity Investors IV	7,900,366	1,136,036
Green Equity Investors V	196,507,421	25,966,435
Green Equity Investors VI, L.P.	100,561,480	24,493,072
Green Equity Investors VII, L.P.	-	200,000,000
GSO Capital Opportunities Fund II, L.P.	20,948,111	15,891,144
** GSO Capital Opportunities Fund III, L.P.	-	150,000,000
HarbourVest Dover Street VIII, L.P.	46,324,609	15,187,500
HarbourVest Int'l III Direct	2,943,832	1,000,000
HarbourVest Int'l III Partnership	1,634,936	1,200,000
** Harbourvest Partners Co-Investment Fund IV L.P	-	100,000,000
HarbourVest Partners Mezzanine Income Fund	12,860,455	37,375,000
HarbourVest V Partnership	259,308	300,000
HarbourVest VI - Direct Fund LP	4,165,321	750,000
HarbourVest VI Partnership	11,793,629	2,000,000
Harvest Partners VII, L.P.	-	75,000,000
HVST - TOPE LLC	186,586,590	-
Insight Venture Partners Growth-Buyout Coinvestment Fund, L.I	18,562,595	31,375,000
Insight Venture Partners IX, L.P.	35,536,522	61,000,000
Kelso Investment Associates IX, L.P.	34,433,480	70,248,752
Kelso Investment Associates VII	3,273,274	4,970,176
Kelso Investment Associates VIII	107,373,134	24,785,123
Khosla Ventures III, L.P.	57,488,935	2,000,000
Khosla Ventures IV, L.P.	63,485,409	4,750,000
Khosla Ventures V, L.P.	19,021,775	31,800,000
KKR 2006 Fund, L.P.	176,877,423	7,231,738
** KKR Americas Fund XII, L.P.	-	200,000,000
KKR Asian	51,967,800	2,621,553
KKR Asian Fund II, L.P.	32,410,970	26,547,557

	Adjusted Reported Value	Unfunded Commitment
KKR China Growth Fund	35,800,486	11,862,295
KKR E2 Investors (Annex) Fund	787,970	-
KKR European Fund II	33,669,892	-
KKR European Fund III	92,274,602	23,204,025
KKR European Fund IV L.P.	38,728,251	82,995,758
KKR European Fund LP 1	-	-
KKR Millennium Fund	37,775,304	-
KKR North America Fund XI, L.P.	92,870,954	44,388,788
Lightspeed Venture Partners VI	2,837,213	-
Lightspeed Venture Partners VII, L.P.	48,710,582	510,436
Lion Capital Fund I (HME II)	107,745	11,267,653
Lion Capital Fund II	5,492,528	4,706,983
Lion Capital Fund III, L.P.	97,894,939	12,714,252
MatlinPatterson Global Opportunities Partners II	3,150,630	-
MatlinPatterson Global Opportunities Partners III	62,456,026	4,336,976
Menlo Ventures IX, L.P.	4,193,864	-
Menlo Ventures X, L.P.	47,504,523	-
Menlo Ventures XI, L.P.	75,352,827	2,000,000
MeriTech Capital Partners II, L.P.	2,560,681	1,850,000
Meritech Capital Partners III, L.P.	11,288,685	600,000
Meritech Capital Partners IV, L.P.	16,526,494	425,000
Meritech Capital Partners V, L.P.	5,547,793	13,950,000
Michigan Growth Capital Partners II, L.P.	136,738,063	46,547,182
Michigan Growth Capital Partners, LP	89,292,091	17,170,261
Midtown Fund III, L.P.	955,236	-
Midtown II Liquidating Trust	2,340,346	-
New Leaf Growth Fund I, L.P.	116,566,312	5,000,000
New Leaf Ventures II, L.P.	21,131,651	-
New Leaf Ventures III, L.P.	10,827,136	25,312,500
Nordic Capital VI, L.P.	28,499,718	-
Nordic Capital VII	63,784,944	5,546,367
Nordic Capital VIII, L.P. (Alpha)	23,270,792	21,493,584
Oak Investment Partners X, L.P.	7,513,085	-
Oak Investments Partners IX, L.P.	1,396,276	-
Oaktree Opportunities Fund X, L.P.	4,769,454	25,500,000
Oaktree Opportunities Fund Xb, L.P.	-	70,000,000
OCM Opportunities Fund IX, L.P.	71,736,536	-
OCM Opportunities Fund VII (B), L.P.	4,518,232	-
OCM Opportunities Fund VII, L.P.	5,593,525	-
OCM Opportunities Fund VIII B, L.P.	28,002,513	-
OCM Opportunities Fund VIII, L.P.	14,073,599	-
OCM Principal Opportunities Fund IV	21,885,298	-
Ocqueoc Holdings, LLC	15,233,276	-
One Liberty Fund III	927,794	-
One Liberty Fund IV	1,814,412	-
One Liberty Ventures 2000	6,169,255	-
Parthenon Investors II	1,248,447	3,186,779
Parthenon Investors III	43,176,932	2,779,682

	<u>Adjusted Reported Value</u>	<u>Unfunded Commitment</u>
Parthenon Investors IV, L.P.	35,871,239	12,799,878
Peninsula Capital Fund IV	12,437,689	2,201,026
Peninsula Fund VI, L.P.	8,705,232	31,470,000
Phoenix Equity Partners IV	15,894,592	799,025
Public Pension Capital, LLC	4,239,921	45,728,232
Questor Partners Fund II	534,150	5,744,192
Rhone Partners V, L.P.	-	109,667,563
Riverside Capital Appreciation Fund VI, LP	47,718,790	32,507,673
Riverside Micro Cap Fund I, LP	26,262,679	6,363,307
Riverside Micro-Cap Fund II, L.P.	48,194,000	2,735,834
Riverside Micro-Cap Fund III, L.P.	41,873,178	4,483,406
Riverside Micro-Cap Fund IV	-	50,000,000
Shamrock Growth Capital Fund IV, L.P.	522,972	49,199,052
Silver Lake Partners II	6,083,263	3,531,586
Silver Lake Partners III	77,022,992	19,303,187
Silver Lake Partners IV, L.P.	30,311,547	26,509,850
SM/TCP L.P.	31,760,464	14,918,007
SMRS-NCRP LLC	1,224,908,844	152,837,842
Sprout Capital IX	509	-
TCW Shared Op Fund III	1,166,414	-
TCW/Crescent Mezzanine Partners III, L.P.	2,418,766	4,552,763
TCW/Crescent Mezzanine Partners IV, L.P.	3,858,619	6,030,737
TCW/Crescent Mezzanine Partners V, LLC	32,487,708	13,232,460
The Huron Fund III, L.P.	15,692,470	4,992,756
The Huron Fund IV, L.P.	19,252,423	15,075,346
The Shansby Group 4	2,354,222	520,829
The Shansby Group 5 (TSG5)	45,251,564	7,443,077
** Thoma Bravo Fund XII, L.P.	8,239,477	141,760,523
TPG IV (Texas Pacific Group IV)	8,881,902	211,725
TPG Partners III, LP	6,146,796	2,087,002
TPG Partners VI, L.P.	170,283,570	22,949,468
TPG Partners, VII, L.P.	23,822,638	125,420,936
TPG V (Texas Pacific Group V)	121,980,503	26,611,195
Trilantic Capital Partners V (North America) Fund A, L.P.	24,686,148	21,304,226
TSG6, L.P.	130,821,390	41,165,463
TSG7 A L.P.	623,298	124,309,277
Turnbridge Capital Partners I , LP	31,025,689	62,565,261
Veritas Capital Fund V, L.P.	50,475,233	24,086,040
Veritas V Co-Investors, L.P.	9,964,740	15,000,000
Vista Equity Partners Fund V, L.P.	39,929,683	6,160,784
Vista Equity Partners Fund VI, L.P.	8,998,399	66,001,601
** Vista Foundation Fund III, L.P.	-	18,800,000
Warburg Pincus Energy MCIP, L.P.	12,242,484	12,853,034
Warburg Pincus Energy, L.P.	22,698,440	74,800,000
Warburg Pincus Equity Partners, L.P.	4,049,443	-
Warburg Pincus International Partners	10,108,435	-
Warburg Pincus Private Equity IX	22,956,027	-
Warburg Pincus Private Equity VIII, L.P	17,492,044	-

	Adjusted Reported Value	Unfunded Commitment
Warburg Pincus Private Equity X, L.P.	147,033,839	-
Warburg Pincus Private Equity XI, L.P.	194,358,917	26,000,000
** Warburg Pincus Private Equity XII Secondary, L.P.	-	25,000,000
Warburg Pincus Private Equity XII, L.P.	11,248,421	162,750,000
WestAm COREplus Private Equity QP	3,959,292	2,086,719
WestAm Special Private Equity Partners	4,456,891	2,317,427
Total Private Equity	\$ 9,304,987,429	\$ 6,276,961,394
Cash	179,157,193.06	-
Active Small Cap Cash	15,229,902.79	-
Active Small Cap	5,854,661.73	-
Income Accruals	634,758.41	-
Grand Total	\$ 9,505,863,945	\$ 6,276,961,394

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

** New Commitments made during quarter reported

State of Michigan Retirement Systems

REAL ESTATE AND INFRASTRUCTURE REVIEW

Investment Advisory Committee Meeting

September 1, 2016



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

EXECUTIVE SUMMARY

Performance

MPSERS Plan	1-Year	3-Years	5-Years	7-Years	10-Years
Annualized Return	11.1%	13.7%	11.9%	6.7%	5.2%
NCREIF NPI	9.2%	10.2%	10.1%	8.9%	6.0%
Peer Median Return	11.9%	12.3%	11.6%	8.9%	4.9%
Rank vs. Peers	58	26	47	74	44

- Total Real Estate and Infrastructure Division (REID) value was \$6.4 billion with a total one-year return of 11.1%. Strong performance was the result of increased rental income in for-rent housing, and the lease-up of apartment developments. Hospitality assets, revenue per available room (RevPAR) continued to increase. Credit strategies and unique opportunities sourced by staff have also contributed to overall performance.

Strategy Update

- The REID has a focused strategy that pursues attractive risk-adjusted returns. This includes development of urban apartments and warehouses, acquisition of office buildings where REID can add value through management and leasing, and investing in various levels of the capital stack through its credit strategies. Also, REID has selectively added exposure in Europe where value-add opportunities are sourced through managers that have an established history and presence in the market.
- The REID has been selling stabilized assets at attractive capitalization rates where growth in rental income is expected to be limited. The REID has disposed of suburban properties in favor of developing/redeveloping properties in dense urban areas where rent growth and appreciation are strong. The REID is also working with its advisors in executing the disposition of non-strategic properties in secondary markets at attractive values returning over \$2 billion in gross distributions over the last two and a half years.
- The REID has approximately \$1.6 billion in unfunded commitments. New commitments closed during the quarter include:
 - \$67 million in KBS/SM Fund III, LP, a separate account for an investment in two office buildings in Austin, TX, managed by KBS Advisors.
 - \$20.5 million in Penmain Office LLC, a separate account for an investment in a value-add office property in the Washington, DC area, managed by Domain Advisors.
 - The division is being very selective and defensive with new commitments, seeking opportunities that are shorter in duration, deliver more liquidity, produce consistent cash flow, and provide a stable yield.

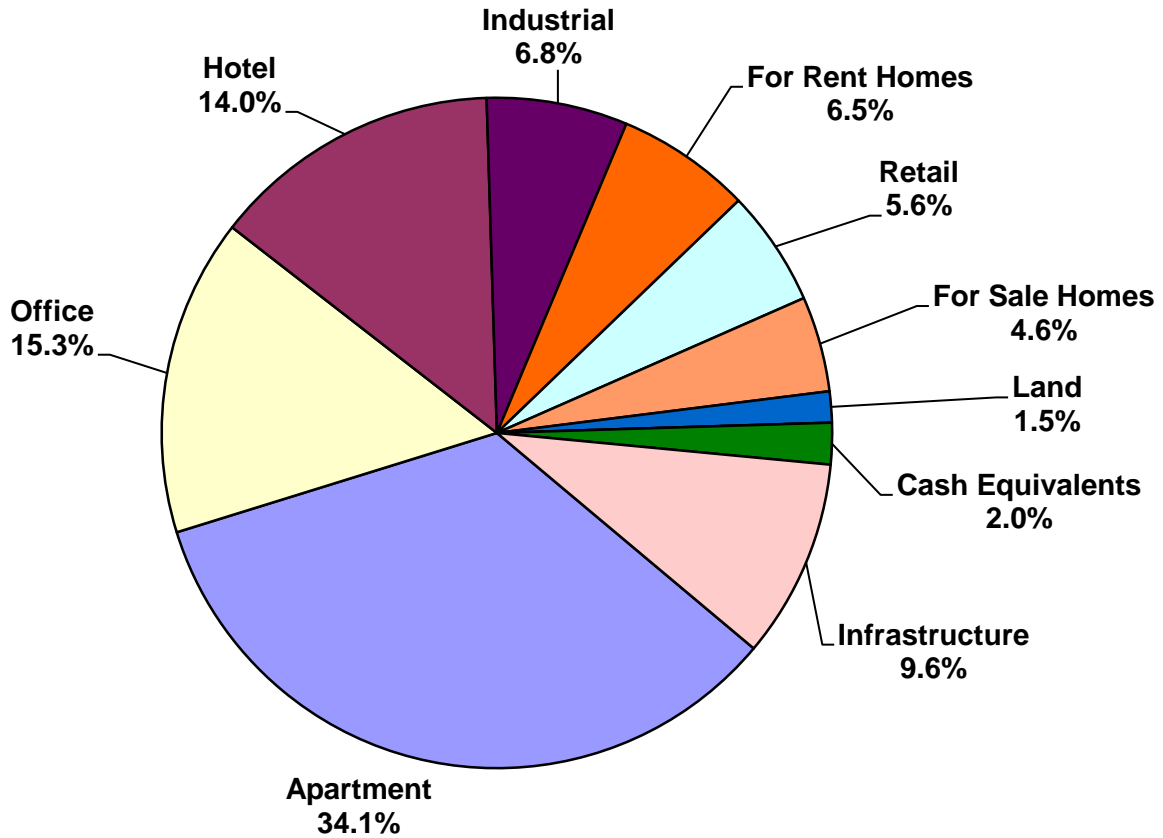
Market Environment

- High quality core assets, although still in demand by investors both domestic and international, has seen pricing beginning to level off. Lenders have become more selective in quality and location of the collateral and are disciplined in keeping loan-to-value ratios generally below 65%. Development of condominiums in major urban markets has begun to ease. Industrial warehouse construction fueled by fulfillment centers continues to meet growing demand. The U.S. has eased FIRPTA Rules to reduce federal taxes on foreign investors for real estate investments. This will likely encourage more offshore pension funds to invest in the U.S. although foreign currency exchange rates may limit the amount.
- 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 where distressed pricing is appearing, power generation, European transportation, and emerging market fundamental infrastructure projects. Investors are prudently managing capital and only pursuing select opportunities.
- In the commercial mortgage-backed securities (CMBS) market, spreads over the swap rate for 10-year AAA-rated securities decreased 16 basis points (bps) from the prior quarter and now stand at 119 bps. Early in the first quarter, spreads widened significantly and new issuance was reduced considerably. The reduced supply of securities caused spreads on high-rated securities to tighten, the lower-rated securities spreads remain appropriate for the risk. This demonstrates a flight to quality for investors. Commercial Mortgage Alert reported that CMBS issuance is projected to be only \$70 billion for 2016 compared to \$106 billion in 2015. A wave of refinancing for 2007 ten-year vintage loans is on the horizon. New banking rules by the federal government will negatively impact traditional bank lenders in 2017 and beyond. This could make it difficult for borrowers to refinance properties, with borrowing costs expected to rise due to the new rules. However, this provides opportunities for non-bank lenders, where the REID's credit strategy has focused its attention.

SMRS

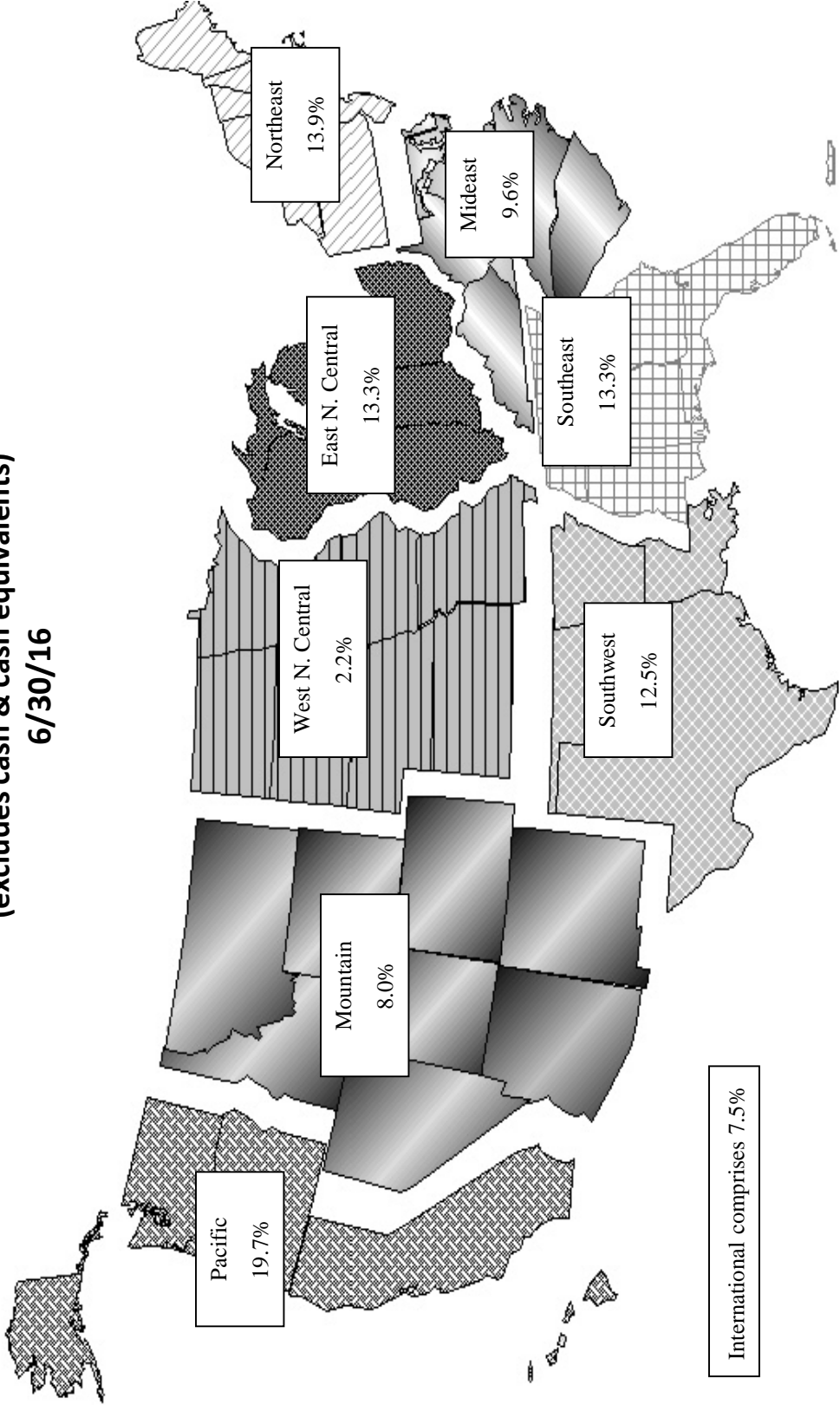
Real Estate and Infrastructure

6/30/16



Market Value in Millions				
	<u>6/30/16</u>		<u>3/31/16</u>	
Apartment	\$2,195	34.1%	\$2,052	32.7%
Office	985	15.3%	960	15.3%
Hotel	900	14.0%	887	14.1%
Infrastructure	616	9.6%	624	9.9%
Industrial	437	6.8%	418	6.7%
For Rent Homes	422	6.5%	422	6.7%
Retail	362	5.6%	388	6.2%
For Sale Homes	296	4.6%	315	5.0%
Land	97	1.5%	110	1.8%
	<u>\$6,310</u>	<u>98.0%</u>	<u>\$6,176</u>	<u>98.4%</u>
Cash Equivalents	<u>133</u>	<u>2.0%</u>	<u>100</u>	<u>1.6%</u>
Total Investments	<u>\$6,443</u>	<u>100.0%</u>	<u>\$6,276</u>	<u>100.0%</u>

SMRS
Real Estate by Region
Based on Net Market Value
(excludes cash & cash equivalents)
6/30/16



Geographic regions defined by NCREIF, whose property index composition is: Pacific 31.6%, Mountain 5.7%, West N. Central 1.4%, Southwest 10.6%, East N. Central 7.6%, Southeast 9.7%, Northeast 21.2%, Midwest 12.2%

SMRS
Real Estate and Infrastructure
6/30/16

**Top Ten
Advisors or Entity**

<u>Advisor or Entity</u>	<u>Net Market Value</u>
MWT Holdings, LLC (SHLP)	\$ 1,299,241,862
Clarion Partners	647,250,613
Blackstone Group	577,634,699
Kensington Realty Advisors, Inc.	317,954,878
CIM Investment Advisors LLC	254,446,694
Bentall Kennedy LP	248,560,203
Principal Real Estate Investors	235,631,252
Five Star Realty Partners, LLC	199,023,610
Domain Capital Advisors Inc	195,618,359
KBS Realty Advisors	190,942,867
	<hr/>
	\$ 4,166,305,037
	<hr/>

**Occupancy
by Property Type**

	Apartment	Office	Industrial	Retail	Hotel
SMRS Portfolio	94.1%	87.5%	90.8%	93.6%	76.3%
National Average	93.0%	86.8%	90.8%	94.2%	60.5%

SMRS

Net Market Values by Ownership Entity 6/30/16

REAL ESTATE

	Net Market Value	Unfunded Commitment
801 Grand Avenue Capital, LLC	\$ 80,699,707	\$ 0
Apollo Asia Real Estate Fund, L.P.	0	75,000,000
Avanath Affordable Housing I, LLC	23,115,439	2,492,748
Avanath Affordable Housing II, LLC	27,208,428	0
Avanath II SMRS Co-Investment Fund LLC	20,000,000	0
Beacon Capital Strategic Partners IV, LP	1,636,337	0
Beacon Capital Strategic Partners V, LP	4,395,628	2,500,000
Blackstone R/E IH3 Co-Inv Partners	422,454,925	0
Blackstone Real Estate Partners V, LP	29,811,419	2,087,026
Blackstone Real Estate Partners VI, LP	44,615,300	3,877,135
Blackstone Real Estate Partners VIII, LP	29,484,300	51,000,000
Capri Select Income II	72,857	0
Capri Urban Investors, LLC	19,294,696	0
CIM Fund III, LP	77,910,931	0
CIM Fund VIII, LP	53,013,189	57,222,226
CIM Urban REIT, LLC	92,367,434	0
CIM VI (Urban REIT), LLC	30,388,235	0
Clarion Gables Multifamily Trust	28,376,382	0
CPI Capital Partners N.A., LP	436,377	0
CPI Capital Partners N.A. Secondary, LP	1,591,478	0
Crown Small Cap Real Estate	9,491,604	15,750,000
Domain GVA-1, LLC	172,168,379	172,552,201
Domain Hotel Properties, LLC	464,141,404	0
Dynamic Retail Trust	76,836,887	0
Eastport Properties, LLC	20,101,187	0
Gateway Capital R/E Fund II, LP	40,385,697	1,275,000
Great Lakes Property Group Trust	305,417,897	0
IMRF II CoInvest Spiga LP	11,849,210	1,500,000
Invesco Mortgage Recovery Feeder Fund	22,596,805	0
Invesco Mortgage Recovery Fund II, LP	51,340,689	17,543,582
IPF II Co-Invest LP	9,173,417	19,330,897
JBC North LaSalle, LLC	22,897,509	5,850,000
JBC Opportunity Fund III, LP	2,443,894	0
JP Morgan India Property Fund II, LLC	22,887,369	15,351,734
* KBS/SM Fund III, LP	130,468,295	67,000,000
L-A Saturn Acquisition, LP	41,907,517	0
Landmark Real Estate Partners V, LP	16,277,610	3,900,000
LaSalle Asia Opportunity Fund II, LP	265,974	0
LaSalle Asia Opportunity Fund III, LP	10,622,041	1,250,000
Lion Industrial Trust	162,692,214	0
Lion Mexico Fund, LP	13,819,778	0
Lombard GVA0016	228,192,443	0
Low Hospitality Investment Partners	230,332	0
Lubert-Adler Real Estate Fund VII, LP	43,353,560	30,000,000
M1 Westgate CoInvest LLC	8,236,206	1,867,379
MERS Acquisitions, Ltd.	142,333,387	0
MG Alliance, LLC	18,337,195	0
MIP Holdco, LLC	68,065,528	31,757,947
Morgan Stanley R/E Fund V - International	3,777,448	0
Morgan Stanley R/E Fund VI - International	21,429,295	0
Morgan Stanley R/E Fund V - U.S.	2,705,887	0
Morgan Stanley R/E Special Situations Fund III	45,223,477	0

	<u>Net Market Value</u>	<u>Unfunded Commitment</u>
MWT Holdings, LLC	1,330,916,064	20,000,000
Northpark-Land Associates, LLLP	29,696,721	64,350,030
Orange Investors LLC	87,649,543	0
Paladin Realty Brazil Investors III (USA), LP	29,574,245	0
Paladin Realty Latin America Investors IV-CI, LP	28,975,155	26,137,450
* Penmain Office LLC	19,969,320	530,680
Principal Separate Account	155,304,372	0
Proprium RE Spec Situations Fund LP	22,651,035	21,214,477
Rialto Credit Partnership LP	22,363,636	191,909,091
Rialto Real Estate Fund, LP	31,552,712	0
Rialto Real Estate Fund II, LP	47,637,584	0
Rialto Real Estate Fund III-Debt, LP	0	50,000,000
Rialto Mezzanine Partners Fund	61,338,425	0
SM Brell II, LP	58,344,007	0
Stockbridge Real Estate Fund II-C, LP	20,787,938	0
Strategic LP	247,349,225	43,600,000
TPG RE Finance Trust	96,075,982	4,333,381
TPG RE Fund II	10,583,880	40,255,670
TSP Spartan C-I LLC	7,915,375	0
TSP Value and Income Fund LP	42,194,161	20,216,129
Trophy Property Development LP	49,569,709	7,408,100
True North High Yield Investment Fund II	26,678,564	5,000,000
True North Real Estate Fund III	21,471,791	29,867,783
Venture Center, LLC	41,050,052	0
Western National Realty Fund II, LP	28,231,307	0
	<u>\$ 5,694,423,998</u>	<u>\$ 1,103,930,666</u>
Short-Term Investments and Other	104,318,052	0
Total Real Estate Investments	<u>\$ 5,798,742,050</u>	<u>\$ 1,103,930,666</u>
INFRASTRUCTURE		
ArcLight Energy Partners Fund VI, LP	\$ 16,087,081	\$ 32,139,719
ASF VI Infrastructure B LP	13,540,331	18,030,022
ASF Como Co-Investment LP	36,844,886	15,565,404
Balfour Beatty Infrastructure Partners, LP	29,718,369	19,314,545
Blackstone Energy Partners, LP	51,722,858	5,047,629
Blackstone Energy Partners II, LP	2,087,188	82,912,812
Brookfield Infrastructure Fund II-B, LP	40,375,126	11,227,060
Customized Infrastructure Strategies, LP	73,023,849	9,157,654
Dalmore Capital Fund	68,480,000	0
First Reserve Energy Infrastructure Fund II, LP	12,328,119	64,000,000
GCM Grosvenor Infrastructure Investment Program, LP	49,652,809	0
GCM Grosvenor Customized Infrastructure Strategies II, LP	5,924,314	45,438,714
GSO Energy Select Opportunities Fund LP	4,244,008	46,093,622
JP Morgan AIRRO India Sidecar Fund US, LLC	66,692,693	5,033,815
JP Morgan AIRRO Fund II US, LLC	11,452,239	83,384,246
KKR Eagle CoInvest L.P.	19,170,944	14,582,543
KKR Global Infrastructure Investors, LP	64,510,143	7,181,281
StonePeak Infrastructure Fund LP	50,109,590	12,227,536
	<u>\$ 615,964,548</u>	<u>\$ 471,336,602</u>
Short-Term Investments and Other	28,529,940	0
Total Infrastructure Investments	<u>\$ 644,494,487</u>	<u>\$ 471,336,602</u>
TOTAL INVESTMENTS	<u>\$ 6,443,236,537</u>	<u>\$ 1,575,267,267</u>

* New or additional commitment made during the quarter reported

State of Michigan Retirement Systems

BASKET CLAUSE REVIEW

Investment Advisory Committee Meeting

September 1, 2016



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

SMRS

Basket Clause Investments

6/30/16

<u>Asset Class</u>	<u>Value</u>
Total Absolute Return	\$4,180,779,126
Total Real Return and Opportunistic	949,722,745
Total International Equity	477,686,022
Total Long-Term Fixed Income	<u>60,638,497</u>
Total Basket Clause Investments	<u>\$5,668,826,390</u>

The basket clause investments at June 30, 2016, were \$5.7 billion or 9.4% of the total portfolio value of \$60.0 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.

