

# Michigan Public Schools Pension - MPSERS

RATES OF RETURN - GROSS

Periods Ending September 30, 2015



## PERFORMANCE SUMMARY REPORT

	MKT VAL \$	% of	10 Years	7 Years	5 Years	3 Years	1 Year	Qtr	1 Month	ITD	Incept Date
<b>TOTAL PLAN</b>											
<b>TOTAL PUBLIC SCHOOL</b>	<b>42,241,138,989</b>	<b>100.0</b>	<b>6.70</b>	<b>7.40</b>	<b>10.04</b>	<b>10.08</b>	<b>2.56</b>	<b>-2.47</b>	<b>-1.16</b>	<b>9.34</b>	<b>01-01-79</b>
<i>1 MPSERS TOTAL PLAN POLICY</i>			6.51	8.08	9.95	9.49	2.28	-3.08	-1.33		
<b>DOMESTIC EQUITY</b>											
<b>TOTAL DOMESTIC EQUITY</b>	<b>11,300,870,408</b>	<b>26.8</b>	<b>7.09</b>	<b>10.09</b>	<b>13.17</b>	<b>13.31</b>	<b>-0.78</b>	<b>-6.72</b>	<b>-2.58</b>	<b>8.98</b>	<b>09-01-91</b>
<i>S&amp;P COMPOSITE 1500</i>			6.95	9.88	13.34	12.49	-0.30	-6.69	-2.57		
<b>TOTAL ACTIVE EQUITY</b>	<b>6,485,735,305</b>	<b>15.4</b>	<b>7.09</b>	<b>10.13</b>	<b>13.12</b>	<b>13.81</b>	<b>-1.18</b>	<b>-6.78</b>	<b>-2.63</b>	<b>10.40</b>	<b>01-01-79</b>
<i>2 SP1500</i>			6.95	9.88	13.34	12.49	-0.30	-6.69	-2.57		
<b>TOTAL INTERNAL ACTIVE</b>	<b>3,950,198,029</b>	<b>9.4</b>	<b>6.82</b>	<b>9.73</b>	<b>12.56</b>	<b>13.28</b>	<b>-2.16</b>	<b>-6.45</b>	<b>-2.21</b>	<b>4.50</b>	<b>02-01-00</b>
<i>S&amp;P 500</i>			6.80	9.75	13.34	12.40	-0.61	-6.44	-2.47	4.04	
LARGE CAP CORE	1,729,535,406	4.1		11.34	13.93	16.27	-0.30	-5.38	-1.18	6.91	08-01-07
<i>S&amp;P 500</i>				9.75	13.34	12.40	-0.61	-6.44	-2.47	5.73	
LARGE CAP GROWTH	1,142,127,259	2.7	8.40	12.02	14.84	15.14	2.84	-6.04	-2.83	2.16	01-01-00
<i>3 SP500 GROWTH BLEND</i>			8.12	11.64	14.72	13.49	2.78	-4.83	-2.20	2.79	
<i>4 ALL CAP GARP</i>	694,478,582	1.6			12.20	12.51	-1.80	-7.14	-2.75	16.11	04-01-09
<i>S&amp;P COMPOSITE 1500</i>					13.34	12.49	-0.30	-6.69	-2.57	17.16	
CONCENTRATED EQUITY FUND	273,191,569	0.6					-21.52	-10.30	-3.91	-1.51	05-01-13
<i>S&amp;P COMPOSITE 1500</i>							-0.30	-6.69	-2.57	10.08	
LARGE CAP VALUE	70,958,693	0.2	4.21	5.99	9.42	9.40	-8.34	-9.22	-3.16	5.34	01-01-00
<i>5 SP500 VALUE BLEND</i>			5.36	7.74	11.88	11.25	-4.30	-8.25	-2.79	4.41	
ABSOLUTE RETURN INCOME FUND	21,567,323	0.1			7.01	3.07	-14.85	-15.34	-5.68	10.51	01-01-09
<i>60% S&amp;P 500/40% BARCLAYS AGG</i>					9.33	8.14	0.95	-3.39	-1.21	10.48	
CONCENTRATED GROWTH	18,339,198	0.0					-19.24	-12.64	-4.58	-6.51	05-01-13

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<i>S&amp;P SMALLCAP 600</i>							3.81	-9.27	-3.50	10.26	
<b>TOTAL EXTERNAL ACTIVE</b>	<b>2,485,719,690</b>	<b>5.9</b>	<b>7.63</b>	<b>9.94</b>	<b>12.88</b>	<b>12.79</b>	<b>-0.07</b>	<b>-7.59</b>	<b>-3.16</b>	<b>8.52</b>	<b>10-01-01</b>
<i>S&amp;P COMPOSITE 1500</i>			6.95	9.88	13.34	12.49	-0.30	-6.69	-2.57	6.99	
FISHER ALL CAP	571,239,424	1.4	9.33	10.04	11.92	12.15	1.25	-6.39	-2.74	10.10	10-01-04
<i>Fisher Blended benchmark</i>			7.17	9.27	13.28	12.49	-0.30	-6.69	-2.57		
SEIZERT CAPITAL PARTNERS	445,204,253	1.1			12.94	12.63	-7.29	-9.95	-4.30	14.05	11-01-09
<i>Seizert Blended Benchmark</i>					14.29	12.49	-0.30	-6.69	-2.57		
MID CAP CORE L.A. CAPITAL	275,465,347	0.7	10.08	13.22	15.81	17.90	8.32	-3.07	-0.90	11.41	05-01-05
<i>L.A. Capital Blended Benchmark</i>			8.84	12.02	14.16	15.19	3.14	-5.09	-2.27		
LA CAPITAL DEEP VALUE	260,282,657	0.6						-8.37	-3.47	-8.52	04-01-15
<i>S&amp;P 1500/CITIGROUP VALUE</i>								-8.49	-2.90	-8.40	
CLARKSTON SMALL CAP CORE	176,362,994	0.4					11.18	-4.25	-2.26	10.24	01-01-14
<i>S&amp;P SMALLCAP 600</i>							3.81	-9.27	-3.50	-0.03	
CLARKSTON CAPITAL LG CAP	171,036,722	0.4						-4.33	-0.89	-3.35	04-01-15
<i>S&amp;P 1500/CITIGROUP VALUE</i>								-8.49	-2.90	-8.40	
GW CAPITAL ALL CAP	46,096,909	0.1					-12.11	-11.20	-5.40	-5.54	01-01-14
<i>S&amp;P 1500/CITIGROUP VALUE</i>							-4.02	-8.49	-2.90	1.35	
MUNDER MID CAP CORE GROWTH	97,615,263	0.2			13.09	13.10	-0.86	-16.55	-8.53	18.04	04-01-09
<sup>6</sup> <i>SP400 GROWTH BLEND</i>					13.50	13.31	4.92	-6.95	-2.71	19.55	
NORTHPOINTE CAPITAL	101,599,366	0.2	5.62	8.49	10.78	11.83	-0.88	-8.88	-3.02	6.92	10-01-04
<i>Northpointe Blended Benchmark</i>			7.18	9.28	13.30	13.12	4.10	-6.69	-2.57		
CHAMPLAIN INV PARTNERS MID CAP COR	0	0.0									02-01-09
CRAMER ROSENTHAL ALL CAP	0	0.0									05-01-05
<b>ATTUCKS</b>	<b>173,411,950</b>	<b>0.4</b>		<b>9.17</b>	<b>12.08</b>	<b>11.42</b>	<b>-3.58</b>	<b>-7.88</b>	<b>-3.28</b>	<b>5.20</b>	<b>11-01-07</b>
<b>BIVIUM</b>	<b>167,404,806</b>	<b>0.4</b>		<b>9.95</b>	<b>12.81</b>	<b>11.34</b>	<b>-0.63</b>	<b>-10.15</b>	<b>-3.93</b>	<b>5.10</b>	<b>11-01-07</b>

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SAD TACTICAL ALLOCATION FUND	49,817,586	0.1				90.57	-25.43	8.35	-8.33	55.44	05-01-11
<b>TOTAL PASSIVE EQUITY</b>	<b>4,815,135,103</b>	<b>11.4</b>	<b>7.30</b>	<b>10.33</b>	<b>13.72</b>	<b>12.76</b>	<b>-0.28</b>	<b>-6.62</b>	<b>-2.51</b>	<b>9.81</b>	<b>01-01-90</b>
<i>7 S&amp;P 900 BLEND</i>			6.92	9.87	13.31	12.47	-0.44	-6.60	-2.53		
EQUITY S&P 500 INDEX	4,387,103,932	10.4	7.09	10.14	13.69	12.66	-0.50	-6.45	-2.45	9.12	01-01-94
<i>S&amp;P 500</i>			6.80	9.75	13.34	12.40	-0.61	-6.44	-2.47	8.82	
EQUITY S&P MIDCAP INDEX	428,031,171	1.0	9.08	12.16	13.81	13.73	1.95	-8.25	-3.15	12.25	01-01-94
<i>S&amp;P MID CAP 400</i>			8.25	11.15	12.93	13.12	1.40	-8.50	-3.22	11.34	
TACTICAL ASSET ALLOCATION FUND	505,953,203	1.2									06-01-09
<b>INTERNATIONAL EQUITY</b>											
<b>TOTAL INTERNATIONAL EQUITY</b>	<b>5,823,675,186</b>	<b>13.8</b>	<b>2.74</b>	<b>4.39</b>	<b>3.51</b>	<b>4.01</b>	<b>-8.72</b>	<b>-11.65</b>	<b>-4.38</b>	<b>5.28</b>	<b>04-01-93</b>
<i>8 INTERNATIONAL BLENDED BENCHMARK</i>			1.79	2.64	2.17	2.61	-12.16	-12.17	-4.64		
<b>TOTAL INTERNATIONAL PASSIVE</b>	<b>1,956,710,178</b>	<b>4.6</b>			<b>2.16</b>	<b>2.85</b>	<b>-8.78</b>	<b>-11.18</b>	<b>-3.91</b>	<b>7.05</b>	<b>07-01-09</b>
<b>INTERNATIONAL DEVELOPED MARKETS P</b>	<b>1,571,624,286</b>	<b>3.7</b>			<b>5.13</b>	<b>6.92</b>	<b>-6.10</b>	<b>-9.27</b>	<b>-4.08</b>	<b>4.97</b>	<b>04-01-10</b>
<i>S&amp;P DEVELOPED BMI Ex US net</i>					3.77	4.90	-9.17	-10.27	-10.27	3.67	
EQUITY INTL- PASSIVE (PMI)	664,446,153	1.6			3.57	4.32	-10.10	-10.70	-4.77	3.44	04-01-10
EQUITY INTL- PASSIVE (EMI)	528,086,510	1.3			7.76	10.69	1.00	-6.89	-3.15	7.87	04-01-10
EQUITY INTL- PASSIVE (VANGUARD DEV)	371,445,490	0.9			4.46	6.14	-7.93	-9.96	-4.15	4.13	04-01-10
EQUITY INTL- PASSIVE (VANGUARD EUR)	7,646,134	0.0			4.20	6.02	-7.79	-9.72	-4.08	3.75	04-01-10
<b>INTERNATIONAL EM PASSIVE</b>	<b>385,085,891</b>	<b>0.9</b>			<b>-3.31</b>	<b>-4.58</b>	<b>-18.16</b>	<b>-18.19</b>	<b>-3.22</b>	<b>3.39</b>	<b>07-01-09</b>

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<i>MSCI EMERGING MARKETS</i>					-3.58	-5.27	-19.28	-17.90	-3.01	3.12	
VANGUARD EMERGING MARKETS INDEX	385,085,891	0.9			-3.31	-4.58	-18.16	-18.19	-3.22	3.39	07-01-09
<b>TOTAL INTERNATIONAL STOCK PLUS</b>	<b>2,016,954,174</b>	<b>4.8</b>			<b>4.15</b>	<b>4.01</b>	<b>-10.83</b>	<b>-13.35</b>	<b>-5.58</b>	<b>6.18</b>	<b>01-01-09</b>
<b>INTERNATIONAL DEV MARKETS STOCK PL</b>	<b>1,669,422,208</b>	<b>4.0</b>			<b>6.30</b>	<b>7.56</b>	<b>-7.46</b>	<b>-11.73</b>	<b>-5.87</b>	<b>7.80</b>	<b>01-01-09</b>
9 <i>S&amp;P DEVELOPED BMI-EPAC NET 75/25</i>					5.39	7.84	-5.14	-9.53	-9.53	8.62	
<i>S&amp;P DEVELOPED BMI Ex US net</i>					3.77	4.90	-9.17	-10.27	-10.27	8.14	
<b>INTERNAL INTERNATIONAL</b>	<b>1,036,816,121</b>	<b>2.5</b>			<b>-5.08</b>	<b>8.29</b>	<b>-5.27</b>	<b>-10.29</b>	<b>-5.04</b>	<b>-0.14</b>	<b>01-01-09</b>
EQUITY INTL- PASSIVE SWAP	737,594,848	1.7			7.16	10.20	-3.24	-11.60	-5.90	6.39	04-01-10
<b>INTERNAL OVERLAY COMPLEMENT</b>	<b>25,451,283</b>	<b>0.1</b>			<b>-0.79</b>	<b>3.48</b>	<b>-17.89</b>	<b>-10.10</b>	<b>-1.82</b>	<b>-1.14</b>	<b>04-01-10</b>
GLOBAL DIVIDEND FUND	273,769,990	0.6			11.50	8.72	-5.77	-6.59	-2.97	12.52	01-01-09
PIMCO INTERNATIONAL STOCK PLUS	632,606,086	1.5			4.41	4.33	-12.24	-13.99	-7.19	4.41	10-01-10
<b>INTERNATIONAL EM STOCK PLUS</b>	<b>347,531,967</b>	<b>0.8</b>			<b>-4.03</b>	<b>-7.80</b>	<b>-24.28</b>	<b>-20.37</b>	<b>-4.17</b>	<b>-4.03</b>	<b>10-01-10</b>
<i>MSCI EMERGING MARKETS</i>					-3.58	-5.27	-19.28	-17.90	-3.01	-3.58	
EQUITY INTL EMERGING MARKETS	82,603,372	0.2					-18.83	-17.44	-2.58	-7.97	02-01-13
PIMCO EM FUND INDEX PLUS	0	0.0									10-01-10
PIMCO EM STOCKS PLUS FUND	264,928,595	0.6						-20.68	-4.66	-20.44	04-01-15
<b>TOTAL INTERNATIONAL ACTIVE</b>	<b>1,850,037,928</b>	<b>4.4</b>	<b>3.12</b>	<b>4.00</b>	<b>4.47</b>	<b>5.33</b>	<b>-6.31</b>	<b>-10.23</b>	<b>-3.55</b>	<b>4.36</b>	<b>05-01-05</b>
<b>INTERNATIONAL DM &amp; ACWI LARGE/MID A</b>	<b>1,148,569,109</b>	<b>2.7</b>	<b>3.55</b>	<b>4.35</b>	<b>5.11</b>	<b>6.79</b>	<b>-5.42</b>	<b>-9.72</b>	<b>-4.17</b>	<b>4.78</b>	<b>05-01-05</b>
<i>S&amp;P DEVELOPED BMI Ex US net</i>			3.35	4.16	3.77	4.90	-9.17	-10.27	-10.27		
WELLINGTON TRUST - INTERNATIONAL R	387,736,717	0.9		5.30	5.21	6.86	-6.97	-9.72	-4.84	3.86	12-01-05
MARATHON-LONDON EAFE	234,582,474	0.6				9.66	-1.40	-7.51	-4.14	9.81	02-01-12

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BALLIE GIFFORD ACWI EX US ALPHA	235,258,592	0.6				3.67	-6.28	-11.93	-2.59	3.30	03-01-12
T ROWE PRICE INT'L CORE EQUITY	145,122,063	0.3					-7.30	-10.62	-4.48	-6.67	05-01-14
LAZARD WILMINGTON INT'L EQ	145,869,262	0.3					-4.10	-8.62	-4.60	-6.67	06-01-14
<b>INTERNATIONAL DM &amp; ACWI SMALL ACTIV</b>	<b>384,047,348</b>	<b>0.9</b>		<b>6.58</b>	<b>8.08</b>	<b>8.81</b>	<b>-0.87</b>	<b>-7.17</b>	<b>-2.52</b>	<b>-0.42</b>	<b>04-01-07</b>
<i>MSCI ACWI EX US GROSS</i>				3.66	2.27	2.78	-11.78	-12.10	-4.60	0.26	
SSGA-INTL SMALL CAP ALPHA	120,416,935	0.3		9.13	9.56	11.45	0.66	-6.74	-2.70	2.78	05-01-07
FRANKLIN TEMPLETON INTL SM CAP	137,776,084	0.3				8.16	-1.93	-7.95	-2.94	11.19	06-01-12
MFS INTERNATIONAL SMALL CAP	125,854,330	0.3				7.39	-1.14	-6.71	-1.90	7.65	05-01-12
<b>INTERNATIONAL EMERGING ACTIVE</b>	<b>317,421,472</b>	<b>0.8</b>			<b>0.41</b>	<b>-1.78</b>	<b>-14.93</b>	<b>-15.32</b>	<b>-2.53</b>	<b>2.74</b>	<b>12-01-09</b>
<i>MSCI EMERGING MARKETS</i>					-3.58	-5.27	-19.28	-17.90	-3.01	-0.70	
LACM EMERGING MARKETS FUND	191,642,234	0.5			-0.91	-3.51	-15.52	-16.44	-2.90	1.59	12-08-09
WELLINGTON EMERGING LOCAL EQ	125,779,238	0.3				1.05	-14.09	-13.54	-1.96	4.04	12-01-11
<b>ALTERNATIVE INVESTMENTS</b>											
<b>TOTAL ALTERNATIVE INVESTMENTS</b>	<b>7,198,601,945</b>	<b>17.0</b>	<b>13.43</b>	<b>10.68</b>	<b>16.79</b>	<b>17.16</b>	<b>11.72</b>	<b>4.95</b>	<b>0.78</b>	<b>11.66</b>	<b>12-01-82</b>
<sup>10</sup> ALTERNATIVE BLENDED BENCHMARK			11.86	15.59	20.34	20.40	10.56	1.02	-1.67		
<sup>11</sup> ALTERNATIVES EQUITY	<b>7,130,113,475</b>	<b>16.9</b>		<b>10.68</b>	<b>16.99</b>	<b>17.32</b>	<b>11.83</b>	<b>4.99</b>	<b>0.80</b>	<b>12.28</b>	<b>01-01-07</b>
<sup>12</sup> SP 500 PLUS 300 BPS PLUS 3 MONTH LA			11.91	15.85	20.82	20.78	10.63	1.02	-1.69		
ALTERNATIVES FIXED INCOME	68,488,470	0.2		8.61	10.06	9.49	3.07	1.66	-0.87	8.12	01-01-07
10 YEAR YIELD PLUS 300 BPS				5.52	5.45	5.39	5.24	1.31	0.42	5.90	
<b>REAL ESTATE</b>											
REAL ESTATE INVESTMENTS	3,781,284,732	9.0	6.08	2.47	13.09	13.44	12.74	3.37	0.63	6.32	01-01-80
<sup>13</sup> NCREIF PROPERTY BLENDED INDEX			6.64	4.50	11.12	10.48	12.03	2.76	2.98		

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<i>NCREIF OPEN FUND INDEX (NET)</i>			5.72	3.27	12.94	12.39	13.86	3.43	3.43		
<b>INFRASTRUCTURE INVESTMENTS</b>											
14 INFRASTRUCTURE INVESTMENTS	446,809,925	1.1				12.64	3.93	0.21	0.67	10.42	11-01-11
<i>CPI + 4% Lagged 3m</i>						5.36	4.13	2.06	0.68		
<b>DOMESTIC FIXED INCOME</b>											
<b>TOTAL FIXED INCOME</b>	<b>5,130,620,474</b>	<b>12.1</b>	<b>5.39</b>	<b>5.90</b>	<b>3.63</b>	<b>2.46</b>	<b>3.05</b>	<b>0.51</b>	<b>0.43</b>	<b>7.87</b>	<b>01-01-79</b>
<i>Barclays Aggregate Bond</i>			4.64	4.85	3.10	1.71	2.94	1.23	0.68	7.85	
<b>TOTAL FIXED INCOME INTERNAL</b>	<b>3,319,067,186</b>	<b>7.9</b>	<b>5.32</b>	<b>5.61</b>	<b>3.31</b>	<b>2.35</b>	<b>3.80</b>	<b>1.25</b>	<b>0.90</b>	<b>4.91</b>	<b>07-01-03</b>
<i>Barclays Aggregate Bond</i>			4.64	4.85	3.10	1.71	2.94	1.23	0.68	4.30	
<b>TOTAL FIXED INCOME EXTERNAL</b>	<b>1,811,553,288</b>	<b>4.3</b>		<b>6.63</b>	<b>4.22</b>	<b>2.38</b>	<b>1.68</b>	<b>-0.81</b>	<b>-0.42</b>	<b>5.51</b>	<b>04-01-06</b>
<i>Barclays Aggregate Bond</i>				4.85	3.10	1.71	2.94	1.23	0.68	4.89	
LOOMIS SAYLES CORE PLUS	143,927,027	0.3					-1.75	-2.36	-1.14	2.82	08-01-13
<i>Barclays Aggregate Bond</i>							2.94	1.23	0.68	3.38	
<b>TOTAL HIGH YIELD FIXED INCOME</b>	<b>367,026,665</b>	<b>0.9</b>					<b>0.86</b>	<b>-2.86</b>	<b>-2.20</b>	<b>3.50</b>	<b>10-01-13</b>
COLUMBIA MGMT INVT	220,016,933	0.5					1.07	-3.00	-2.42	3.51	10-01-13
<i>Barclays US HY BA/B 2% Issuer Cap</i>							-2.01	-4.25	-2.46	2.51	
PRUDENTIAL HIGH YIELD FUND	147,009,732	0.3					0.72	-2.66	-1.88	2.64	12-01-13
<i>Barclays US HY BA/B 1% Issuer Cap</i>							-2.07	-4.25	-2.36	1.13	
<b>TOTAL FIXED INCOME CORE</b>	<b>172,065,612</b>	<b>0.4</b>		<b>5.72</b>	<b>3.51</b>	<b>1.66</b>	<b>1.01</b>	<b>-0.52</b>	<b>-0.21</b>	<b>5.33</b>	<b>04-01-06</b>
<i>Barclays Aggregate Bond</i>				4.85	3.10	1.71	2.94	1.23	0.68	4.89	

# Michigan Public Schools Pension - MPSERS

RATES OF RETURN - GROSS

Periods Ending September 30, 2015



STATE STREET

## PERFORMANCE SUMMARY REPORT

	MKT VAL \$	% of	10 Years	7 Years	5 Years	3 Years	1 Year	Qtr	1 Month	ITD	Incept Date
DODGE & COX CORE FIXED INCOME	172,065,612	0.4		6.19	3.92	2.51	1.02	-0.52	-0.21	5.58	04-01-06
<b>TOTAL CORP FIXED INCOME MGRS</b>	<b>144,863,854</b>	<b>0.3</b>		<b>8.05</b>	<b>4.83</b>	<b>2.81</b>	<b>1.97</b>	<b>0.46</b>	<b>0.49</b>	<b>5.88</b>	<b>09-01-06</b>
<i>Barclays Credit</i>				7.24	4.09	2.02	1.50	0.53	0.50	5.57	
PRUDENTIAL INVESTMENT CORP	144,863,854	0.3		8.52	4.99	2.94	1.96	0.46	0.49	6.82	09-01-06
<b>TOTAL TACTICAL FIXED INCOME</b>	<b>983,670,129</b>	<b>2.3</b>		<b>10.10</b>	<b>11.96</b>	<b>7.78</b>	<b>2.44</b>	<b>-0.03</b>	<b>0.20</b>	<b>6.98</b>	<b>06-01-08</b>
<i>Barclays Gov/Credit</i>				5.05	3.09	1.59	2.73	1.20	0.70	4.59	
MET WEST SECURITIZED OPS	486,416,208	1.2					1.19	-0.28	0.23	3.20	11-01-13
<i>Barclays Aggregate Bond</i>							2.94	1.23	0.68	3.17	
CMBS INVESTMENT	275,836,901	0.7		10.81	12.98	9.42	4.63	1.36	0.78	7.65	06-01-08
<i>75% BC 8.5+ AAA/25% BC 8.5+ AA</i>				4.81	6.24	2.83	6.15	2.44	1.92	2.34	
PYRAMIS TACTICAL BOND FUND	185,645,244	0.4					1.87	-1.46	-0.71	1.14	06-01-14
NAPIER PARK ABS INCOME FUND	35,771,777	0.1						0.46	0.24	0.63	05-01-15
<b>ABSOLUTE RETURN</b>											
<b>TOTAL ABSOLUTE RETURN</b>	<b>3,158,213,173</b>	<b>7.5</b>		<b>2.20</b>	<b>5.65</b>	<b>7.18</b>	<b>2.35</b>	<b>-1.42</b>	<b>-1.09</b>	<b>-0.55</b>	<b>02-01-08</b>
<i>HFRI FOF conservative 1 month lag</i>				1.22	3.37	4.85	1.92	-1.17	-0.94	0.60	
ABSOLUTE RETURN STRATEGIES	3,158,213,173	7.5		1.46	5.65	7.18	2.35	-1.42	-1.09	1.46	10-01-08
<b>REAL RETURN AND OPPORTUNISTIC</b>											
<b>TOTAL REAL RETURN AND OPPORTUNISTI</b>	<b>3,062,821,254</b>	<b>7.3</b>			<b>10.08</b>	<b>12.53</b>	<b>7.34</b>	<b>1.50</b>	<b>-0.14</b>	<b>10.11</b>	<b>04-01-10</b>
<sup>15</sup> <i>Real Return and Opportunistic Custom</i>					7.40	6.99	6.47	1.44	0.45	7.35	
REAL RETURN AND OPPORTUNISTIC	3,062,821,254	7.3			10.14	12.53	7.34	1.50	-0.14	10.02	04-01-10
<b>CASH EQUIVALENTS</b>											

## Michigan Public Schools Pension - MPSERS

RATES OF RETURN - GROSS

Periods Ending September 30, 2015



### PERFORMANCE SUMMARY REPORT

	MKT VAL \$	% of	10 Years	7 Years	5 Years	3 Years	1 Year	Qtr	1 Month	ITD	Incept Date
<b>TOTAL SHORT TERM</b>	<b>1,817,076,762</b>	<b>4.3</b>	<b>1.33</b>	<b>0.67</b>	<b>0.34</b>	<b>0.38</b>	<b>0.47</b>	<b>0.13</b>	<b>0.05</b>	<b>5.55</b>	<b>01-01-79</b>
<i>CITIGROUP 1 MONTH T-BILL</i>			<i>1.18</i>	<i>0.06</i>	<i>0.04</i>	<i>0.03</i>	<i>0.01</i>	<i>0.00</i>	<i>0.00</i>	<i>4.53</i>	
SHORT TERM INVESTMENTS	138,776,261	0.3	0.98	0.18	0.05	0.06	0.13	0.07	0.05	5.45	01-01-79
SHORT TERM FIXED INCOME	1,678,300,501	4.0			0.36	0.40	0.49	0.13	0.05	0.63	12-01-08



# Michigan Public Schools Pension - MPSERS

RATES OF RETURN - GROSS

Periods Ending September 30, 2015



STATE STREET

## PERFORMANCE SUMMARY REPORT

### Endnotes

1 Components as of 10/1/2007 - 9/30/2008 : 18.5% SP 500, 25.5% SP 1500, 12% SP Citigroup 50% USD - 50% Local, 8.5% NCREIF Less 130 BP, 12.5% SP 500 Plus 300 BP, 2% CPI, 17% BC Gov/Credit, BC U.S. Tips 3.5%, GSCI TR .5%

Components as of 10/1/2008 - 9/30/2010: 34% S&P 1500, 17% S&P Developed BMI-EPAC Net 50/50, 17% BC Gov/Credit, 11% NCREIF Property Blended Index, 16% S&P 500 plus 300 BPS, 3% Hedge Fund Research - Abs Return Index, 2% Consumer Price Index

Components as of 10/1/2010: 33% S&P 1500, 16% MSCI ACWI Ex US Gross (Daily), 16% BC Gov/Credit, 9% NCREIF Property Blended Index, 14% S&P 500 plus 300 BPS lagged 3 months, 6% HFRI FOF Conservative 1 Month Lag, 3% Real Return and Opportunistic Custom Benchmark, 1% Dow Jones-UBS Commodity Index, 2% Citigroup 1 Month T-Bill

Components as of 05/1/2012 - 02/28/2015: 31% S&P 1500, 16% MSCI ACWI Ex US Gross (Daily), 15% BC Gov/Credit, 6% NCREIF Property Blended Index, 16% S&P 500 plus 300 BPS lagged 3 mths, 4% Citigroup 1 Mth T-Bill, 5% U.S. CPI + 5%, 3% U.S. CPI + 4% lagged 3 months, 4% T-bills + 4%

Components as of 03/1/2015: 28% S&P 1500; 18% S&P 500 plus 300 BPS lagged 3 mths; 16% MSCI ACWI Ex US Gross; 10.5% Barclays U.S. Aggregate; 10% NCREIF Property Blended Index; 6% T-bills + 4%; 5% Michigan Actuarial Rate; 4.5% U.S. CPI + 5%; 2% U.S. 1 Month T-Bill

2 As of 1/1/2006, index is the S+P 1500. History prior to 1/1/2006 reflects the S+P 500.

3 As of 7/1/06, index is the S&P 500 Growth. History prior to 7/1/06 reflects the S&P 500 Barra Growth.

## Michigan Public Schools Pension - MPSERS

RATES OF RETURN - GROSS

Periods Ending September 30, 2015



STATE STREET

### PERFORMANCE SUMMARY REPORT

#### Endnotes - continued

- 4 History prior to 1/1/2012 does not reflect the All-Cap GARP Strategy.
  
- 5 As of 7/1/06, index is the S&P 500 Value. History prior to 7/1/06 reflects the S&P 500 Barra Value.
  
- 6 As of 7/1/06, index is the S&P 400 Growth. History prior to 7/1/06 reflects the S&P 400 Barra Growth.
  
- 7 As of 5/1/2007, index is S&P 900. History prior to 5/1/2007 reflects the S&P 1500.
  
- 8 Components as of 4/1/1993 - 12/31/2009 : 100% S&P Developed BMI EPAC Net 50/50.  
  
Components as of 1/1/2010 to 9/31/2010: 100% S&P Developed BMI EPAC Net 75/25.  
  
Components as of 10/1/2010 - 6/30/2014: 100% MSCI ACWI Ex US Gross  
  
Components as of 07/1/2014 - current: 100% MSCI ACWI Ex US Net

## Michigan Public Schools Pension - MPSERS

RATES OF RETURN - GROSS

Periods Ending September 30, 2015



STATE STREET

### PERFORMANCE SUMMARY REPORT

#### Endnotes - continued

9 As of 1/1/2010, index is the S&P Developed BMI- EPAC net 75 USD/ 25 Local. History prior to 1/1/2010 reflects the S&P Developed BMI - EPAC Net 50/50.

10 Inception -12/31/06: SP 500 + 300 BP.

12/31/06 - 9/30/09 Blend of S&P500 + 300 BP and 10-Year Yield + 300 BP using ending weights of equity and fixed income holdings within Alternatives Investments Portfolio.

10/1/09-present: Blend of S&P500 + 300 BP +3 month lag and 10-Year Yield + 300 BP using ending weights of equity and fixed income holdings within Alternatives Investments Portfolio (Does not include T Rowe as part of calculations).

11 Alternatives Equity includes T. Rowe Price - Dist. Mgmt Svc Acct.

12 Inception - 9/30/2010: 100% S&P 500 +300BPS

As of 10/1/2010: 100% S&P 500 + 300BPS lagged 3 months

13 As of 10/1/2005, index is NCREIF Less 130 BP. History prior to 10/1/2005 reflects NCREIF Less 75 BP.

## Michigan Public Schools Pension - MPSERS

RATES OF RETURN - GROSS

Periods Ending September 30, 2015



STATE STREET

### PERFORMANCE SUMMARY REPORT

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#### Endnotes - continued

- 14 Infrastructure Investment benchmark is composed of US CPI + 4%, 3 month lagged.
  
- 15 Total Real Return and Opportunistic Custom Benchmark is composed of: 50% (CPI +5%) and 50% (actuarial rate 8%).

# INVESTMENT ADVISORY COMMITTEE MEETING

December 1, 2015

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

DECEMBER 1, 2015

## Agenda



- 9:30 a.m. Call to Order and Opening Remarks
- 9:40 a.m. Approval of the 9/3/15 IAC Meeting Minutes
- 9:45 a.m. Executive Summary & Performance for Periods Ending 9/30/15
- 10:00 a.m. Current Asset Allocation Review
- Markets Review and Outlook
- 10:15 a.m. Round Table Discussion:
- Domestic Equity
  - Fixed Income
- 10:30 a.m. Asset Liability Review – AON Hewitt – Phil Kivarkis, Partner
- Review of Investment Reports – *Receive and File*
- Absolute and Real Return/Opportunistic
  - International Equity
  - Private Equity
  - Real Estate & Infrastructure
- Basket Clause – *Receive and File*
- 11:00 a.m. Closing Remarks ~ Adjournment



### 2016 Meeting Schedule

Wednesday, March 2, 2016  
Thursday, June 16, 2016  
Thursday, September 1, 2016  
Thursday, December 15, 2016

All meetings start at 9:30 a.m.

[www.michigan.gov/treasury](http://www.michigan.gov/treasury)





**STATE OF MICHIGAN  
RETIREMENT SYSTEMS**

**MINUTES**

**INVESTMENT ADVISORY COMMITTEE MEETING**

**DECEMBER 1, 2015**



**Jon M. Braeutigam  
Chief Investment Officer  
Bureau of Investments**



## INVESTMENT ADVISORY COMMITTEE

The Investment Advisory Committee (IAC) held its quarterly meeting on Thursday, September 3, 2015, at the Bureau of Investments, Great Lakes Conference Room, 2501 Coolidge Road, Suite 400, East Lansing, Michigan.

Members Present:

L. Erik Lundberg – Acting Chairman  
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  
Karen Stout  
Marge McPhee  
Richard Holcomb

Jon M. Braeutigam  
Jim Elkins  
David Klauka  
Kyle Borgquist  
Janet Sudac

Gregory J. Parker  
Peter Woodford  
Travis Haney  
Emma Khavari

Others in attendance:

Max Kotary  
Joe Hernandez  
Molly Jason  
Renaye Manley  
June Morse

Steve Cummings  
John Ide  
Mark Guastella  
Kevin Sullivan  
Paul Lerg

Tim McEnery  
Josh Lieberman  
Charles Abshagen  
Jim Banor

### **Call to Order**

Mr. L. Erik Lundberg called the September 3, 2015, IAC meeting to order at 9:29 a.m.

### **Approval of Minutes of June 4, 2015**

- Mr. Lundberg asked for a motion to approve the minutes of the June 4, 2015, IAC meeting. Mr. Allan Pohl so moved, seconded by Mr. Reginald Sanders, there were no objections – motion carried.

### **Executive Summary – Performance Section**

- Mr. Jon Braeutigam reported on the performance section of the Executive Summary. He noted that the ten-year return reflects the recession and addressed the importance of being a long-term investor.

- Mr. Braeutigam explained that the one-year relative returns could be the best performance in the history of the plan. He noted that this is the result of good selectivity and the individual asset classes consistently beating their benchmarks.
- Mr. Braeutigam thanked the BOI staff, who work diligently to make the best investments possible and grow the plan for the benefit of the retirees.

### **Executive Summary – Asset Allocation, Capital Markets, and Economic Backdrop Sections**

- Mr. Greg Parker discussed the asset allocation section of the Executive Summary. He noted the capital markets and the economy, and where the plan is in terms of the current asset allocation.
- In the capital markets, China's economy is slowing. The Shanghai composite in China has corrected by about 40% from peak to current levels. Although, it is also up about 40% in the past year, which provides a sense of the volatility in the markets.
- The U.S. economy is relatively healthy. The deflationary benefits of commodity prices are positive for the U.S. economy; although consumers are not spending at their previous pace.

### **Asset Allocation**

- Mr. Parker discussed asset allocation noting the comparison of the actual allocation to the strategic target allocation. He explained that he thinks of asset allocation as being divided into various risk buckets.
- He feels that the strategic asset allocation is the best way to earn the 8%. The strategic target weight to equities is 62%, and at the end of June, the plan was just over 61%.

### **Mr. Peter Woodford, Private Equity Division, Senior Investment Manager**

- Mr. Peter Woodford discussed the Private Equity Division. He explained some of the reasons for investing in this asset class, how the private equity division performed, the current market trends, and the strategy for the future.
- The plan invests in this asset class for the returns and diversification. Investments in this asset class consist of more than 3,500 companies. It has had the best absolute return across the plans' portfolio over the past ten years.
- The ten-year return of private equity has outperformed the benchmark and ranks in the sixth percentile for public funds over \$1 billion in AUM.
- Current market trends include:
  - Focus on fee reduction to average down costs,
  - external manager consolidation,
  - direct investments and co-investments,
  - increased SEC oversight as a result of the Dodd Frank Act, and
  - a constantly changing landscape in this asset class.

- Mr. Woodford noted that the strategy for the future includes maintaining outperformance to peers and the benchmark. Strategy focus areas include: portfolio consolidation, performance improvement, and co-investing to develop in-house expertise and to build a co-investment platform.

### **Basket Clause**

In the spirit of time, this report was received and filed.

### **Closing Remarks**

Acting Chairman L. Erik Lundberg thanked everyone for attending.

### **Next Meeting Date and Adjournment**

The next Investment Advisory Committee Meeting is scheduled for Tuesday, December 1, 2015. The meeting was adjourned by Acting Chairman L. Erik Lundberg at 10:56 a.m.

Approved:

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James B. Nicholson, Chairman

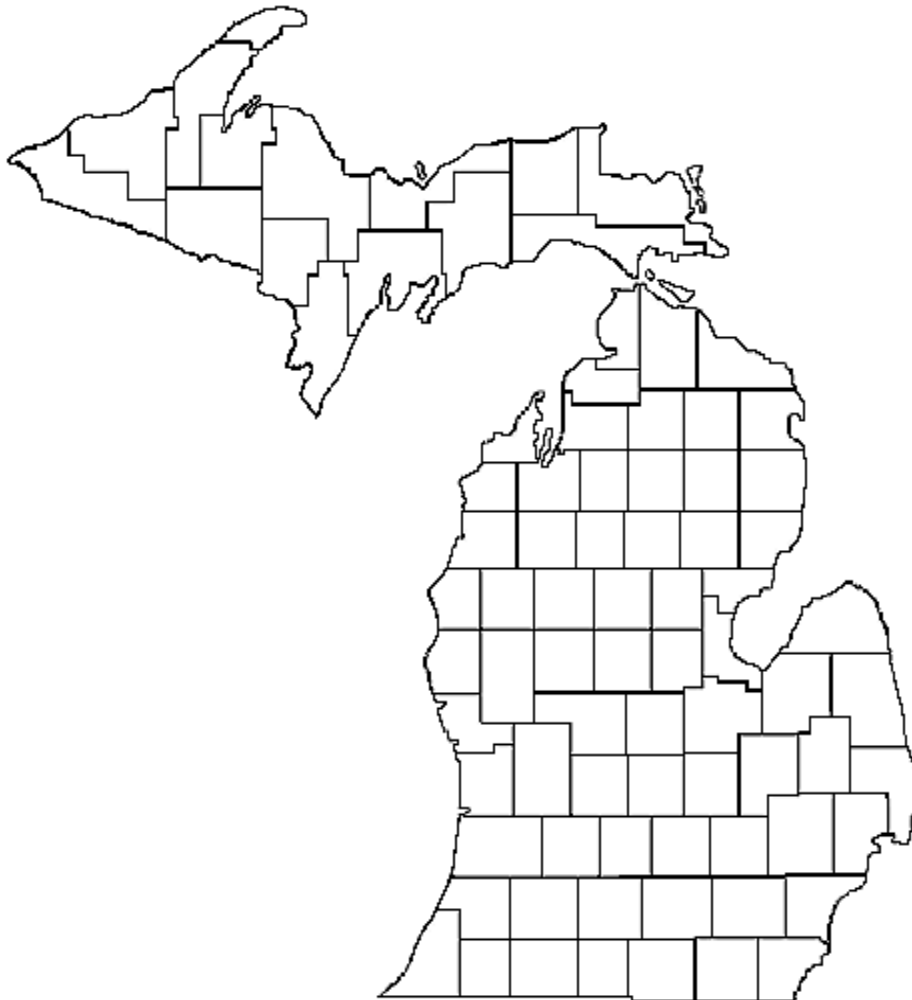


**STATE OF MICHIGAN  
RETIREMENT SYSTEMS**

**EXECUTIVE SUMMARY**

**INVESTMENT ADVISORY COMMITTEE MEETING**

**DECEMBER 1, 2015**



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





# EXECUTIVE SUMMARY

September 2015

## Performance

*An overview.*

<b>MPSERS Plan (9/30/15)</b>	<b>1-Year</b>	<b>3-Years</b>	<b>5-Years</b>	<b>7-Years</b>	<b>10-Years</b>
Annualized Returns	2.6%	10.1%	10.0%	7.4%	6.7%
Policy Return	2.3%	9.5%	10.0%	8.1%	6.5%
Peer Median Return	-0.2%	7.8%	8.1%	6.7%	5.7%
Rank vs. Peers	5	4	4	16	9
Number of Peers	31	29	29	26	25

- After posting double-digit gains each year for the three years prior, the one-year return for the period ending September 2015 was 2.6%.
- The returns exceeded the policy benchmark over the past year by 0.3%. Positive contributions to the excess returns were primarily from selectivity in international equity and private equity.
- Against the peer group, returns for the plan are greater than median returns across all time periods. The past one, three, five, and ten-year relative returns are exceptional, ranking in the top decile.
- The outperformance to the peer median over the past year was helped by superior selectivity across nearly every asset class. The absolute return and real return / opportunistic asset classes added tremendous value over the time period. The overweight in real estate and private equity as well as the underweight to international equity also added relative value versus peers.

## Asset Allocation

*Building up commitments in private markets.*

- The combined systems paid out approximately \$2.2 billion net of contributions over the past twelve months ending in September 2015; 3.7% of the September 2015 AUM.
- Over the past year, the plans put to work \$1.2 billion in absolute return and \$1.1 billion in real return / opportunistic strategies. Over the same time period, the plans reduced the allocation to domestic equity by \$1.7 billion and private equity by \$1.3 billion. International equity and real estate both had modest drawdowns during the period as well. The allocation to short-term cash decreased by \$1.3 billion.
- According to the State Street peer universe data, the peer median allocation for the long-term fixed income asset class is 23.9% versus the plan's allocation of 12.1%. The strategic target allocation for fixed income is 10.5%. With the 10-year U.S. Treasury yielding approximately 2.1% and cash yielding approximately 10 basis points (bps) at the end of October, the lower allocation is justified as it will be difficult to earn the target rate of 8%.
- The plans have outstanding capital commitments to fund approximately \$8.5 billion in illiquid asset classes, primarily private equity. This figure is about 14.3% of the September 2015 market value and is an additional liquidity consideration. In the September 2015 quarter, nearly \$260 million of new commitments were made.

## **Capital Markets**

*An update on stocks and bonds.*

- 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 five years, after the depths of the Great Recession.
- Domestic equity markets hit a pause over the summer. In August 2015, the market hit a correction level of -12%. The broad domestic market index, S&P 1500, returned -0.3% over the past year, 12.5% annualized over the past three years, and 13.3% per year over the past five years ending September 2015.
- International equities continue to lag however. Over the past one, three, five, seven, and ten years ending September 2015, the international market index, MSCI ACWI ex USA, underperformed the S&P 1500 index by -13.5%, -9.9%, -11.3%, -6.5%, and -3.8% annualized respectively.
- The 10-year U.S. Treasury closed October 2015 at 2.1%, nearly 20 bps lower than one year prior. Perhaps in anticipation of future tightening of Federal Reserve Board policy, the yields in two-year U.S. Treasuries ended October at 0.7% and 20 bps higher than the year prior.
- There has been some pull back in the FTSE NAREIT Index. As of September 2015, the index is 15% off its January 2015 highs.

## **Economic Backdrop**

*An eye on the jobs market.*

- The most recent reading of the annualized U.S. GDP growth was 1.6%, slightly above the consensus estimate of 1.5%. Current estimates for 2016 GDP growth for the U.S. is 2.6%. 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 strong. The four-week moving average for initial jobless claims in October was the lowest since 1973. The national unemployment rate is at 5.1%, the lowest level since April 2008. The tightening labor market has not created wage inflation of any significance yet.
- In September 2015, U.S. auto sales eclipsed 18 million units on a seasonally adjusted basis. Except for a few one-time spikes in sales, this figure is among the best ever. Over the past five years, growth in sales of autos has averaged 8.8% year-over-year.

**Investment Update***Highlighting the quarter.*

(\$ Millions)

**NEW COMMITMENTS**  
**July 1 – September 30, 2015**

<b>Asset Class</b>	<b>Fund Name</b>	<b>Commitment</b>
Private Equity	Entertainment IP Fund	\$50
Private Equity	HarbourVest Partners Mezzanine Income Fund	50
Real Estate & Infrastructure	TPG Real Estate Partners II	50
Real Estate & Infrastructure	KBS/SM Fund III, LP	30
Real Estate & Infrastructure	IPF II Co-Invest, LP	30
Real Estate & Infrastructure	Eastport Properties, LLC	20
Real Return & Opportunistic	Innocor	30
<b>Total</b>		<b>\$260</b>



**STATE OF MICHIGAN  
RETIREMENT SYSTEMS**

**PERFORMANCE**

**FOR PERIODS ENDING  
SEPTEMBER 30, 2015**

**INVESTMENT ADVISORY COMMITTEE MEETING**

**DECEMBER 1, 2015**



**Jon M. Braeutigam  
Chief Investment Officer  
Bureau of Investments**



# *Bureau of Investments*

## *Mission Statement*

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*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*

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*Maintain sufficient liquidity to pay benefits.*

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

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

*Diversify assets to reduce risk.*

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

# MPSERS PENSION

## Time-Weighted Rates of Return

Periods Ending September 30, 2015

	% of Portfolio 9/30/15	Ten Years <sup>1</sup>		Seven Years <sup>1</sup>		Five Years <sup>1</sup>		Three Years <sup>1</sup>		One Year		Current Quarter	
		Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank
<b>TOTAL PLAN</b>	<b>100.0</b>	<b>6.7</b>	<b>9</b>	<b>7.4</b>	<b>16</b>	<b>10.0</b>	<b>4</b>	<b>10.1</b>	<b>4</b>	<b>2.6</b>	<b>5</b>	<b>-2.5</b>	<b>16</b>
Median - Greater than \$10 Billion <sup>2</sup>		5.7		6.7		8.1		7.8		-0.2		-4.3	
MPSERS Total Plan Policy		6.5		8.1		10.0		9.5		2.3		-3.1	
<b>DOMESTIC EQUITIES</b>	<b>28.0</b>	<b>7.1</b>	<b>37</b>	<b>10.1</b>	<b>29</b>	<b>13.2</b>	<b>35</b>	<b>13.3</b>	<b>24</b>	<b>-0.8</b>	<b>57</b>	<b>-6.7</b>	<b>25</b>
Median <sup>2</sup>		6.6		9.6		12.6		11.9		-0.4		-7.2	
S&P 1500 Index		7.0		9.9		13.3		12.5		-0.3		-6.7	
<b>PRIVATE EQUITIES</b>	<b>17.0</b>	<b>13.4</b>	<b>5</b>	<b>10.7</b>	<b>6</b>	<b>16.8</b>	<b>4</b>	<b>17.2</b>	<b>9</b>	<b>11.7</b>	<b>21</b>	<b>5.0</b>	<b>8</b>
Median <sup>2</sup>		10.0		8.4		11.4		12.8		7.6		2.2	
Alternative Blended Benchmark <sup>3</sup>		11.9		15.6		20.3		20.4		10.6		1.0	
<b>INTERNATIONAL EQUITIES</b>	<b>13.8</b>	<b>2.7</b>	<b>80</b>	<b>4.4</b>	<b>44</b>	<b>3.5</b>	<b>59</b>	<b>4.0</b>	<b>59</b>	<b>-8.7</b>	<b>40</b>	<b>-11.7</b>	<b>67</b>
Median <sup>2</sup>		3.9		4.3		4.0		4.6		-9.5		-11.2	
International Blended Benchmark <sup>4</sup>		1.8		2.6		2.2		2.6		-12.2		-12.2	
<b>BONDS</b>	<b>12.1</b>	<b>5.4</b>	<b>29</b>	<b>5.9</b>	<b>44</b>	<b>3.6</b>	<b>63</b>	<b>2.5</b>	<b>33</b>	<b>3.1</b>	<b>32</b>	<b>0.5</b>	<b>39</b>
Median <sup>2</sup>		4.9		5.7		3.8		1.9		1.7		0.2	
Barclays Aggregate		4.6		4.9		3.1		1.7		2.9		1.2	
<b>REAL ESTATE &amp; INFRASTRUCTURE</b>	<b>10.0</b>	<b>6.0</b>	<b>42</b>	<b>2.4</b>	<b>51</b>	<b>12.9</b>	<b>41</b>	<b>13.2</b>	<b>24</b>	<b>11.8</b>	<b>55</b>	<b>3.1</b>	<b>40</b>
Median <sup>2</sup>		5.7		2.8		12.7		11.7		12.5		2.5	
NCREIF - Property Blended Index <sup>5</sup>		6.6		4.5		11.1		10.5		12.0		2.8	
NCREIF Open Fund Index Net		5.7		3.3		12.9		12.4		13.9		3.4	
<b>ABSOLUTE RETURN</b>	<b>7.5</b>			<b>2.2</b>		<b>5.7</b>		<b>7.2</b>		<b>2.4</b>		<b>-1.4</b>	
HFRI FOF Cons 1 month lagged				1.2		3.4		4.9		1.9		-1.2	
<b>REAL RETURN AND OPPORTUNISTIC</b>	<b>7.3</b>					<b>10.1</b>		<b>12.5</b>		<b>7.3</b>		<b>1.5</b>	
50% (CPI +500 bps) + 50% (8% actuarial rate)						7.4		7.0		6.5		1.4	
<b>CASH EQUIVALENTS</b>	<b>4.3</b>	<b>1.3</b>		<b>0.7</b>		<b>0.3</b>		<b>0.4</b>		<b>0.5</b>		<b>0.1</b>	
1 Month T-Bill		1.2		0.1		0.0		0.0		0.0		0.0	

<sup>1</sup> Annualized Returns

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

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

<sup>4</sup> 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.

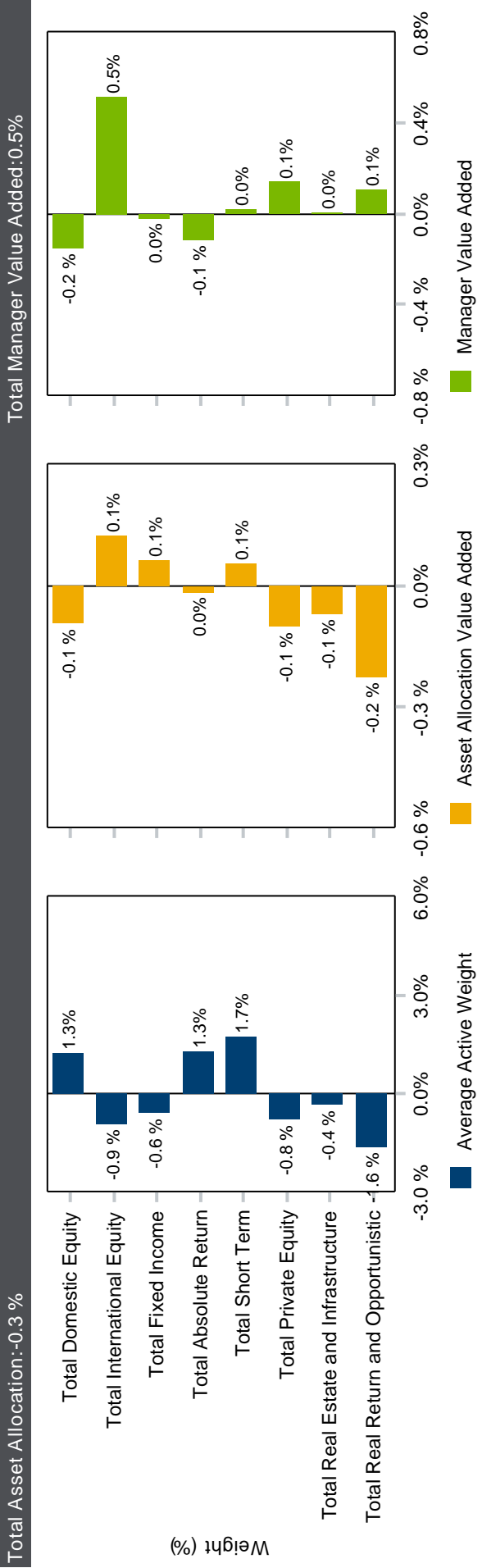
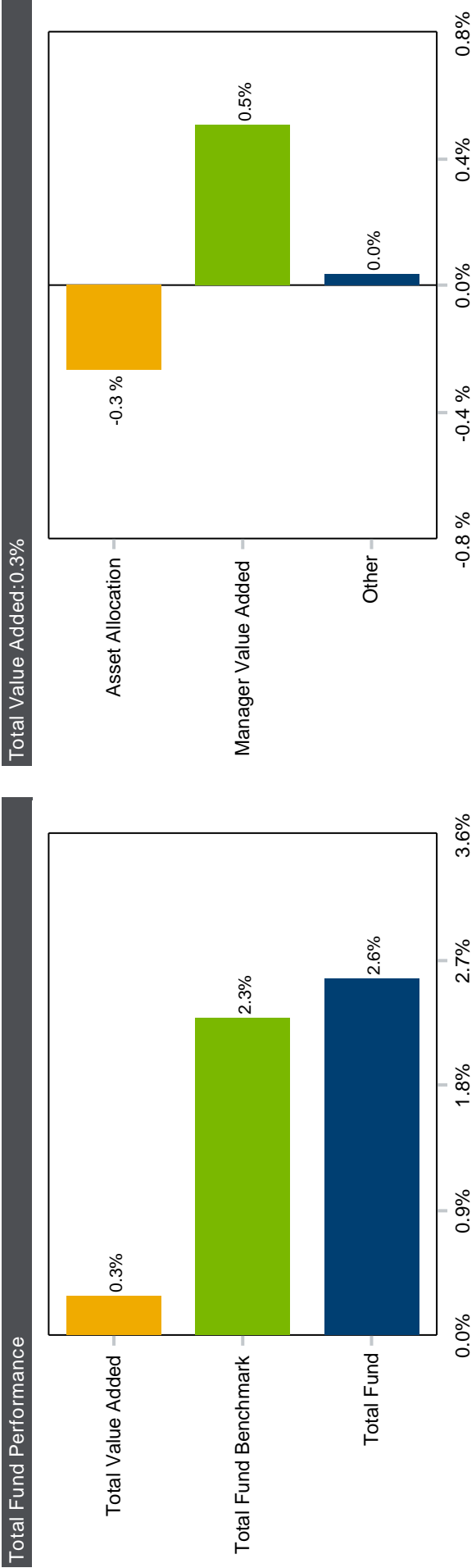
<sup>5</sup> NCREIF - Property Blended Index is NPI minus 75 bps prior to October 2005, NPI minus 130 bps current.

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



Total Fund Attribution

Total Michigan vs. Total Fund Benchmark



# Cumulative and Consecutive Total Fund Returns

## MPSERS

Cumulative For Years Ending 9/30/15

	1 Year	2 Year	3 Year	4 Year	5 Year	6 Year	7 Year	8 Year	9 Year	10 Year
<b>MPSERS</b>	2.6	8.9	10.1	10.9	10.0	9.8	7.4	4.7	6.0	6.7
<b>Public Plan - Median (&gt; \$10 billion)*</b>	-0.2	4.9	7.8	9.4	8.1	8.6	6.7	3.9	5.3	5.7
<b>Rank</b>	5	4	4	14	4	8	16	24	4	9
<b>bp Difference - Median</b>	275	399	228	149	192	128	71	79	76	97
Consecutive For Years Ending										
	09/15	09/14	09/13	09/12	09/11	09/10	09/09	09/08	09/07	09/06
<b>MPSERS</b>	2.6	15.6	12.5	13.4	6.6	8.8	-6.1	-12.3	17.2	12.8
<b>Public Plan - Median (&gt; \$10 billion)*</b>	-0.2	11.1	12.6	15.1	2.5	10.1	-0.2	-14.1	16.6	10.8
<b>Rank</b>	5	4	51	80	5	77	80	27	41	17
<b>bp Difference - Median</b>	275	450	-4	-169	418	-130	-590	189	58	202

## MSERS

Cumulative For Years Ending 9/30/15

	1 Year	2 Year	3 Year	4 Year	5 Year	6 Year	7 Year	8 Year	9 Year	10 Year
<b>MSERS</b>	2.6	8.9	10.0	10.9	10.0	9.7	7.3	4.6	5.9	6.6
<b>Public Plan - Median (&gt; \$1 billion)*</b>	-0.3	4.9	7.6	9.4	8.1	8.6	6.8	4.1	5.4	5.9
<b>Rank</b>	3	3	3	16	3	7	38	29	13	14
<b>bp Difference - Median</b>	288	399	245	146	187	118	47	46	57	68
Consecutive For Years Ending										
	09/15	09/14	09/13	09/12	09/11	09/10	09/09	09/08	09/07	09/06
<b>MSERS</b>	2.6	15.5	12.5	13.4	6.5	8.5	-6.3	-12.4	17.2	12.8
<b>Public Plan - Median (&gt; \$1 billion)*</b>	-0.3	10.8	12.9	15.7	2.4	10.4	-0.4	-14.0	16.4	10.8
<b>Rank</b>	3	3	55	84	5	85	86	33	36	18
<b>bp Difference - Median</b>	288	472	-40	-229	407	-182	-583	155	76	200

\*State Street Public Funds Universe

# Cumulative and Consecutive Total Fund Returns

## MSPRS

Cumulative For Years Ending 9/30/15

	1 Year	2 Year	3 Year	4 Year	5 Year	6 Year	7 Year	8 Year	9 Year	10 Year
<b>MSPRS</b>	2.5	8.8	10.0	10.8	10.0	9.7	7.3	4.6	6.0	6.6
<b>Public Plan - Median (&gt; \$1 billion)*</b>	-0.3	4.9	7.6	9.4	8.1	8.6	6.8	4.1	5.4	5.9
<b>Rank</b>	3	3	3	17	3	7	39	29	12	14
<b>bp Difference - Median</b>	287	394	240	140	188	118	43	47	59	71
Consecutive For Years Ending										
	09/15	09/14	09/13	09/12	09/11	09/10	09/09	09/08	09/07	09/06
<b>MSPRS</b>	2.5	15.5	12.4	13.3	6.7	8.5	-6.5	-12.2	17.4	12.9
<b>Public Plan - Median (&gt; \$1 billion)*</b>	-0.3	10.8	12.9	15.7	2.4	10.4	-0.4	-14.0	16.4	10.8
<b>Rank</b>	3	3	56	88	4	85	87	24	31	16
<b>bp Difference - Median</b>	287	464	-45	-242	433	-183	-605	179	92	208

## MJRS

Cumulative For Years Ending 9/30/15

	1 Year	2 Year	3 Year	4 Year	5 Year	6 Year	7 Year	8 Year	9 Year	10 Year
<b>MJRS</b>	2.5	8.5	9.7	10.7	9.8	9.3	6.9	4.4	5.7	6.4
<b>Public Plan - Median (&gt; \$1 billion)*</b>	-0.3	4.9	7.6	9.4	8.1	8.6	6.8	4.1	5.4	5.9
<b>Rank</b>	3	3	3	17	5	16	47	36	27	16
<b>bp Difference - Median</b>	285	367	211	133	169	78	12	27	38	48
Consecutive For Years Ending										
	09/15	09/14	09/13	09/12	09/11	09/10	09/09	09/08	09/07	09/06
<b>MJRS</b>	2.5	14.9	12.1	13.9	6.1	7.0	-6.4	-11.7	17.0	12.5
<b>Public Plan - Median (&gt; \$1 billion)*</b>	-0.3	10.8	12.9	15.7	2.4	10.4	-0.4	-14.0	16.4	10.8
<b>Rank</b>	3	3	62	78	7	100	86	18	37	20
<b>bp Difference - Median</b>	285	407	-79	-176	368	-331	-591	229	53	173

\*State Street Public Funds Universe

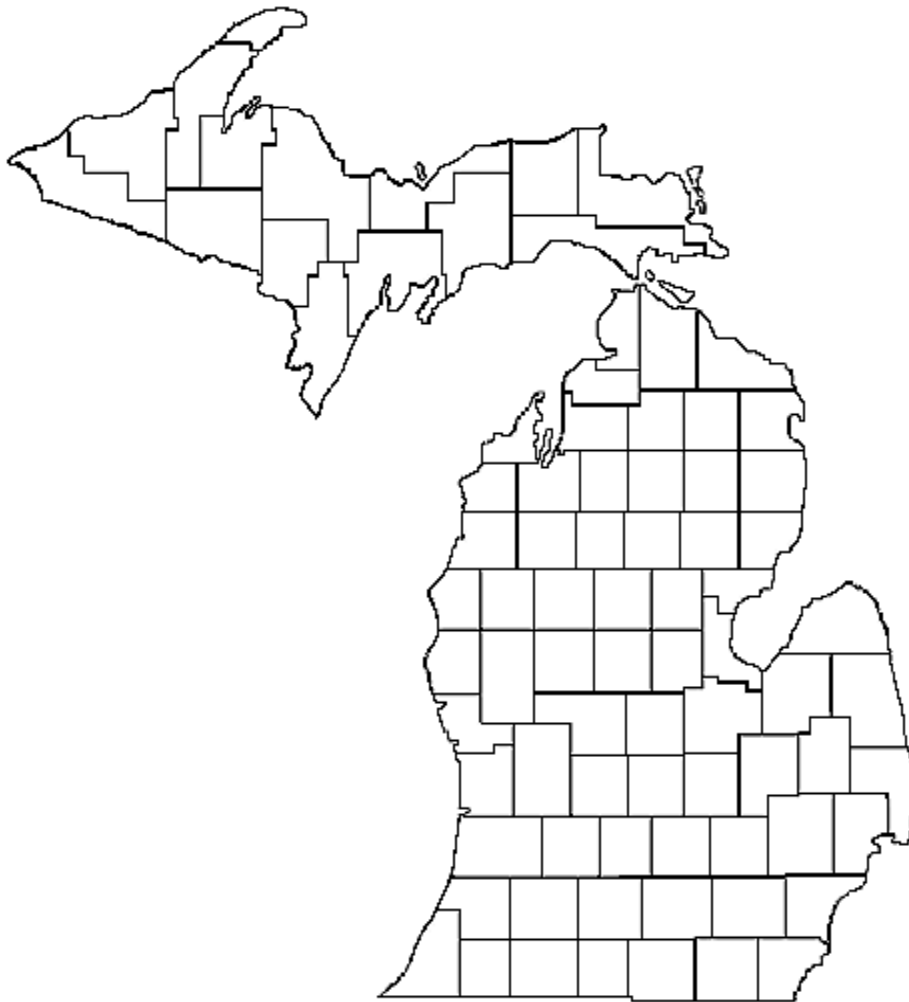


**STATE OF MICHIGAN  
RETIREMENT SYSTEMS**

**ASSET ALLOCATION REVIEW**

**INVESTMENT ADVISORY COMMITTEE MEETING**

**DECEMBER 1, 2015**



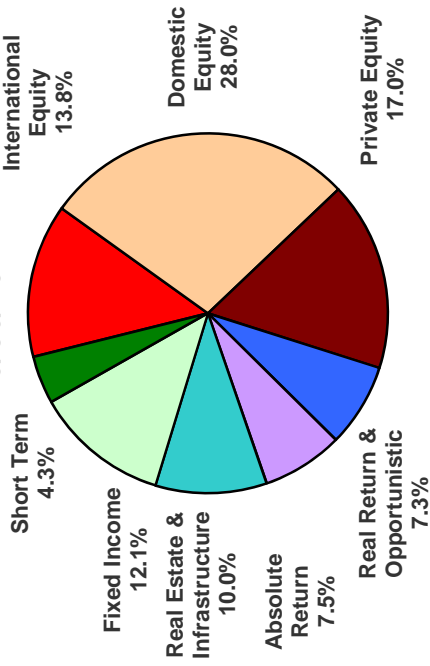
**Jon M. Braeutigam  
Chief Investment Officer  
Bureau of Investments**





# STATE OF MICHIGAN RETIREMENT SYSTEMS PROFILE - SEPTEMBER 2015

## Asset Allocation 9/30/15



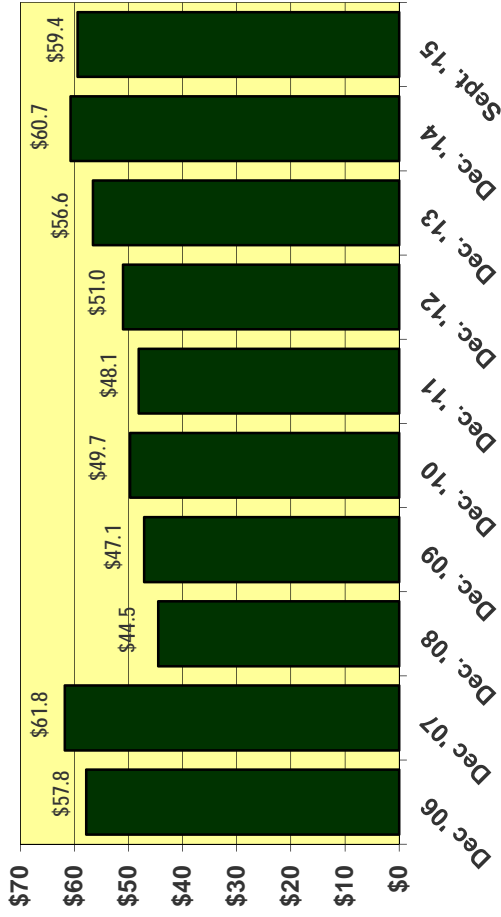
## Asset Allocation By Market Value (In Millions)

Investment Strategies	9/30/15	6/30/15
Domestic Equity	\$16,605	\$18,521
Private Equity	10,124	9,875
International Equity	8,190	9,274
Fixed Income	7,216	7,181
Real Estate & Infra.	5,946	5,664
Absolute Return	4,442	4,352
Real Return & Opport.	4,307	4,039
Short Term***	2,577	2,784
<b>TOTAL</b>	<b>\$59,407</b>	<b>\$61,690</b>

## Short Term Equivalents (in Billions)

Short Term Strategy***	\$2.6
Short Term in Other Inv. Strategies	0.9
<b>TOTAL SHORT TERM</b>	<b>\$3.5</b>
	5.9% of Total Funds

## Market Value\* (Billions of Dollars)



## Market Value By Plan ~ 9/30/15 (in Millions)

	Pension Plan		OPEB**		Combined	
	Mkt. Value	%	Mkt. Value	%	Mkt. Value	%
MPERS	\$42,241		\$3,611		\$45,852	77.2%
MSERS - (closed)	10,673		1,302		11,975	20.2%
MSPRS	1,232		92		1,324	2.2%
MJRS - (closed)	255		1		256	0.4%
<b>TOTAL</b>	<b>\$54,401</b>		<b>\$5,006</b>		<b>\$59,407</b>	<b>100.0%</b>



17th Largest DB Public Pension Fund in the U.S.  
19th Largest DB Pension Fund in the U.S.



Pensions & Investments Survey - February 9, 2015 Issue

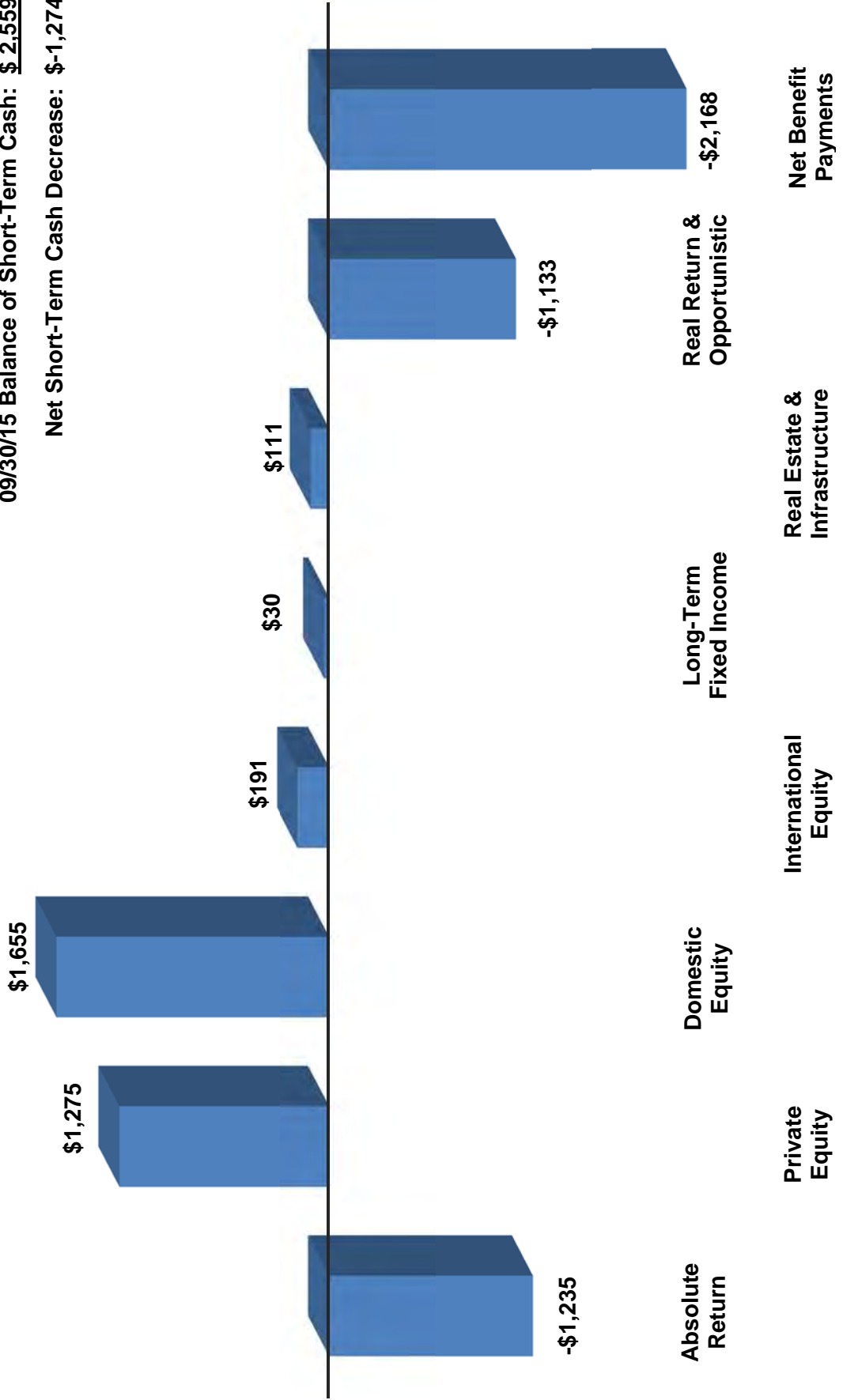
\*The combined net payout for the plans for FY 2014 was \$2.1 billion with \$17.8 billion paid out since 2008 (SOMCAFR). This represents the amount paid to beneficiaries in excess of employer and employee contributions.

\*\*OPEB - Other Post Employment Benefits

# Sources and Uses of Cash

## October 2014 ~ September 2015

10/01/14 Balance of Short-Term Cash: \$ 3,833  
 09/30/15 Balance of Short-Term Cash: \$ 2,559  
 Net Short-Term Cash Decrease: \$-1,274



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



## Asset Allocation Targets As of 9/30/15

Asset Class	MPSERS			MSERS			MSPRS			MJRS			SMRS
	Actual 9/30/15	Target 9/30/16	Target* 9/30/17	Actual 9/30/15	Target 9/30/16	Target* 9/30/17	Actual 9/30/15	Target 9/30/16	Target* 9/30/17	Actual 9/30/15	Target 9/30/16	Target* 9/30/17	Ranges
<b>Broad U.S. Equity</b>	28.0%	29.2%	28.0%	28.0%	29.2%	28.0%	28.0%	29.2%	28.0%	28.0%	29.2%	28.0%	20% - 50%
<b>Private Equity</b>	17.0%	17.6%	18.0%	17.0%	17.6%	18.0%	17.0%	17.6%	18.0%	17.0%	17.6%	18.0%	10% - 25%
<b>Broad Int'l Equity</b>	13.8%	15.6%	16.0%	13.8%	15.6%	16.0%	13.8%	15.6%	16.0%	13.8%	15.6%	16.0%	10% - 20%
<b>U.S. Fixed Income Core</b>	12.1%	11.1%	10.5%	12.1%	11.1%	10.5%	12.1%	11.1%	10.5%	12.1%	11.1%	10.5%	8% - 25%
<b>Real Estate / Infrastructure</b>	10.0%	9.5%	10.0%	10.0%	9.5%	10.0%	10.0%	9.5%	10.0%	10.0%	9.5%	10.0%	0% - 15%
<b>Real Return / Opportunistic</b>	7.3%	7.2%	9.5%	7.3%	7.2%	9.5%	7.3%	7.2%	9.5%	7.3%	7.2%	9.5%	0% - 15%
<b>Absolute Return</b>	7.5%	5.6%	6.0%	7.5%	5.6%	6.0%	7.5%	5.6%	6.0%	7.5%	5.6%	6.0%	0% - 12%
<b>Cash</b>	4.3%	4.2%	2.0%	4.3%	4.2%	2.0%	4.3%	4.2%	2.0%	4.3%	4.2%	2.0%	1% - 9%
<b>TOTAL</b>	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.



**STATE OF MICHIGAN  
RETIREMENT SYSTEMS**

**MARKETS REVIEW AND OUTLOOK**

**INVESTMENT ADVISORY COMMITTEE MEETING**

**DECEMBER 1, 2015**



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



# CAPITAL MARKETS

## Return and Risk Assumptions, Benchmark and Outlook

*A starting point.*

<b>MPSERS Plan</b>	<b>Assumed Return* (Arithmetic)</b>	<b>Standard Deviation*</b>	<b>Trailing 10-Year (Benchmark**)</b>	<b>Tactical (Short Term) Expectations***</b>
Private Equity	11.5%	24.0%	11.9%	Hold
International Equity	9.5%	21.3%	3.0%	Hold
Domestic Equity	8.1%	17.4%	7.0%	Trim
Real Estate (Core)	6.2%	11.5%	6.6%	Trim
Absolute Return	5.6%	9.0%	2.4%	Hold
Real Ret/Oppportunistic	7.5%	12.2%	8.3%	Add
Long-Term Fixed	2.8%	3.5%	4.6%	Hold
Short-Term	2.0%	1.0%	1.3%	Hold

\* Aon Hewitt Investment Consultants 2015 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. 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 six years after the depths of the Great Recession.
- The broad domestic market index, S&P 1500, returned -0.3% over the past year, 12.5% over the past three years, and 13.3% per year over the past five years ending September 2015. In August 2015, the market hit a correction level of -12%. Technical price trends and market breadth are weak and valuations are above normal.
- Over the past one, three, five, seven, and ten years ending September 2015, the international market index, MSCI ACWI ex USA, underperformed the S&P 1500 index by -13.5%, -9.9%, -11.3%, -6.5%, and -3.8% annualized respectively. Technical price trends are poor for both developed and emerging markets. The strengthening U.S. dollar looks to be the swing-factor.
- The 10-year U.S. Treasury closed October 2015 at 2.1%, nearly 20 bps lower than one year prior. Perhaps in anticipation of future tightening of Federal Reserve Board policy, the yields in two-year U.S. Treasuries ended October at 0.7% and 20 bps higher than the year prior. The curve is still fairly steep, about 50 bps higher than average.
- At the end of October 2015, the 2-year U.S. Treasury rate was 0.7%. This yield is very attractive when compared to Japan (0.0%), Germany (-0.3%) and Switzerland (-0.9%). With the backdrop of good price strength, very competitive yields, and fundamentals in the favor of the U.S., it seems very logical that the dollar will continue to strengthen in 2016, placing additional pressure on commodities.
- There has been some pull back in the FTSE NAREIT Index. As of September 2015 the index is almost 15% off its January 2015 highs.

## **Domestic Equity**

*Market breadth looks like it is narrowing.*

- Over the past seven years ending September 2015, the broad domestic market index, S&P 1500, has returned a 9.9% annualized rate of return. However, concerns with market breadth and price level technicals identified earlier in the summer materialized during August and September 2015. For the quarter, the S&P 1500 lost -6.7% in value, and hit a -12% correction level in August.
- Since the bottom, six-and-a-half years ago now, the strength in appreciation of the U.S. stock market was pretty powerful. However, at the end of October 2015, from a technical perspective, the large-cap market price appreciation has slowed.
- The breadth of the domestic market continues to narrow. By the end of October 2015, the S&P 500 was within 2.7% of its 52-week high. However, the average S&P 500 stock was underperforming the cap-weighted benchmark by approximately -10% compared to -4% three months earlier. In addition, at the end of October 2015, one out of three S&P 500 companies were more than -20% below its 52-week high, compared to one in five in July.
- Earnings growth for the S&P 500 over the past year, ending September 2015, is close to 0%. Valuation metrics are above average, and the absolute returns over the next cycle will not likely be as strong as the historical average.
- Over the past year ending September 2015, large cap underperformed small cap by -4.3%. This underperformance impacted longer time periods and over the past three, five, seven, and ten years, large cap underperformed small cap by -0.5%, -0.6%, -0.4%, and -0.8% annually respectively. Over the past year, growth continued its dominance over value style outperforming by 7.5%. Over the past three, five, seven, and ten years growth led value by roughly 2-3% annually.

## **International Equity**

*Weakness in emerging markets continue.*

- International equities continue to underperform domestic. Over the past one, three, five, seven, and ten years ending September 2015, the international market index, MSCI ACWI ex USA, underperformed the S&P 1500 index by -13.5%, -9.9%, -11.3%, -6.5%, and -3.8% annualized respectively.
- Within international equities, developed markets convincingly outperformed emerging markets over the past one, three, and five years ending September 2015 by 11.3%, 10.4%, and 7.3% annualized respectively. Emerging markets have outperformed developed markets by 1.3% annualized over the past ten years.
- The price trend (measured in local currency) of developed international was significantly weakened during the September 2015 quarter. Both developed and emerging markets have weak market technicals, priced below their respective 200-day moving averages.
- The plan is underweight international equity against a global benchmark (approximately 33% versus 50%) and it is also slightly underweight peers; 13.8% versus 16.2%.
- Based on a price-to-earnings valuation multiple, excluding non-earning companies, developed international equity markets trade at roughly a 15% discount to the U.S. counterparts, while emerging markets trade at over a 30% discount. However, it appears that most of this valuation gap is due to the sector weights of the non-U.S. indexes rather than a true valuation discrepancy.

## **Interest Rates**

*Low rates persist.*

- The 10-year U.S. Treasury closed October 2015 at 2.1%, nearly 20 bps lower than one year prior. Perhaps in anticipation of future tightening of Federal Reserve Board policy, the yields in two-year U.S. Treasuries ended October at 0.7% and 20 bps higher than the year prior. The curve is still fairly steep, about 50 bps higher than average.
- Credit spreads are becoming more attractively priced. At the end of October 2015, investment grade spreads were about 50 bps higher than average and are about 40 bps higher than the year prior. High-yield spreads were about a full percentage point higher than their long-term averages and have widened about 1% since June 2015.
- Inflation expectations are being priced lower in the bond markets. The 10-year breakeven rates at the end of September 2015 were priced at 1.4%, 80 bps below the average of the past five years, and the lowest since the 2008 financial crisis.
- The Barclays Aggregate Index sensitivity to changes in interest rates has increased over time as measured by the modified adjusted duration. At the end of September 2015, the Barclays Aggregate Index had a duration of 6.0.

## **Real Estate**

*Rich valuations and following the bond market.*

- The publicly traded FTSE NAREIT Index was up 7.9% over the past year for the period ending September 2015, beating the broad domestic equity market by more than 8%. Over the past three and five years, the index is up 9.1% and 11.9% respectively.
- There has been some pull back in the REIT Index. As of September 2015 the index is almost 15% off its January 2015 highs.
- At the end of October 2015, the REIT Index was yielding almost 3.7% in income. Relative to the ten-year U.S. Treasury rate, this is about 50 bps above average. 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 sells of the asset class is tricky.

## **Commodities**

*Weaker still.*

- At the end of October 2015, commodity prices, as measured by the Thomson Reuters CRB Index, collapsed by -37.5% since June 2014. Since its peak in 2008, prices are down by almost -60%, and prices are now less than at the March 2009 levels. The CRB Index is now at the low end of its trading range, and seemingly on an even lower trend.
- As measured by the DXY Index, the U.S. dollar has strengthened by around 35% since the winter months of 2008. At the end of October 2015, the U.S. dollar is 11.5% higher than the year prior as measured by the DXY Index, however there has not been much change in the value of the dollar since February 2015.
- At the end of October 2015, the 2-year U.S. Treasury rate was 0.7%. This yield is very attractive when compared to Japan (0.0%), Germany (-0.3%) and Switzerland (-0.9%). With the backdrop of good price strength, very competitive yields, and fundamentals in the favor of the U.S., it seems very logical that the dollar will continue to strengthen in 2016, placing additional pressure on commodities.

# ECONOMIC OUTLOOK

## Select Historic Economic Growth with Forecasts

*An eye to 2015.*

<b>Real GDP Growth Actual/Forecasts</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>
World	3.3	3.4	3.0	3.4	3.4
U.S.	1.5	2.4	2.5	2.6	2.5
Developed (G10)	1.2	1.8	2.0	2.2	2.2
Asia	4.9	4.8	4.7	5.0	4.9
EMEA	2.3	2.4	0.8	2.5	2.9
Europe	-0.3	0.9	1.5	1.6	1.6
Latin America	3.3	1.3	-0.5	0.7	2.2
China	7.7	7.3	6.9	6.5	6.2

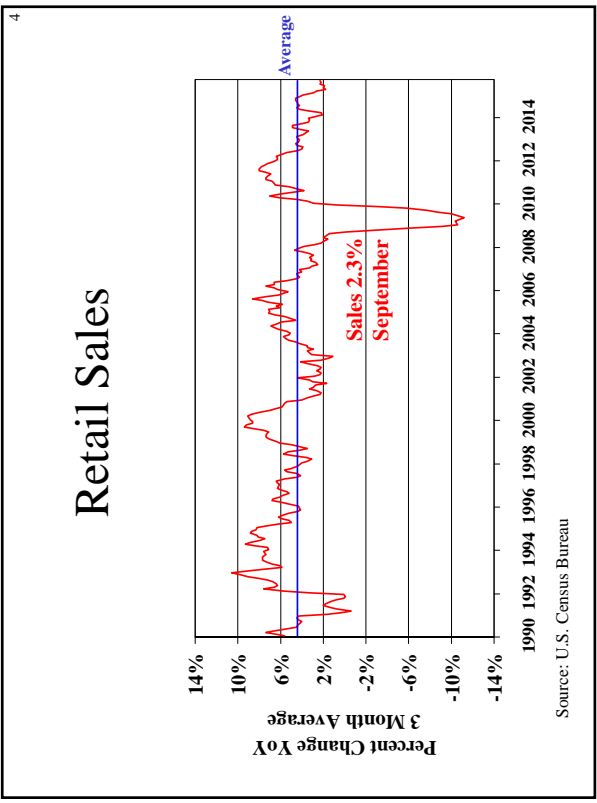
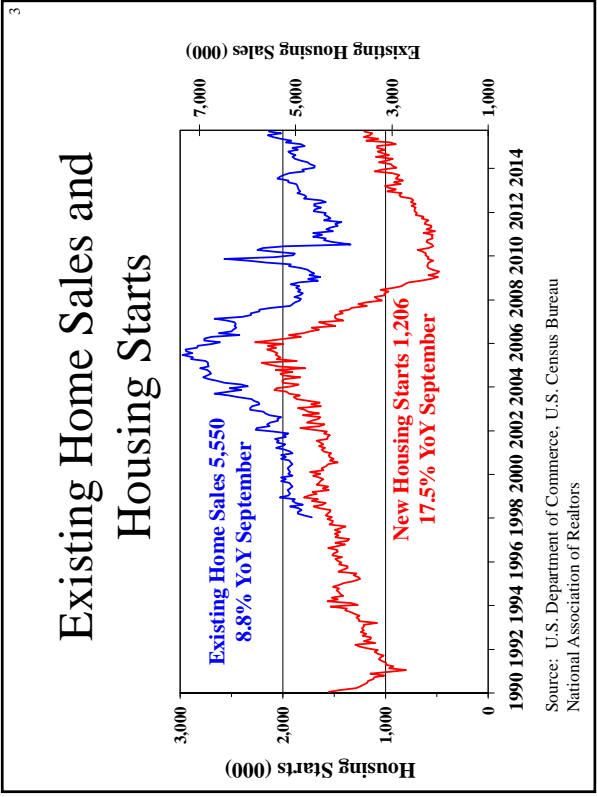
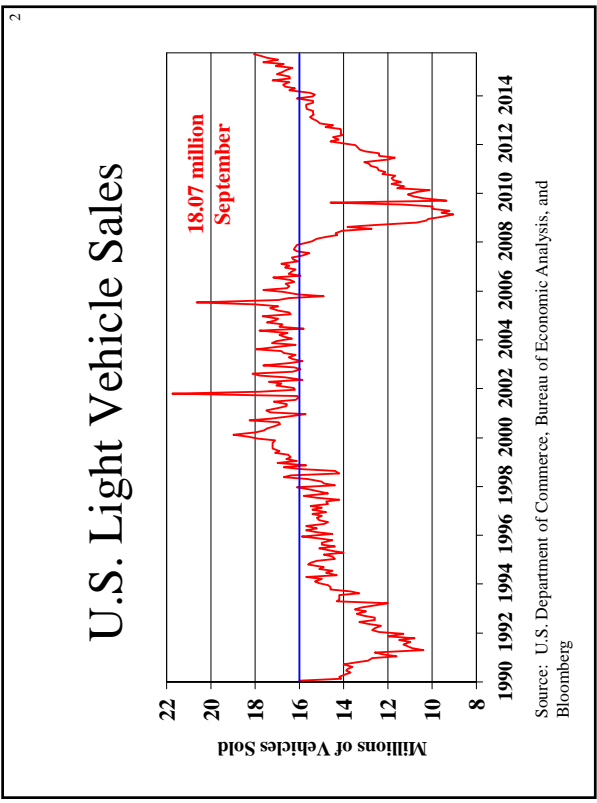
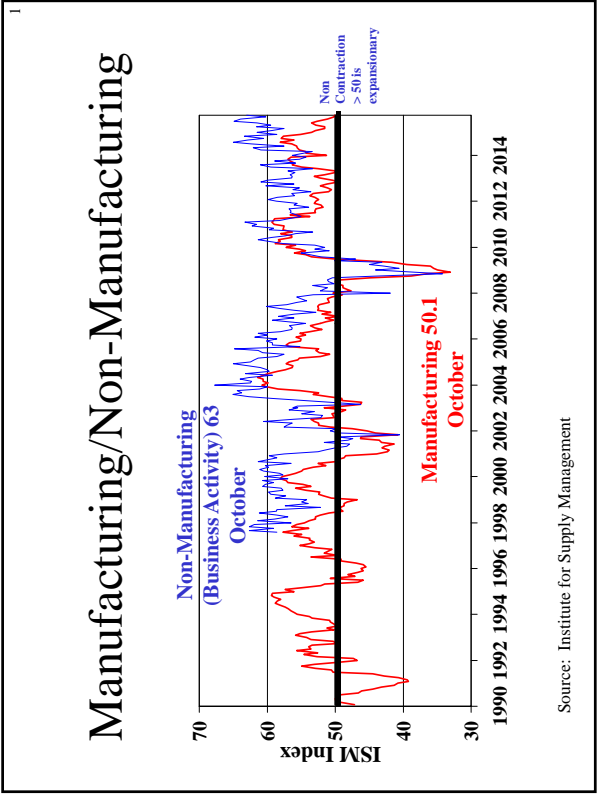
\*Source: Bloomberg

## Economic Overview

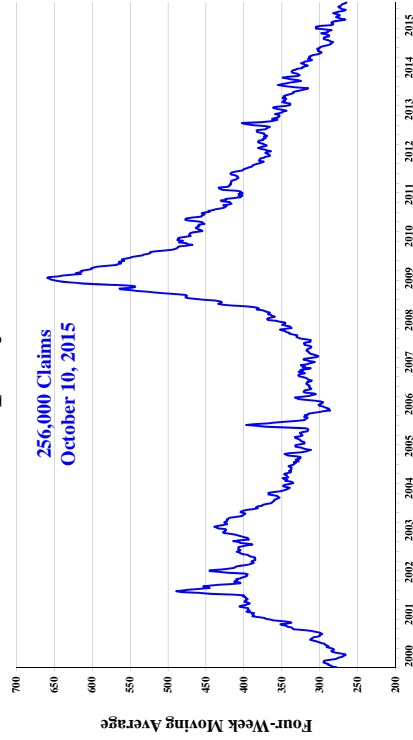
*U. S. economy remains the bright spot.*

- The most recent reading of the annualized U.S. GDP growth was 1.6%, slightly above the consensus estimate of 1.5%. Current estimates for 2016 GDP growth for the U.S. is 2.6%. 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 non-manufacturing sectors of the economy are showing continued strength while manufacturing is weakening. Normally these two measures go in tandem.
- The jobs market is strong. The four-week moving average for initial jobless claims in October was the lowest since 1973. The national unemployment rate is at 5.1%, the lowest level since April 2008. The tightening labor market has not created wage inflation of any significance yet. 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.
- Some have been critical of the lower levels of labor participation than in the past. At the end of October 2015, the participation rate stood at 62.4%, the lowest level since October 1977. The rate peaked in January 2000 at 67.3%. According to a recent study conducted by the Atlanta Fed, this drop in the labor participation rate can be mostly explained by a higher percentage of young people in school, and by a higher percentage of disabled or retired persons aged 46 – 70 years old.
- In September 2015, U.S. auto sales eclipsed 18 million units on a seasonally adjusted basis. Except for a few one-time spikes in sales, this figure is among the best ever. Over the past five years, growth in sales of autos have averaged 8.8% year-over-year. With the average vehicle age still higher than ten years old, the trend in growth could continue well through the next year.

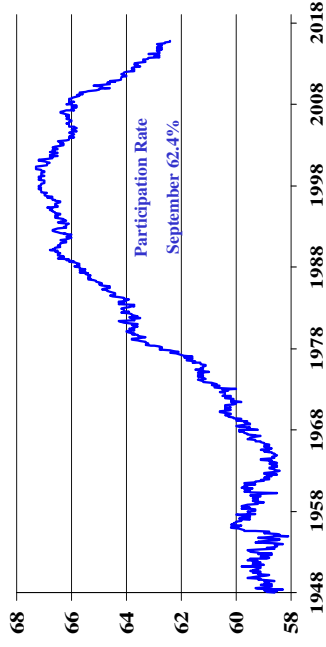




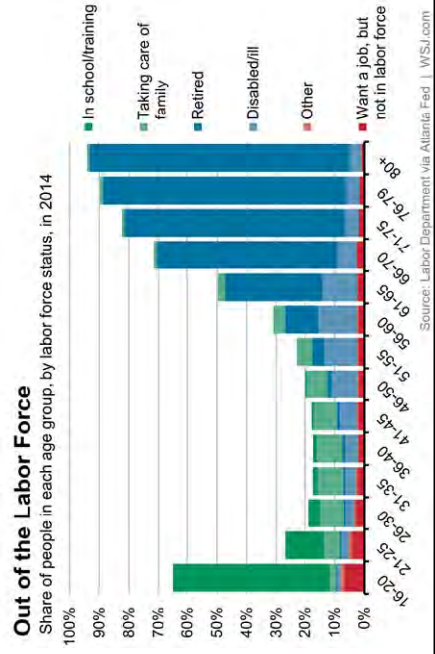
# Initial Unemployment Claims



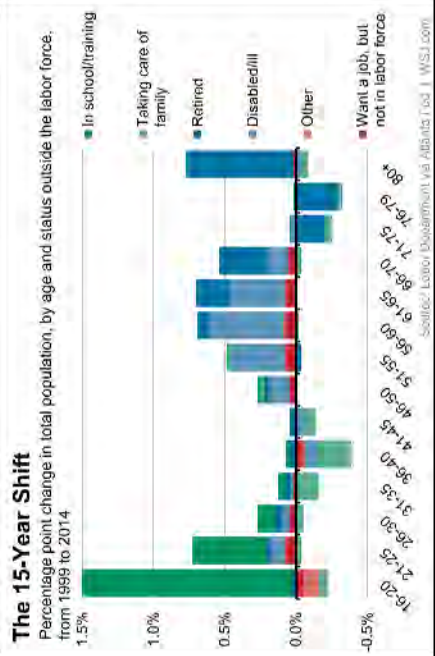
# Labor Participation

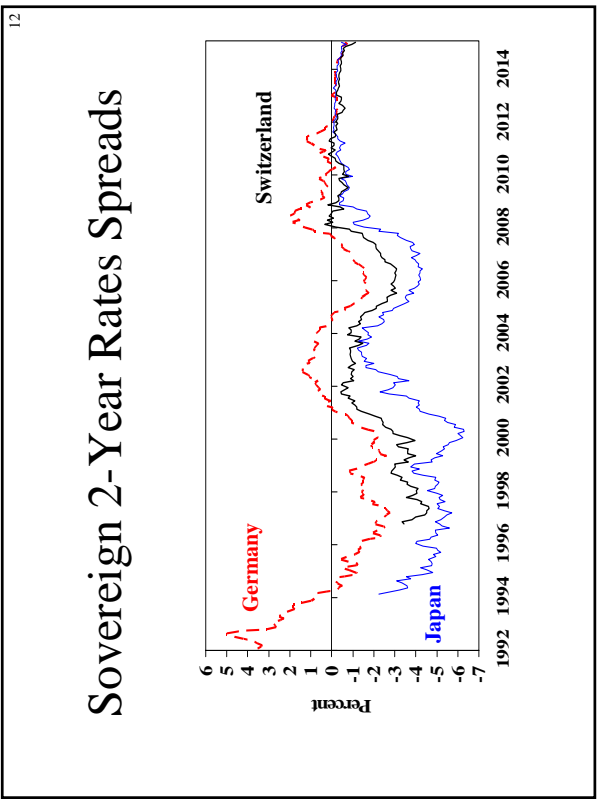
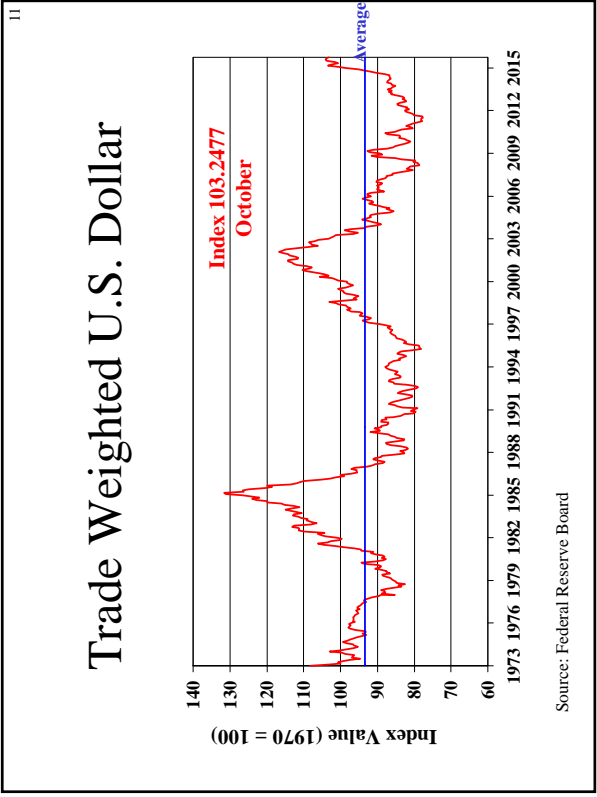
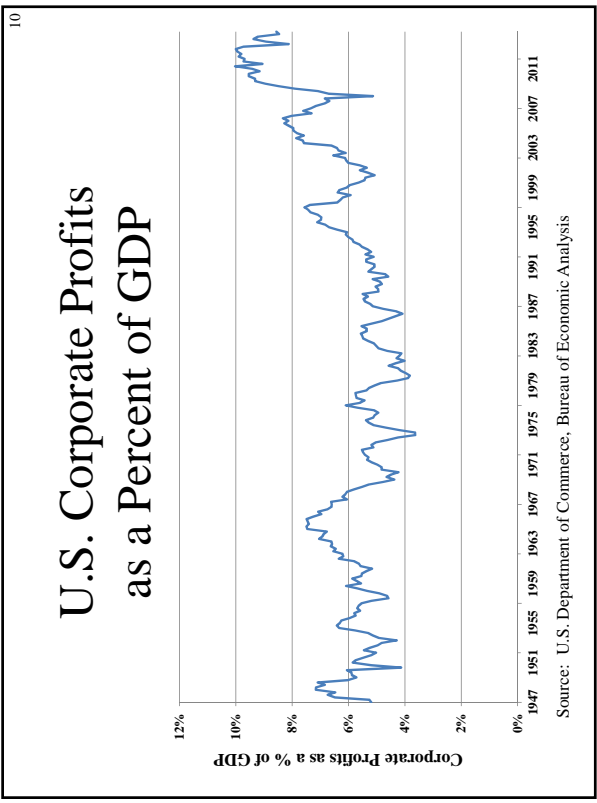
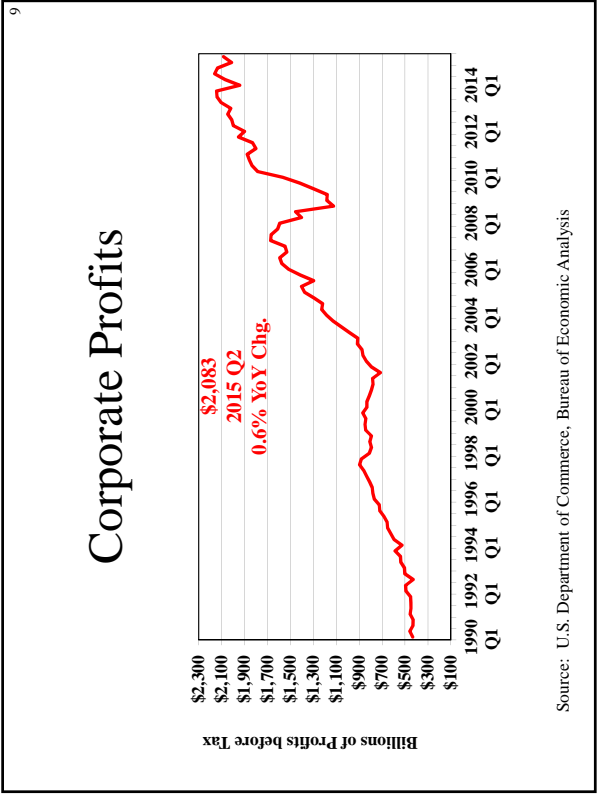


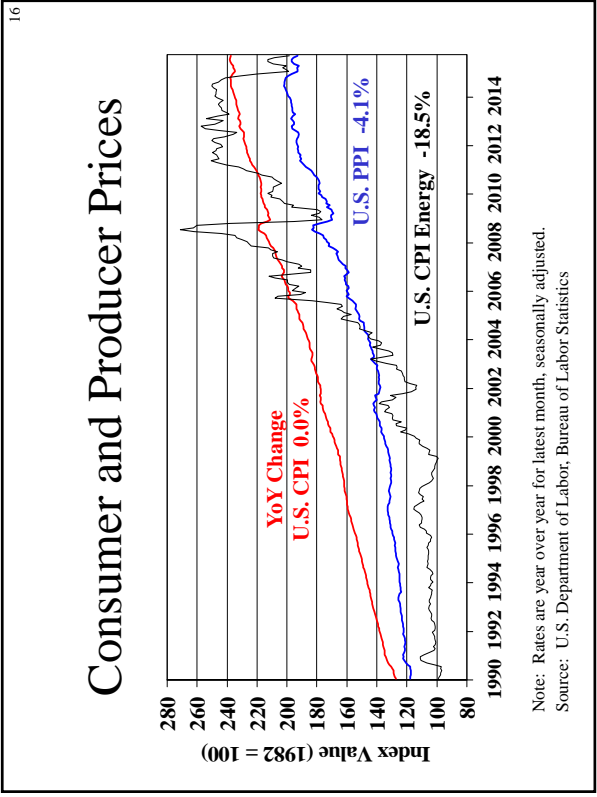
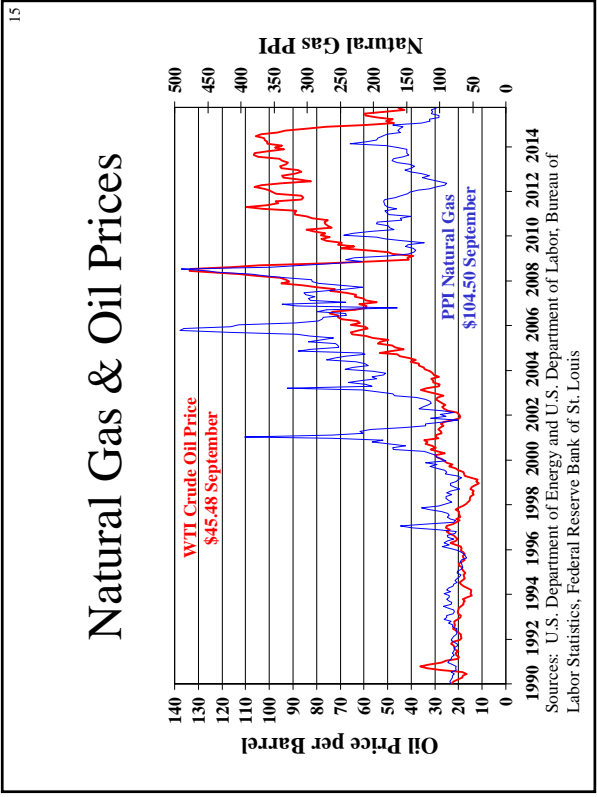
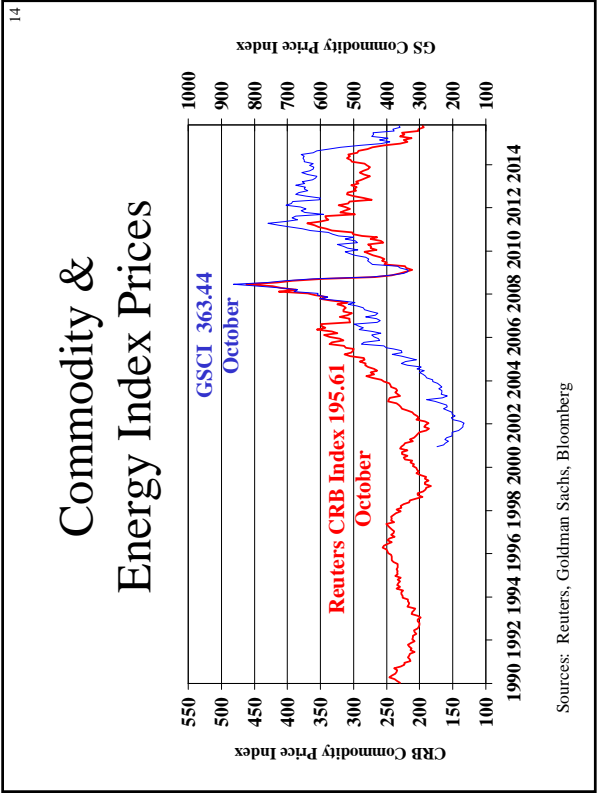
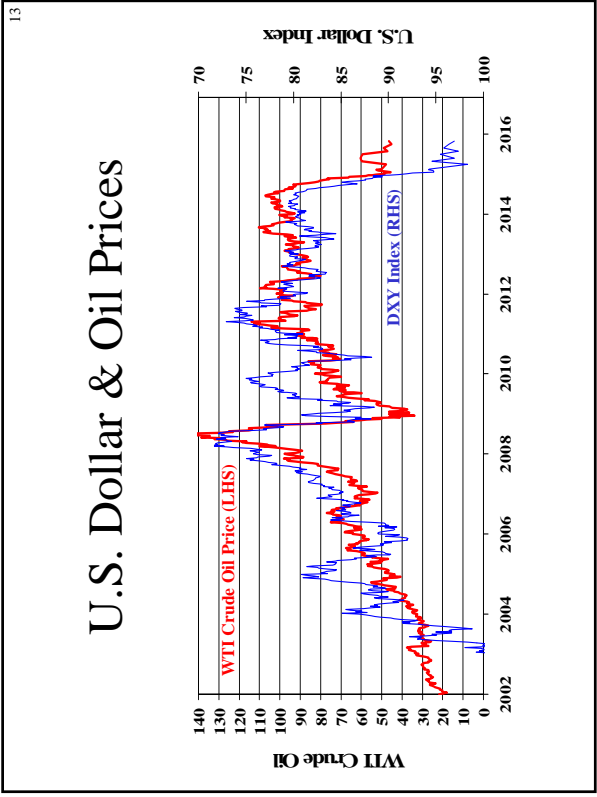
# Participation Detail



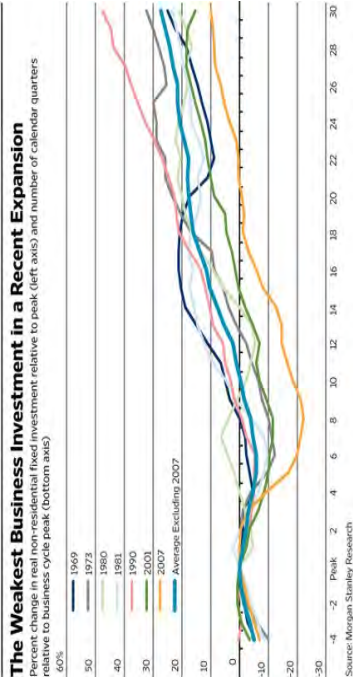
# Participation Detail





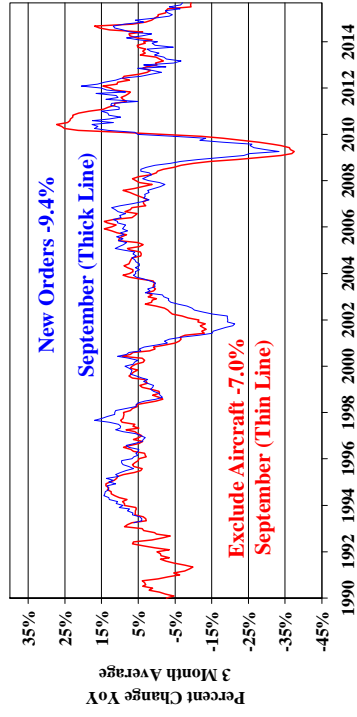


# Capital Spending

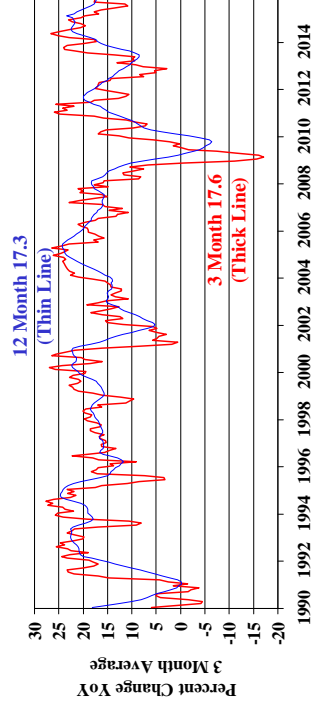


# Capital Spending

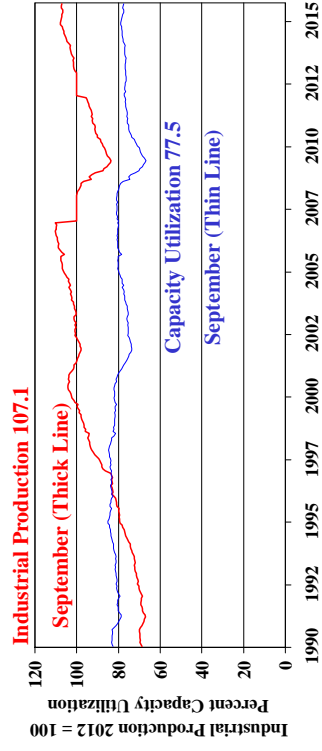
New Orders for Durable Goods (Excluding Aircraft and Defense)



# Capital Spending



# Industrial Production and Capacity Utilization



# Annual Total Returns of Key Asset Classes 1995 - 2014

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	
U.S. Equity	36.52%	22.42%	32.94%	26.33%	26.97%	13.23%	10.40%	11.50%	40.82%	20.90%	20.06%	26.65%	16.65%	12.38%	41.44%	16.38%	14.26%	16.83%	32.80%	13.08%	Best
Corp. Bonds	22.24%	13.73%	14.95%	19.97%	20.27%	12.24%	7.28%	10.52%	29.58%	14.48%	16.62%	16.59%	15.84%	2.05%	27.24%	13.11%	9.02%	16.17%	15.29%	11.81%	Worst
Hedge Funds	18.33%	10.31%	13.91%	16.24%	18.93%	9.40%	7.24%	6.74%	9.01%	11.78%	5.65%	15.34%	8.67%	0.10%	16.05%	11.15%	8.35%	10.54%	10.99%	7.53%	
Int'l Equity	11.22%	5.30%	9.58%	8.59%	4.83%	5.77%	3.11%	2.39%	7.69%	5.25%	3.42%	4.81%	5.47%	-6.46%	2.72%	5.52%	1.75%	4.06%	1.49%	3.41%	
Real Estate	7.54%	3.33%	5.35%	5.24%	2.68%	3.39%	1.55%	1.79%	2.36%	3.48%	3.06%	4.27%	5.10%	-19.86%	0.19%	5.07%	0.10%	2.02%	0.07%	0.66%	
Cash	6.04%	3.28%	1.77%	1.60%	-1.94%	-6.98%	-10.64%	-14.95%	1.88%	3.25%	2.65%	3.46%	5.03%	-36.72%	-2.19%	1.50%	-3.55%	1.70%	-2.01%	0.04%	
Int'l Equity	2.54%	2.77%	1.70%	-1.61%	-2.25%	-15.31%	-19.74%	-21.30%	1.16%	1.33%	1.95%	2.55%	4.06%	-45.52%	-16.86%	0.13%	-13.71%	0.11%	-2.60%	-3.87%	
Return Risk			<u>Int'l.</u> 2.29%		<u>Cash</u> 2.84%		<u>Hedge</u> 5.43%		<u>Int'l.</u> 5.66%		<u>Gov't.</u> 5.86%		<u>Corp.</u> 6.90%		<u>R.E.</u> 9.61%		<u>US.Eq.</u> 10.10%				Return Risk
			1.16%		0.67%		7.01%		20.22%		4.15%		5.17%		8.42%		15.24%				
<b>Annualized Returns 1995 - 2014</b>																					

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

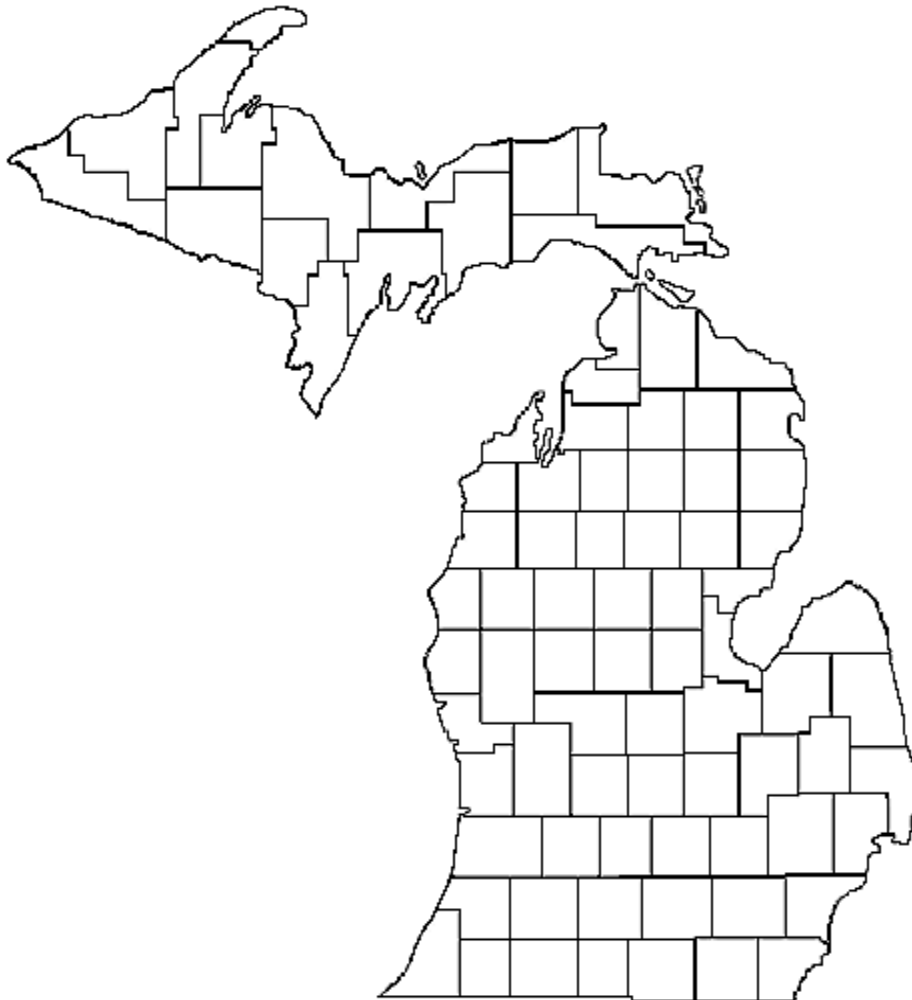
- U.S. Equity is represented by the S&P 1500
- Real Estate is represented by the NPI
- Corporate Bonds are represented by the Barclays Capital - Credit Index
- Government Bonds are represented by the Barclays Capital U.S. Government

**STATE OF MICHIGAN  
RETIREMENT SYSTEMS**

**DOMESTIC EQUITY REVIEW**

**INVESTMENT ADVISORY COMMITTEE MEETING**

**DECEMBER 1, 2015**



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





## EXECUTIVE SUMMARY

### Performance

<b>Total Domestic Equity, Gross</b>	<b>1-Year</b>	<b>3-Years</b>	<b>5-Years</b>	<b>7-Years</b>	<b>10-Years</b>
Annualized Returns	-0.8%	13.3%	13.1%	10.0%	7.1%
S&P 1500	-0.3%	12.5%	13.3%	9.9%	7.0%
Peer Median Return	-0.4%	11.9%	12.6%	9.6%	6.6%
Rank vs. Peers	57	24	35	29	37

<b>Total Domestic Equity, Net</b>	<b>1-Year</b>	<b>3-Years</b>	<b>5-Years</b>	<b>7-Years</b>
Annualized Returns	-0.9%	13.2%	13.0%	9.9%
S&P 1500	-0.3%	12.5%	13.3%	9.9%
Lipper Multi Core	-2.3%	11.6%	11.6%	8.8%

<b>Total Active Equity, Net</b>	<b>1-Year</b>	<b>3-Years</b>	<b>5-Years</b>	<b>7-Years</b>
Annualized Returns	-1.3%	13.6%	12.9%	9.9%
S&P 1500	-0.3%	12.5%	13.3%	9.9%
Lipper Multi Core	-2.3%	11.6%	11.6%	8.8%
Rank vs. Lipper Multi Core	43	23	35	28

- Total domestic equity, gross of fees, lagged the S&P 1500 on a one and five year basis, while three, seven, and ten year performance came in ahead of the benchmark. This put domestic equity at or near the top third of its peer group over nearly all longer-term time periods.
  - Total domestic equity has an estimated 25 basis points (bps) per year cost advantage over its peers, narrowing the one year 40 bps gap in underperformance, relative to peers, to 15 bps, net of fees.
- Total active equity, net of fees, underperformed the benchmark on a one and five year basis, while outperforming over three years and matching the benchmark over seven years. This performance put the Total Active Equity group in the top half of its Lipper peer group over all time periods, and in the top third over the past three and seven years.
  - SMRS All Cap GARP and SMRS Large Cap Core, comprising \$3.4 billion in assets, currently rank in the top 1% and the top 10% respectively of their respective Lipper fund peer groups on an inception to date basis.
  - A third internally managed fund, SMRS Large Cap Growth, comprising nearly \$1.6 billion in assets, ranks in the top quartile of its Lipper peer group over three, five, and seven years.
- External management matched the S&P 1500 over the past one and three years and now ranks in the top half of its peer group over all time periods measured.

- Standout performers on the external manager side include LA Capital All Cap Growth, Clarkston Capital, and Fisher Investments.

### **Strategy Update**

- Total Active Equity's portfolio trades at an estimated 25% discount to the S&P 1500 on the basis of normalized earnings, with less volatility and similar rates of growth going forward.
  - 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.
  - Total active equity remains over-weighted to both the financial sector and to defensive stocks.

### **Market Environment and Outlook**

- At ~19x normalized earnings, equity markets are slightly rich relative to history, but remain reasonably priced for an environment where bond yields stay abnormally low.
- Assuming a 3.5% normalized dividend yield and 5% long-term expected earnings growth, and no PE multiple expansion or contraction, the S&P 1500 is poised to return approximately 8.5% over the long-term.
  - This compares to the 30-year U.S. Treasury at 2.9%, and a historical average return for the S&P 500 of 9.6% from 1928 - 2014.



# SMRS

## Domestic Equities

9/30/15

Markets	Amount	Total	% of Total
<b>Internal</b> (in millions)			
Indexed Portfolios	\$7,487		
<b>Total Indexed</b>		<b>\$7,487</b>	<b>45.1%</b>
<b>Internal</b>			
Active Portfolios	\$5,610		
<b>Total Active</b>		<b>\$5,610</b>	<b>33.8%</b>
<b>Active</b>			
Fisher Investments	\$792		
Los Angeles Capital	761		
Seizert Capital Partners	631		
Clarkston Capital Partners	489		
Attucks Asset Management	246		
Bivium Capital	238		
Northpointe Capital	146		
Munder Capital Management	140		
GW Capital	65		
<b>Total Active</b>		<b>\$3,508</b>	<b>21.1%</b>
<b>TOTAL</b>		<b><u>\$16,605</u></b>	<b><u>100.0%</u></b>

## Combined Active Equity Portfolio, Return Expectations 9/30/15

### Return Assumption Estimates

	<u>Expected Return ****</u>	<u>Normal Dividend Yield **</u>	<u>LT Growth Rate ***</u>
<b>SAD Combined Active Equity</b>	<b>9.6%</b>	<b>4.8%</b>	<b>4.8%</b>
S&P 1500 All-Cap	8.5%	3.5%	5.0%
S&P 500 Large-Cap	8.5%	3.7%	4.8%
S&P 500 Historical Average	9.6%		
S&P 400 Mid-Cap	8.5%	2.0%	6.5%
S&P 600 Small-Cap	8.1%	1.1%	7.0%
US 30-Year Treasury	2.9%	2.9%	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>
<b>SAD Combined Active Equity</b>	<b>14.5</b>	<b>6.9%</b>	<b>70%</b>	<b>4.8%</b>
S&P 1500 All-Cap	18.6	5.4%	66%	3.5%
S&P 500 Large-Cap	18.4	5.4%	68%	3.7%
S&P 400 Mid-Cap	20.8	4.8%	41%	2.0%
S&P 600 Small-Cap	21.4	4.7%	24%	1.1%

### Portfolio and Benchmark Risk Estimates

	<u>Expected Return ****</u>	<u>Standard Deviation</u>	<u>Expected Return/Volatility</u>
<b>SAD Combined Active Equity</b>	<b>9.6%</b>	<b>15.4%</b>	<b>0.6</b>
S&P 1500 All-Cap	8.5%	15.5%	0.6
S&P 500 Large-Cap	8.5%	15.7%	0.5
S&P 400 Mid-Cap	8.5%	15.1%	0.6
S&P 600 Small-Cap	8.1%	15.3%	0.5
US 30-Year Treasury	2.9%	23.0%	0.1

\*Earnings Yield = Earnings/Price

\*\*Includes Share Buybacks

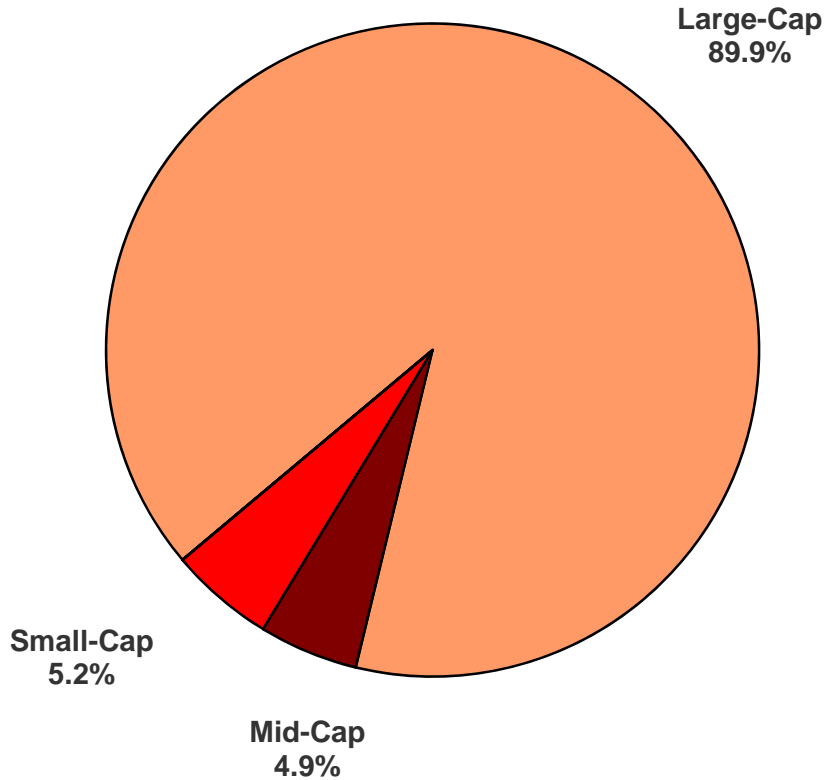
\*\*\*LT Growth Rate Calculation: Return on Equity \* (1-Dividend Payout Ratio)

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



# SMRS

## Domestic Equity Exposure By Market Cap 9/30/15



### Market Value in Millions

	9/30/15		
	<u>Assets</u>	<u>Percent</u>	<u>S&amp;P 1500</u>
Large-Cap (>\$10B)	\$14,928	89.9%	85.9%
Mid-Cap (>\$4 <\$10B)	814	4.9%	8.0%
Small-Cap (<\$4B)	863	5.2%	6.1%
<b>Total Domestic Equity</b>	<b><u>\$16,605</u></b>	<b><u>100.0%</u></b>	<b><u>100.0%</u></b>



SMRS

## All Domestic Equities Composite

9/30/15

<b>Date:</b>	<u>9/30/15</u>	<u>6/30/15</u>	<u>3/31/15</u>	<u>12/31/14</u>
Assets (\$million):	\$16,605	\$18,521	\$18,807	\$19,164
Number of Securities:	1,217	1,209	1,186	1,244
Active Share:	34%	34%	32%	32%

Benchmark: S&P 1500

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

<b>Characteristics:</b>	<u>SMRS</u>	<u>S&amp;P 1500</u>
Weighted Average Capitalization (\$billion):	\$123.0	\$113.6
Trailing 12-month P/E:	16.1x	18.2x
Forecast P/E:	14.5x	16.2x
Price/Book:	2.2x	2.3x
Beta:	0.99	1.00
Dividend Yield:	2.3%	2.2%
3-5 Year EPS Growth Estimate:	11.1%	11.0%
Return on Equity:	13.7%	12.6%

### TOP TEN HOLDINGS - All Domestic Equities

9/30/15

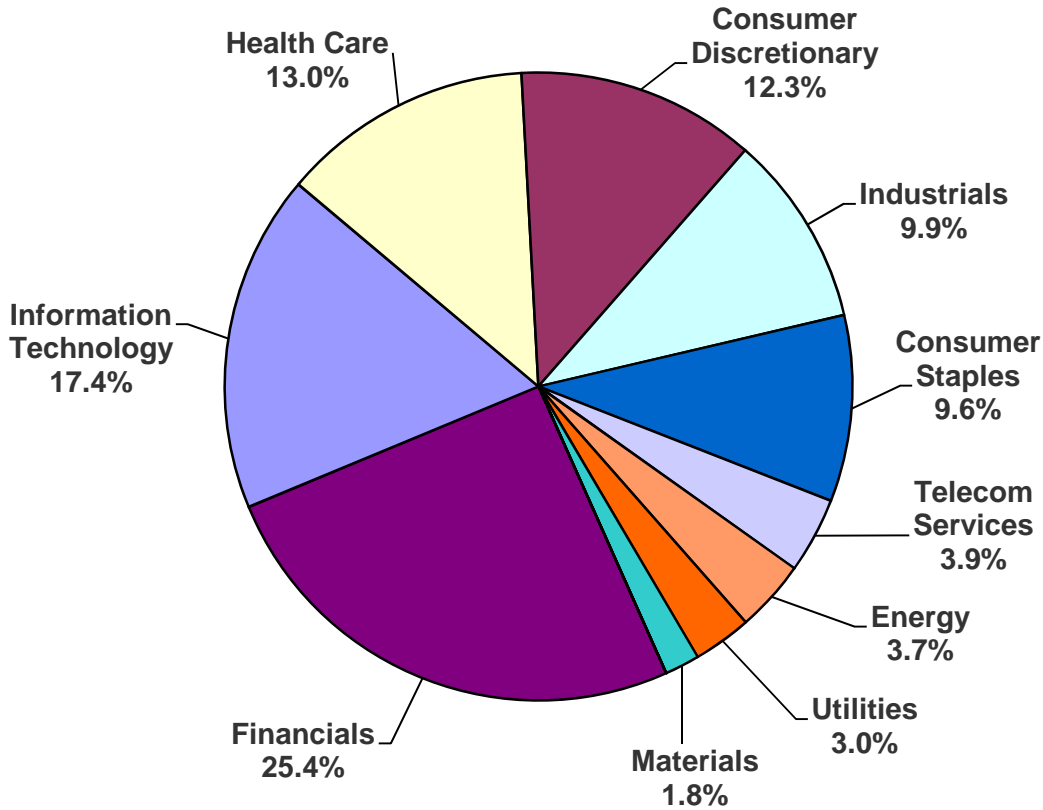
	<u>Portfolio Weight</u>	<u>Total Shares</u>	<u>9/30/15 Price</u>	<u>YTD15 Total Return</u>	<u>Market Value</u>
Apple, Inc.	3.7%	5,600,112	\$110.30	1.2%	\$617,692,354
Verizon Communications Inc.	3.1%	11,683,830	\$43.51	-3.7%	508,363,443
U.S. Bancorp	3.1%	12,388,891	\$41.01	-7.1%	508,068,420
SPDR S&P 500 ETF Trust	2.5%	2,189,950	\$191.63	-5.4%	419,660,119
Wal-Mart Stores, Inc.	2.4%	6,173,154	\$64.84	-23.1%	400,267,305
Wells Fargo & Company	2.4%	7,793,293	\$51.35	-4.5%	400,185,596
Aflac Incorporated	2.1%	6,036,948	\$58.13	-3.1%	350,927,787
Gilead Sciences, Inc.	1.9%	3,171,973	\$98.19	5.0%	311,456,029
Union Pacific Corporation	1.8%	3,440,379	\$88.41	-24.6%	304,163,907
Home Depot, Inc.	<u>1.5%</u>	2,136,569	\$115.49	11.8%	<u>246,752,354</u>
TOTAL	<u>24.5%</u>				<u>\$4,067,537,314</u>



# SMRS

## All Domestic Equity By Sector

9/30/15



Market Value in Millions				
9/30/15				
	<u>Assets</u>	<u>Percent</u>	<u>Benchmark</u>	<u>Difference</u>
Financials	\$4,226	25.4%	17.6%	7.8%
Information Technology	2,896	17.4%	19.9%	-2.5%
Health Care	2,158	13.0%	14.2%	-1.2%
Consumer Discretionary	2,035	12.3%	13.2%	-0.9%
Industrials	1,647	9.9%	10.6%	-0.7%
Consumer Staples	1,590	9.6%	9.3%	0.3%
Telecom Services	644	3.9%	2.2%	1.7%
Energy	621	3.7%	6.5%	-2.8%
Utilities	493	3.0%	3.3%	-0.3%
Materials	295	1.8%	3.2%	-1.4%
<b>Total</b>	<b>\$16,605</b>	<b>100.0%</b>	<b>100.0%</b>	

Benchmark: S&P 1500



# SMRS

## All Actively Managed Composite

9/30/15

<b>Date:</b>	<b><u>9/30/15</u></b>	<b><u>6/30/15</u></b>	<b><u>3/31/15</u></b>	<b><u>12/31/14</u></b>
Assets (\$million):	\$9,118	\$10,222	\$10,502	\$10,360
Numbers of Securities:	888	872	836	901
Active Share:	62%	61%	59%	60%

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.

<b>Characteristics:</b>	<b><u>SMRS</u></b>	<b><u>S&amp;P 1500</u></b>
Weighted Average Capitalization (\$billion):	\$126.2	\$113.6
Trailing 12-month P/E:	14.9x	18.2x
Forecast P/E:	13.6x	16.2x
Price/Book:	2.1x	2.3x
Beta:	0.99	1.00
Dividend Yield:	2.4%	2.2%
3-5 Year EPS Growth Estimate:	11.2%	11.0%
Return on Equity:	14.1%	12.6%

### TOP TEN HOLDINGS - All Actively Managed 9/30/15

	<b><u>Portfolio Weight</u></b>	<b><u>Total Shares</u></b>	<b><u>9/30/15 Price</u></b>	<b><u>YTD15 Total Return</u></b>	<b><u>Market Value</u></b>
U.S. Bancorp	5.3%	11,827,353	\$41.01	-7.1%	\$485,039,747
Verizon Communications, Inc.	4.9%	10,304,659	\$43.51	-3.7%	448,355,713
Apple, Inc.	4.4%	3,665,581	\$110.30	1.2%	404,313,584
Wal-Mart Stores, Inc.	4.0%	5,637,820	\$64.84	-23.1%	365,556,249
Aflac Incorporated	3.8%	5,890,839	\$58.13	-3.1%	342,434,471
Wells Fargo & Co.	3.5%	6,208,659	\$51.35	-4.5%	318,814,640
Union Pacific Corporation	3.1%	3,146,023	\$88.41	-24.6%	278,139,893
Gilead Sciences, Inc.	2.9%	2,674,161	\$98.19	5.0%	262,575,869
Home Depot, Inc.	2.2%	1,700,929	\$115.49	11.8%	196,440,290
Validus Holdings, Ltd.	<u>1.9%</u>	3,889,400	\$45.07	10.9%	<u>175,295,258</u>
<b>TOTAL</b>	<b><u>35.9%</u></b>	<b>8</b>			<b><u>\$3,276,965,714</u></b>

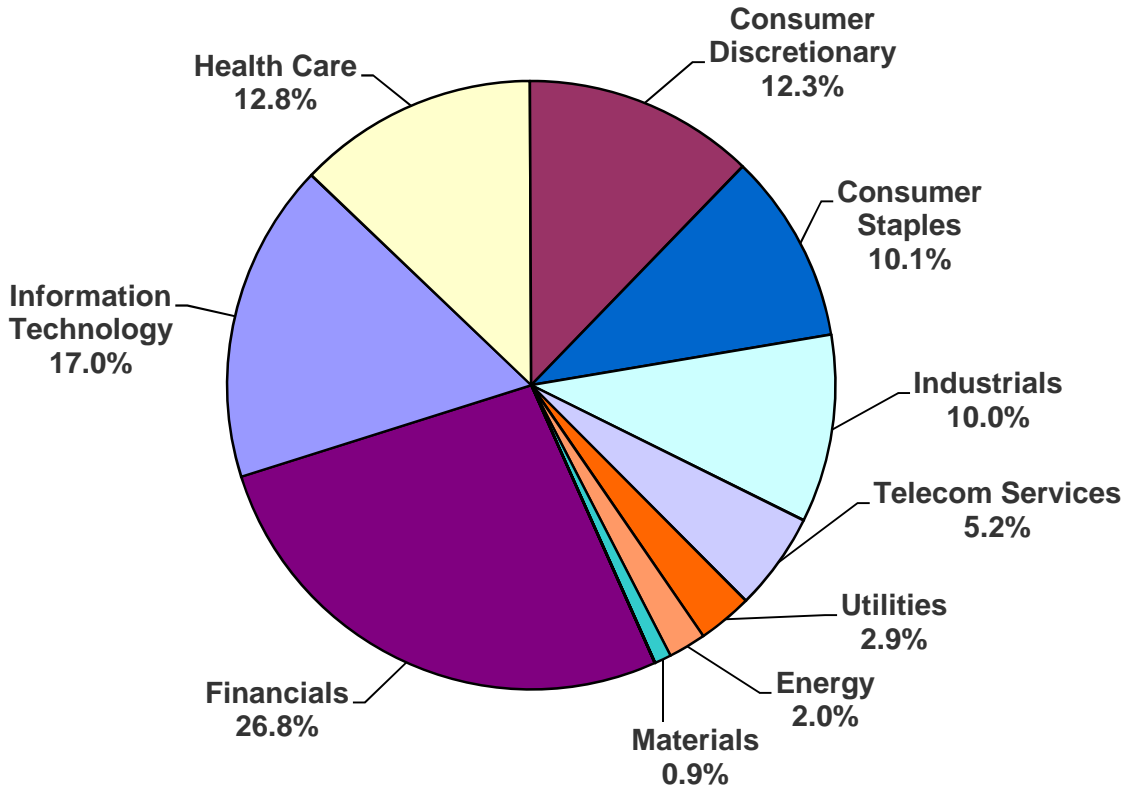




# SMRS

## All Active Domestic Equity By Sector

9/30/15



Market Value in Millions				
9/30/15				
	Assets	Percent	Benchmark	Difference
Financials	\$2,443	26.8%	17.6%	9.2%
Information Technology	1,552	17.0%	19.9%	-2.9%
Health Care	1,170	12.8%	14.2%	-1.4%
Consumer Discretionary	1,117	12.3%	13.2%	-0.9%
Consumer Staples	924	10.1%	9.3%	0.8%
Industrials	912	10.0%	10.6%	-0.6%
Telecom Services	475	5.2%	2.2%	3.0%
Utilities	263	2.9%	3.3%	-0.4%
Energy	179	2.0%	6.5%	-4.5%
Materials	83	0.9%	3.2%	-2.3%
<b>Total</b>	<b>\$9,118</b>	<b>100.0%</b>	<b>100.0%</b>	

Benchmark: S&P 1500

# SMRS Internal / External Manager Performance – Net of Fees

9/30/15

## Total Domestic Equity Performance - Gross

<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>10-Years</u>
<b>Total Domestic Equity</b>	<b>\$16,605,075,206</b>	<b>-0.8%</b>	<b>13.3%</b>	<b>13.1%</b>	<b>10.0%</b>	<b>7.1%</b>
S&P 1500		-0.3%	12.5%	13.3%	9.9%	7.0%
<i>Excess Return</i>		-0.5%	0.8%	-0.2%	0.2%	0.1%
<i>Rank vs. Peers</i>		57	24	35	29	37

## Total Domestic Equity Performance - Net of Fees

<u>Fund Name</u>	<u>Market Value</u>	<u>1-Year</u>	<u>3-Years</u>	<u>5-Years</u>	<u>7-Years</u>
<b>Total Domestic Equity</b>	<b>\$16,605,075,206</b>	<b>-0.9%</b>	<b>13.2%</b>	<b>13.0%</b>	<b>9.9%</b>
S&P 1500		-0.3%	12.5%	13.3%	9.9%
Lipper Multi Core		-2.3%	11.6%	11.6%	8.8%
<i>Excess Return</i>		-0.6%	0.7%	-0.4%	0.0%

## Total Active Equity Performance - Net of Fees

<u>Fund Name</u>	<u>Market Value</u>	<u>1-Year</u>	<u>3-Years</u>	<u>5-Years</u>	<u>7-Years</u>
<b>Total Active Equity</b>	<b>\$9,118,295,954</b>	<b>-1.3%</b>	<b>13.6%</b>	<b>12.9%</b>	<b>9.9%</b>
S&P 1500		-0.3%	12.5%	13.3%	9.9%
Style & Risk Adjusted Benchmark		-0.5%	11.9%	13.0%	9.7%
Lipper Multi Core		-2.3%	11.6%	11.6%	8.8%
<i>Excess Return</i>		-1.0%	1.1%	-0.5%	0.0%
<i>Alpha</i>		-0.9%	1.7%	-0.2%	0.2%
<i>Pct. Rank vs Lipper Multi Core</i>		43	23	35	28

## Manager Performance - Net of Fees

9/30/15

<u>Fund Name</u>	<u>Market Value</u>	<u>1-Year</u>	<u>3-Years</u>	<u>5-Years</u>	<u>7-Years</u>
<b>Total Internal Active</b>	<b>\$5,541,754,657</b>	<b>-2.2%</b>	<b>13.3%</b>	<b>12.5%</b>	<b>9.7%</b>
S&P 500		-0.6%	12.4%	13.3%	9.8%
Style & Risk Adjusted Benchmark		-0.1%	11.7%	12.8%	9.6%
Lipper Large-Cap Core		-2.0%	11.4%	11.9%	8.8%
<i>Excess Return</i>		-1.5%	0.9%	-0.8%	-0.1%
<i>Alpha</i>		-2.0%	1.6%	-0.3%	0.1%
<i>Pct. Rank vs. Lipper Large-Cap Core</i>		56	9	40	25
<b>Total External Active</b>	<b>3,507,636,532</b>	<b>-0.3%</b>	<b>12.5%</b>	<b>12.3%</b>	<b>9.2%</b>
S&P 1500		-0.3%	12.5%	13.3%	9.9%
Style & Risk Adjusted Benchmark		-1.0%	10.9%	12.4%	10.3%
Lipper Multi Core		-2.3%	11.6%	11.6%	8.8%
<i>Excess Return</i>		0.0%	0.0%	-1.1%	-0.8%
<i>Alpha</i>		0.7%	1.5%	-0.1%	-1.1%
<i>Pct. Rank vs. Lipper Multi Core</i>		27	40	47	47

## Manager Performance - Net of Fees

9/30/15

<u>Fund Name</u>	<u>Market Value</u>	<u>1-Year</u>	<u>3-Years</u>	<u>5-Years</u>	<u>7-Years</u>	<u>Inception</u>	<u>Inception Date</u>
<b>SMRS Large-Cap Core</b>	<b>\$2,427,132,111</b>	<b>-0.3%</b>	<b>16.3%</b>	<b>13.9%</b>	<b>11.3%</b>	<b>6.9%</b>	<b>8/31/07</b>
S&P 500		-0.6%	12.4%	13.3%	9.8%	5.7%	
Style & Risk Adjusted Benchmark		-0.6%	11.2%	12.2%	9.0%	5.0%	
Lipper Large-Cap Core		-2.0%	11.4%	11.9%	8.8%	5.0%	
<i>Excess Return</i>		0.3%	3.9%	0.5%	1.5%	1.1%	
<i>Alpha</i>		0.3%	5.0%	1.7%	2.3%	1.9%	
<i>Pct Rank vs Lipper Large-Cap Core</i>		23	1	9	6	8	
<b>SMRS Large-Cap Growth</b>	<b>1,605,783,547</b>	<b>2.8%</b>	<b>15.1%</b>	<b>14.8%</b>	<b>12.0%</b>	<b>8.6%</b>	<b>5/31/05</b>
S&P 500 Growth Index		2.8%	13.5%	14.7%	11.6%	8.3%	
Style & Risk Adjusted Benchmark		4.0%	13.4%	15.0%	11.6%	8.4%	
Lipper Large Growth		2.1%	13.2%	13.4%	10.9%	8.2%	
<i>Excess Return</i>		0.1%	1.6%	0.1%	0.3%	0.2%	
<i>Alpha</i>		-1.2%	1.7%	-0.2%	0.4%	0.2%	
<i>Pct Rank vs Lipper Large-Cap Growth</i>		48	16	22	26	35	
<b>SMRS All-Cap Garp</b>	<b>970,319,165</b>	<b>-1.8%</b>	<b>12.5%</b>	<b>--</b>	<b>--</b>	<b>13.9%</b>	<b>4/30/11</b>
S&P 1500 Super Composite		-0.3%	12.5%	--	--	10.7%	
Style & Risk Adjusted Benchmark		-1.3%	11.7%	--	--	10.5%	
Lipper Multi Core		-2.3%	11.6%	--	--	8.8%	
<i>Excess Return</i>		-1.5%	0.0%	--	--	3.1%	
<i>Alpha</i>		-0.5%	0.8%	--	--	3.4%	
<i>Pct. Rank vs. Lipper Multi Core</i>		50	39	--	--	1	
<b>Fisher All-Cap</b>	<b>792,061,343</b>	<b>1.0%</b>	<b>11.8%</b>	<b>11.4%</b>	<b>9.4%</b>	<b>9.4%</b>	<b>10/31/04</b>
S&P 1500/S&P 600 Value Blend		-0.3%	12.5%	13.3%	9.3%	8.0%	
Style & Risk Adjusted Benchmark		0.4%	12.8%	14.3%	10.6%	8.7%	
Lipper Multi Core		-2.3%	11.6%	11.6%	8.8%	6.9%	
<i>Excess Return</i>		1.4%	-0.7%	-1.9%	0.2%	1.4%	
<i>Alpha</i>		0.6%	-1.0%	-2.8%	-1.1%	0.7%	
<i>Pct. Rank vs. Lipper Multi Core</i>		19	54	60	41	3	

**Manager Performance - Net of Fees**  
9/30/15

<u>Fund Name</u>	<u>Market Value</u>	<u>1-Year</u>	<u>3-Years</u>	<u>5-Years</u>	<u>7-Years</u>	<u>Inception</u>	<u>Inception Date</u>
<b>Seizert Capital Partners</b>	<b>\$631,386,606</b>	<b>-7.5%</b>	<b>12.3%</b>	<b>12.5%</b>	<b>--</b>	<b>13.6%</b>	<b>11/30/09</b>
S&P 1500/S&P 400 Value Blend		-0.3%	12.5%	14.3%	--	16.0%	
Style & Risk Adjusted Benchmark		-4.1%	10.9%	12.3%	--	12.7%	
Lipper Multi Core		-2.3%	11.6%	11.6%	--	12.1%	
<i>Excess Return</i>		-7.2%	-0.2%	-1.8%	--	-2.4%	
<i>Alpha</i>		-3.4%	1.4%	0.2%	--	1.0%	
<i>Pct. Rank vs. Lipper Multi Core</i>		90	46	42	--	24	
<b>LA Capital All-Cap Growth</b>	<b>394,205,786</b>	<b>8.1%</b>	<b>17.5%</b>	<b>15.3%</b>	<b>12.7%</b>	<b>10.9%</b>	<b>5/31/05</b>
S&P 1500 Growth		3.1%	13.5%	14.7%	11.7%	8.5%	
Style & Risk Adjusted Benchmark		2.9%	12.2%	13.1%	10.6%	9.0%	
Lipper Multi-Cap Growth		1.5%	12.8%	12.5%	10.6%	8.2%	
<i>Excess Return</i>		4.9%	4.0%	0.6%	1.0%	2.4%	
<i>Alpha</i>		5.1%	5.3%	2.2%	2.0%	1.9%	
<i>Pct. Rank vs. Lipper Multi-Cap Growth</i>		5	5	10	18	5	
<b>Concentrated Equity</b>	<b>385,055,482</b>	<b>-21.5%</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>-1.5%</b>	<b>5/31/13</b>
S&P 1500 Super Composite		-0.3%	--	--	--	10.1%	
Style & Risk Adjusted Benchmark		-4.4%	--	--	--	11.1%	
Lipper Multi Core		-2.3%	--	--	--	8.5%	
<i>Excess Return</i>		-21.2%	--	--	--	-11.6%	
<i>Alpha</i>		-17.1%	--	--	--	-12.6%	
<i>Pct. Rank vs. Lipper Multi Core</i>		100	--	--	--	99	
<b>LA Capital Deep Value</b>	<b>366,190,131</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>-8.6%</b>	<b>4/1/15</b>
S&P 1500 Value		--	--	--	--	-8.4%	
Style & Risk Adjusted Benchmark		--	--	--	--	-8.2%	
Lipper Multi-Cap Value		--	--	--	--	-9.2%	
<i>Excess Return</i>		--	--	--	--	-0.2%	
<i>Alpha</i>		--	--	--	--	-0.4%	
<i>Pct. Rank vs. Lipper Multi-Cap Value</i>		--	--	--	--	45	
<b>Clarkston Capital Small-Cap</b>	<b>248,289,675</b>	<b>11.0%</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>10.0%</b>	<b>1/1/14</b>
S&P 600		3.8%	--	--	--	0.0%	
Style & Risk Adjusted Benchmark		1.5%	--	--	--	1.7%	
Lipper Small-Cap Core		-0.7%	--	--	--	-2.2%	
<i>Excess Return</i>		7.2%	--	--	--	10.1%	
<i>Alpha</i>		9.5%	--	--	--	8.4%	
<i>Pct. Rank vs. Lipper Small-Cap Core</i>		1	--	--	--	1	
<b>Attucks Asset Management</b>	<b>246,038,777</b>	<b>-4.0%</b>	<b>10.7%</b>	<b>11.4%</b>	<b>8.5%</b>	<b>4.6%</b>	<b>11/30/07</b>
S&P 1500 Super Composite		-0.3%	12.5%	13.3%	9.9%	5.2%	
Style & Risk Adjusted Benchmark		0.1%	12.0%	13.0%	10.4%	6.3%	
Lipper Multi Core		-2.3%	11.6%	11.6%	8.8%	4.2%	
<i>Excess Return</i>		-3.7%	-1.8%	-1.9%	-1.3%	-0.6%	
<i>Alpha</i>		-4.2%	-1.3%	-1.6%	-1.8%	-1.7%	
<i>Pct. Rank vs. Lipper Multi Core</i>		73	72	60	63	44	
<b>Clarkston Capital Large-Cap</b>	<b>240,630,540</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>-3.4%</b>	<b>4/1/15</b>
S&P 500		--	--	--	--	-6.2%	
Style & Risk Adjusted Benchmark		--	--	--	--	-6.3%	
Lipper Large-Cap Core		--	--	--	--	-7.0%	
<i>Excess Return</i>		--	--	--	--	2.8%	
<i>Alpha</i>		--	--	--	--	3.0%	
<i>Pct. Rank vs. Lipper Large-Cap Core</i>		--	--	--	--	4	

**Manager Performance - Net of Fees**  
9/30/15

<u>Fund Name</u>	<u>Market Value</u>	<u>1-Year</u>	<u>3-Years</u>	<u>5-Years</u>	<u>7-Years</u>	<u>Inception</u>	<u>Inception Date</u>
<b>Bivium Capital Partners</b>	<b>\$237,515,776</b>	<b>-1.1%</b>	<b>10.5%</b>	<b>12.0%</b>	<b>9.3%</b>	<b>4.5%</b>	<b>11/30/07</b>
S&P 1500 Super Composite		-0.3%	12.5%	13.3%	9.9%	5.2%	
Style & Risk Adjusted Benchmark		-3.5%	11.5%	12.8%	10.3%	5.7%	
Lipper Multi Core		-2.3%	11.6%	11.6%	8.8%	4.2%	
<i>Excess Return</i>		-0.8%	-2.0%	-1.3%	-0.6%	-0.8%	
<i>Alpha</i>		2.4%	-1.0%	-0.8%	-1.0%	-1.2%	
<i>Pct. Rank vs. Lipper Multi Core</i>		40	72	51	45	49	
<b>NorthPointe All-Cap Core</b>	<b>146,072,892</b>	<b>-1.0%</b>	<b>11.3%</b>	<b>10.2%</b>	<b>7.9%</b>	<b>6.3%</b>	<b>10/31/04</b>
NorthPointe Blended Benchmark		3.8%	13.0%	13.2%	9.2%	8.0%	
Style & Risk Adjusted Benchmark		0.2%	11.4%	14.0%	10.5%	8.7%	
Lipper Multi Core		-2.3%	11.6%	11.6%	8.8%	6.9%	
<i>Excess Return</i>		-4.8%	-1.7%	-3.0%	-1.3%	-1.7%	
<i>Alpha</i>		-1.3%	-0.1%	-3.8%	-2.6%	-2.4%	
<i>Pct. Rank vs. Lipper Multi Core</i>		39	62	77	73	71	
<b>Munder Mid-Cap Core Growth</b>	<b>140,324,110</b>	<b>-1.1%</b>	<b>12.6%</b>	<b>12.5%</b>	<b>--</b>	<b>17.4%</b>	<b>4/30/09</b>
S&P 400 Mid-Cap Growth		4.9%	13.3%	13.5%	--	19.6%	
Style & Risk Adjusted Benchmark		7.4%	12.3%	13.0%	--	17.5%	
Lipper Mid-Cap Growth		0.7%	12.1%	12.0%	--	17.2%	
<i>Excess Return</i>		-6.0%	-0.7%	-1.0%	--	-2.1%	
<i>Alpha</i>		-8.5%	0.2%	-0.5%	--	0.0%	
<i>Pct. Rank vs. Lipper Mid-Cap Growth</i>		70	41	46	--	43	
<b>SMRS Large-Cap Value</b>	<b>97,546,694</b>	<b>-8.3%</b>	<b>9.4%</b>	<b>9.4%</b>	<b>5.9%</b>	<b>1.5%</b>	<b>7/31/07</b>
S&P 500 Value Index		-4.3%	11.2%	11.9%	7.7%	3.0%	
Style & Risk Adjusted Benchmark		-1.8%	10.1%	11.1%	8.2%	3.5%	
Lipper Large Value		-5.3%	10.7%	11.0%	7.8%	3.2%	
<i>Excess Return</i>		-4.0%	-1.9%	-2.5%	-1.8%	-1.5%	
<i>Alpha</i>		-6.6%	-0.7%	-1.8%	-2.2%	-2.0%	
<i>Pct. Rank vs. Lipper Large-Cap Value</i>		85	77	85	93	90	
<b>GW Capital</b>	<b>64,896,754</b>	<b>-12.4%</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>-5.7%</b>	<b>1/1/14</b>
S&P 500 Value		-4.0%	--	--	--	1.3%	
Style & Risk Adjusted Benchmark		-2.9%	--	--	--	1.9%	
Lipper Multi-Cap Value		-5.4%	--	--	--	-0.5%	
<i>Excess Return</i>		-8.3%	--	--	--	-7.1%	
<i>Alpha</i>		-9.5%	--	--	--	-7.6%	
<i>Pct. Rank vs. Lipper All-Cap Value</i>		92	--	--	--	88	
<b>Concentrated All-Cap Growth</b>	<b>25,848,579</b>	<b>-19.2%</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>-6.5%</b>	<b>5/31/13</b>
S&P 600		3.8%	--	--	--	10.3%	
Style & Risk Adjusted Benchmark		-0.3%	--	--	--	7.3%	
Lipper Small-Cap Core		-0.7%	--	--	--	7.4%	
<i>Excess Return</i>		-23.0%	--	--	--	-16.8%	
<i>Alpha</i>		-19.0%	--	--	--	-13.8%	
<i>Pct. Rank vs. Lipper Small-Cap Core</i>		99	--	--	--	100	



**STATE OF MICHIGAN  
RETIREMENT SYSTEMS**

**FIXED INCOME REVIEW**

**INVESTMENT ADVISORY COMMITTEE MEETING**

**DECEMBER 1, 2015**



**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	3.1%	2.5%	3.6%	5.9%	5.4%
Barclays Aggregate	2.9%	1.7%	3.1%	4.9%	4.6%
Peer Median Return	1.7%	1.9%	3.8%	5.7%	4.9%
Rank vs. Peers	32	33	63	44	29

- Long-Term Fixed Income outperformed the Barclay's Aggregate benchmark and its peer group on a one-year basis. The fixed income portfolio has outperformed the benchmark across all time periods. This outperformance 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 was a small drag on relative performance on a one-year basis as long-term interest rates fell.

### Strategy Update

- Allocation to Long-Term Fixed Income has remained stable for the last twelve months.
- 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 (7.2% of division assets) as well as securitized credit mandates (15.7% of division assets). This strategy 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.
- 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 increase in the duration of these benchmarks as well as the fact that the Barclay's Aggregate Index is increasingly comprised of U.S. Government securities. 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. Lower inflation and global growth expectations have contained long-term interest rates while the anticipation of future Federal Reserve monetary tightening has increased short-term rates. The 2-year/10-year U.S. Treasury spread decreased by roughly 50 basis points (bps) YOY to 1.4% as of September 30, 2015.
- The U.S. investment grade credit spreads widened during the 2015 calendar year by 38 bps to 169 bps. This widening was driven both by volatile markets in the previous quarter as well as a large amount of corporate bond issuance as year-to-date issuance is on a record pace.

- High-yield spreads widened by 147 bps during the past year to 630 bps. The energy and metals and mining sectors were the main contributors to this widening as weakness in the commodity markets persist. High-yield energy spreads ended the quarter at 1,019 bps. These are the highest spreads that the Energy sector has experienced since 2009 and the highest spreads in relation to the broad High Yield Index that the sector has experienced.
- 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 decreased to 143 bps by the end of the month. This is the lowest level recorded since the 2008 credit crisis.
- 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 expected tightening of monetary policy by the Federal Reserve. Several developed bond markets had ten-year yields lower than 1% as of September 30, 2015. This included a ten-year yield of -0.16% for Switzerland, 0.35% for Japan, and 0.58% for 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. We will also look to maintain our overweight to securitized assets within the portfolio.



# SMRS

## Long-Term Fixed Income

9/30/15

Markets	Amount	Total	% of Total
<b>Core</b> (in millions)			
LTFID Internal Dodge & Cox	\$4,654 245		
<b>Total Core</b>		<b>\$4,899</b>	<b>67.8%</b>
<b>Credit</b>			
Prudential	\$206		
<b>Total Credit</b>		<b>\$206</b>	<b>2.9%</b>
<b>Securitized Debt</b>			
Mid West Securitized Ops Principal Global Napier Park ABS Income	\$692 389 50		
<b>Total Securitized Debt</b>		<b>\$1,131</b>	<b>15.7%</b>
<b>High Yield</b>			
Columbia Management Prudential High Yield	\$308 209		
<b>Total High Yield</b>		<b>\$517</b>	<b>7.2%</b>
<b>Tactical</b>			
Pyramis Loomis Core Plus	\$261 202		
<b>Total Tactical</b>		<b>\$463</b>	<b>6.4%</b>

**TOTAL**

**\$7,216**

**100.0%**



# SMRS

## Fixed Income Holdings Portfolio Characteristics

Benchmark: Barclays Aggregate

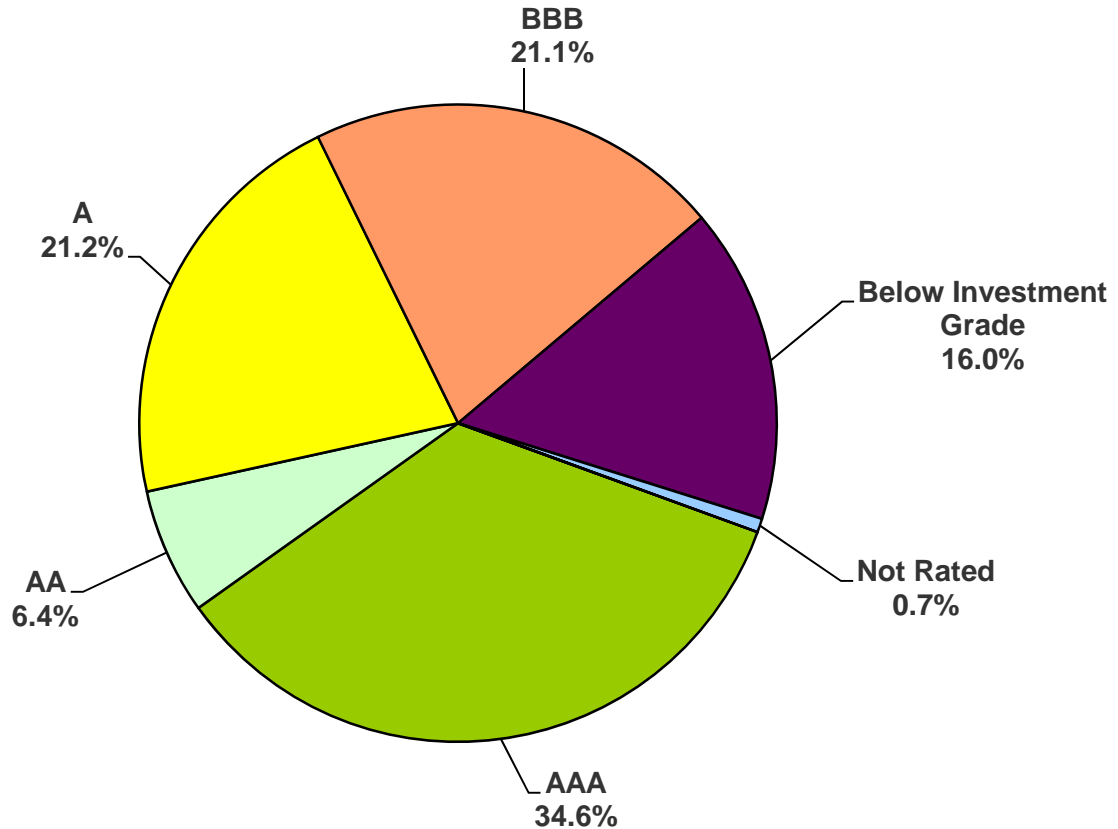
9/30/15

<u>Characteristic</u>	<u>Portfolio</u>	<u>Benchmark</u>	<u>Relative (%)</u>
Average Life	6.7	8.2	82
Average Life w/Cash Equiv.	6.5	8.2	80
Duration (Yrs)	5.3	5.8	91
Duration (Yrs) w/Cash Equiv.	5.2	5.8	90
Coupon (%)	3.5	3.3	106
Yield to Maturity (%)	3.4	2.3	148
Moody's Credit Rating	A3	Aa2	
S&P Credit Rating	BBB+	AA-	



# SMRS

## Fixed Income By Rating Total U.S. Long-Term Fixed Income 9/30/15



Market Value in Millions				
9/30/15				
	<u>Assets</u>	<u>Percent</u>	<u>Benchmark</u>	<u>Difference</u>
AAA	\$2,497	34.6%	60.4%	-25.8%
AA	460	6.4%	6.4%	0.0%
A	1,533	21.2%	16.5%	4.7%
BBB	1,523	21.1%	15.2%	5.9%
Not Rated	51	0.7%	1.2%	-0.5%
* Below Investment Grade	1,152	16.0%	0.3%	15.7%
<b>Total Investments</b>	<b>\$7,216</b>	<b>100.0%</b>	<b>100.0%</b>	

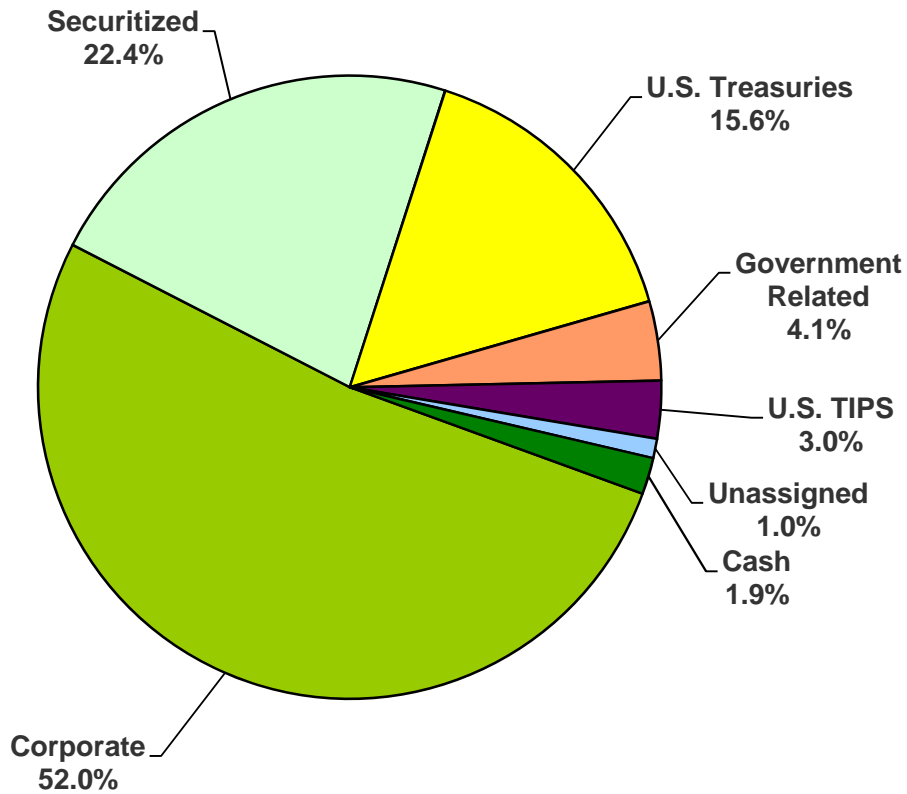
\* Comprised of approximately 9.1% High Yield Credit and 6.9% High Yield RMBS/ABS

Benchmark: Barclays US Aggregate



# SMRS

## Fixed Income By Asset Type Total U.S. Long-Term Fixed Income 9/30/15



Market Value in Millions				
9/30/15				
	<u>Assets</u>	<u>Percent</u>	<u>Benchmark</u>	<u>Difference</u>
Corporate	\$3,749	52.0%	23.9%	28.1%
Securitized	1,617	22.4%	30.8%	-8.4%
U.S. Treasuries	1,129	15.6%	36.3%	-20.7%
Government Related	298	4.1%	0.0%	4.1%
U.S. TIPS	216	3.0%	0.0%	3.0%
Unassigned	72	1.0%	9.0%	-8.0%
Cash	135	1.9%	0.0%	1.9%
<b>Total Investments</b>	<b><u>\$7,216</u></b>	<b><u>100.0%</u></b>	<b><u>100.0%</u></b>	

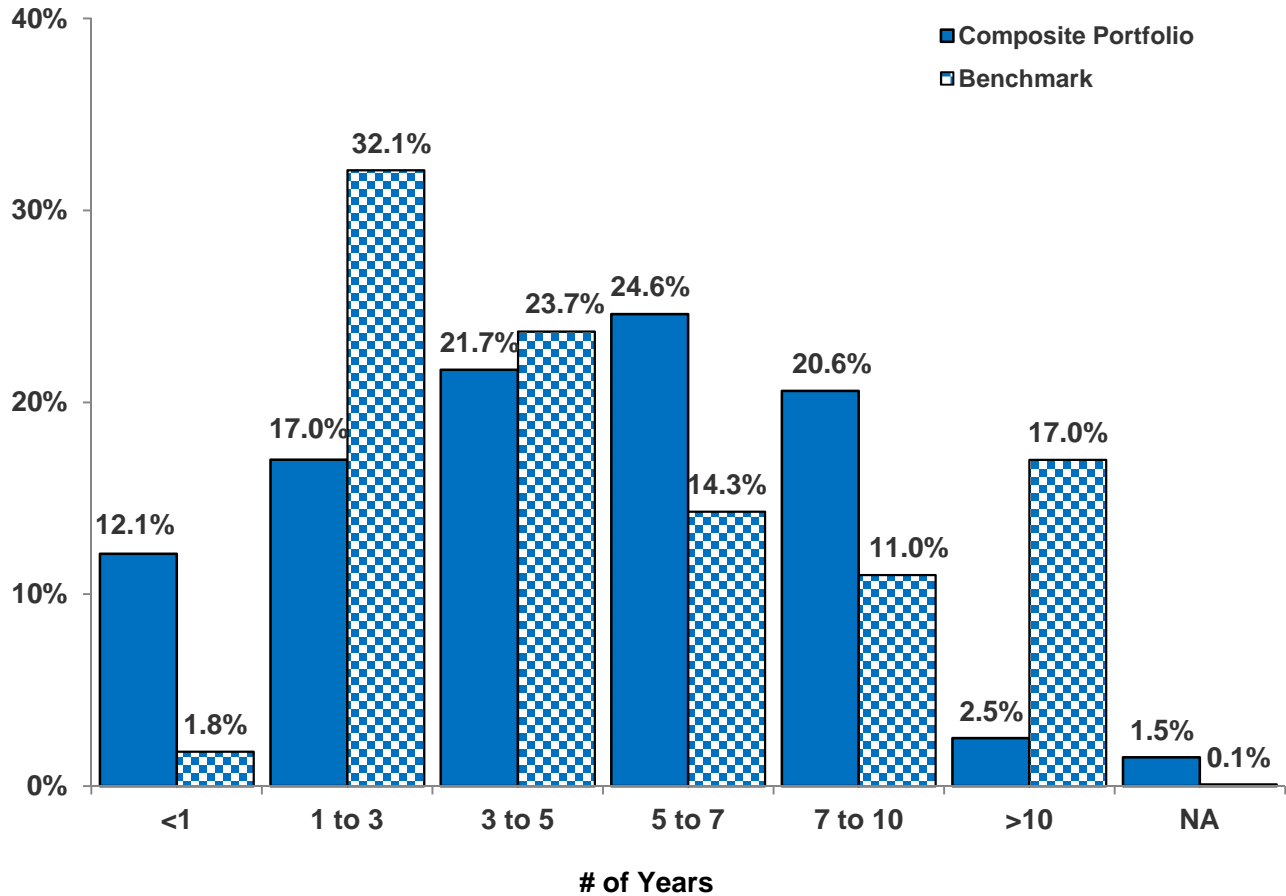
Benchmark: Barclays US Aggregate



# SMRS

## Duration Distribution

### Fixed Income Composite Versus Benchmark 9/30/15



Source: Factset

Market Value in Millions					
Duration	Assets	Portfolio Weight	Benchmark Weight	Portfolio Duration	Benchmark Duration
<1	\$876	12.1%	1.8%	1.0	1.2
1 to 3	1,224	17.0%	32.1%	2.3	1.9
3 to 5	1,567	21.7%	23.7%	4.2	4.0
5 to 7	1,775	24.6%	14.3%	6.1	6.0
7 to 10	1,486	20.6%	11.0%	7.9	8.1
>10	178	2.5%	17.0%	15.1	15.3
NA	110	1.5%	0.1%	0.0	0.0
<b>Total</b>	<b>\$7,216</b>	<b>100.0%</b>	<b>100.0%</b>	<b>5.2</b>	<b>5.8</b>

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

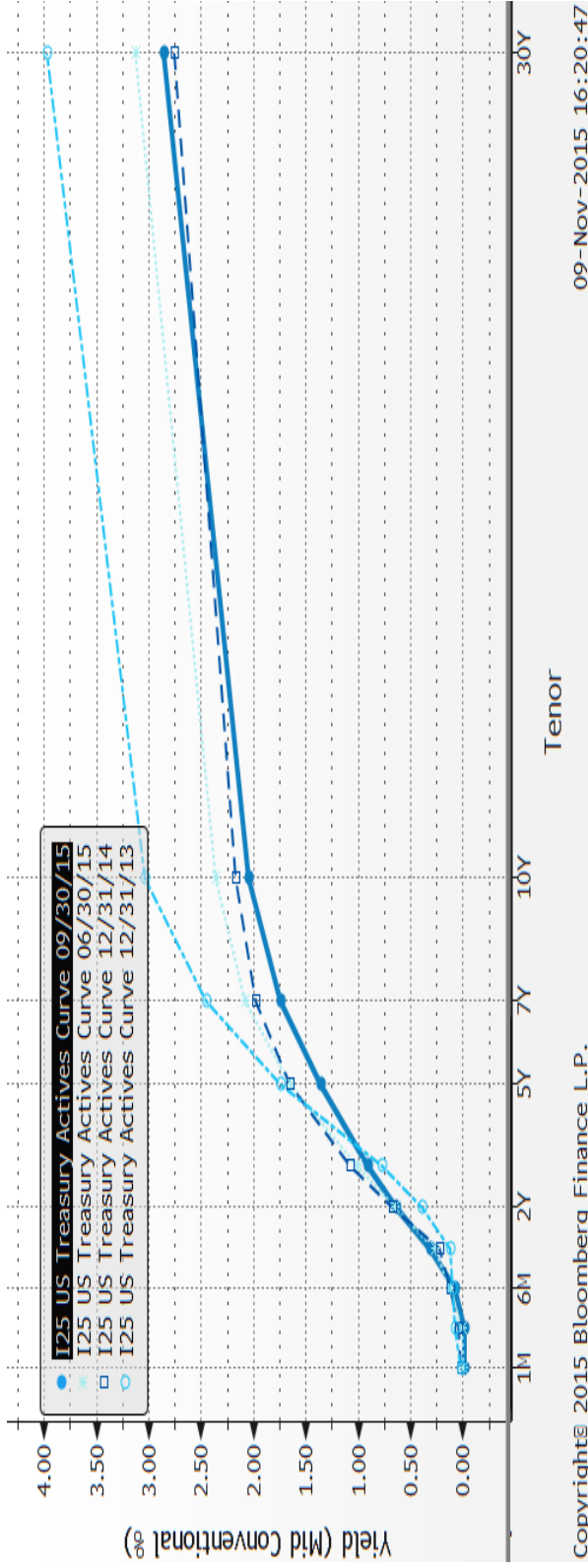
9/30/15

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

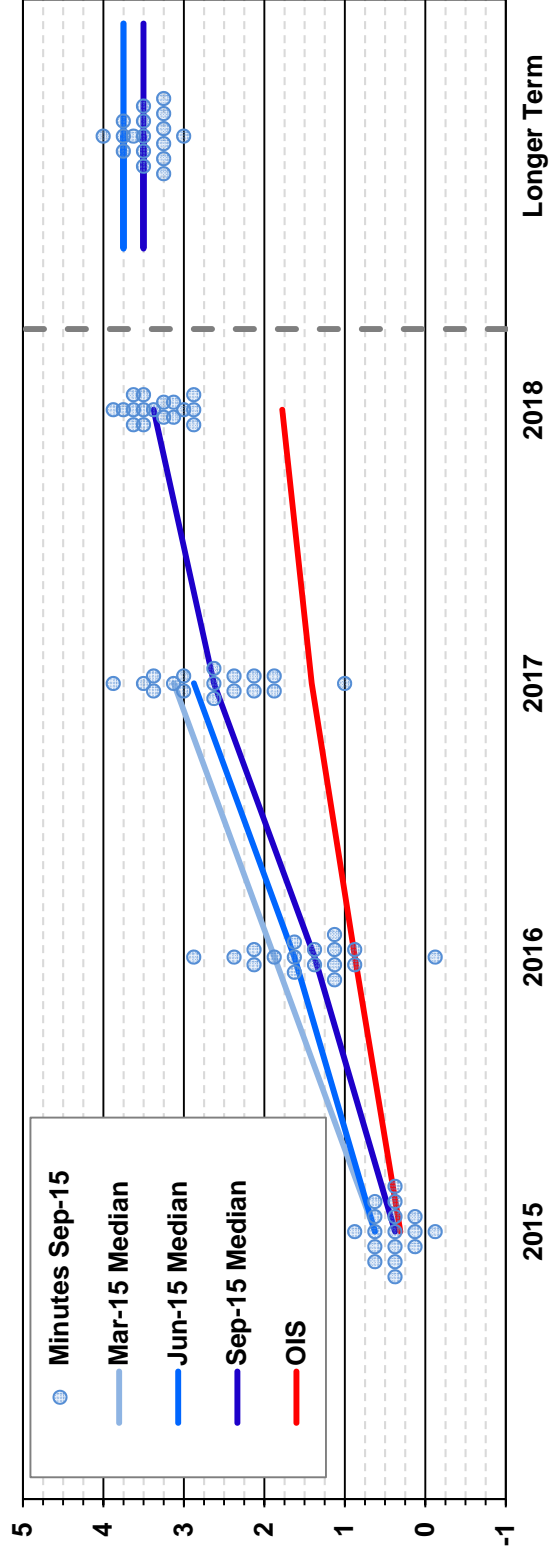
	<u>Market Value</u>	<u>1-Year</u>	<u>3-Years</u>	<u>5-Years</u>	<u>7-Years</u>	<u>10-Years</u>
<b>Total Fixed Income</b>	<b>\$7,215,644,710</b>	<b>2.9%</b>	<b>2.3%</b>	<b>3.5%</b>	<b>5.8%</b>	<b>5.3%</b>
<i>Barclays Aggregate Bond Index</i>	<i>N/A</i>	<i>2.9%</i>	<i>1.7%</i>	<i>3.1%</i>	<i>4.9%</i>	<i>4.6%</i>
<b>Internal Fixed Income</b>	<b>\$4,653,995,797</b>	<b>3.7%</b>	<b>2.3%</b>	<b>3.3%</b>	<b>5.6%</b>	<b>5.3%</b>
<b>External Fixed Income</b>	<b>\$2,561,648,914</b>	<b>1.3%</b>	<b>2.1%</b>	<b>4.0%</b>	<b>6.4%</b>	<b>--</b>
<b>MetWest Securitized Opportunities</b>	691,621,927	0.6%	--	--	--	--
<b>Principal CMBS</b>	388,808,867	4.2%	9.1%	12.7%	10.5%	--
<b>Pyramis Tactical Bond Fund</b>	261,118,828	1.6%	--	--	--	--
<b>Dodge &amp; Cox Core</b>	244,644,689	0.9%	2.4%	3.8%	6.1%	--
<b>Prudential Investment Grade</b>	205,883,212	1.7%	2.7%	4.7%	8.3%	--
<b>Loomis Sayles CorePlus</b>	201,814,480	-2.0%	--	--	--	--
<b>Napier Park ABS Income</b>	50,316,124	N/A				
<i>Barclays Aggregate Bond Index</i>	<i>N/A</i>	<i>2.9%</i>	<i>1.7%</i>	<i>3.1%</i>	<i>4.9%</i>	<i>4.6%</i>
<b>Columbia Management High Yield</b>	308,507,808	0.7%	--	--	--	--
<b>Prudential High Yield</b>	208,932,979	0.4%	--	--	--	--
<i>Barclays US HY BA/B 2% Cap</i>	<i>N/A</i>	<i>-2.0%</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>



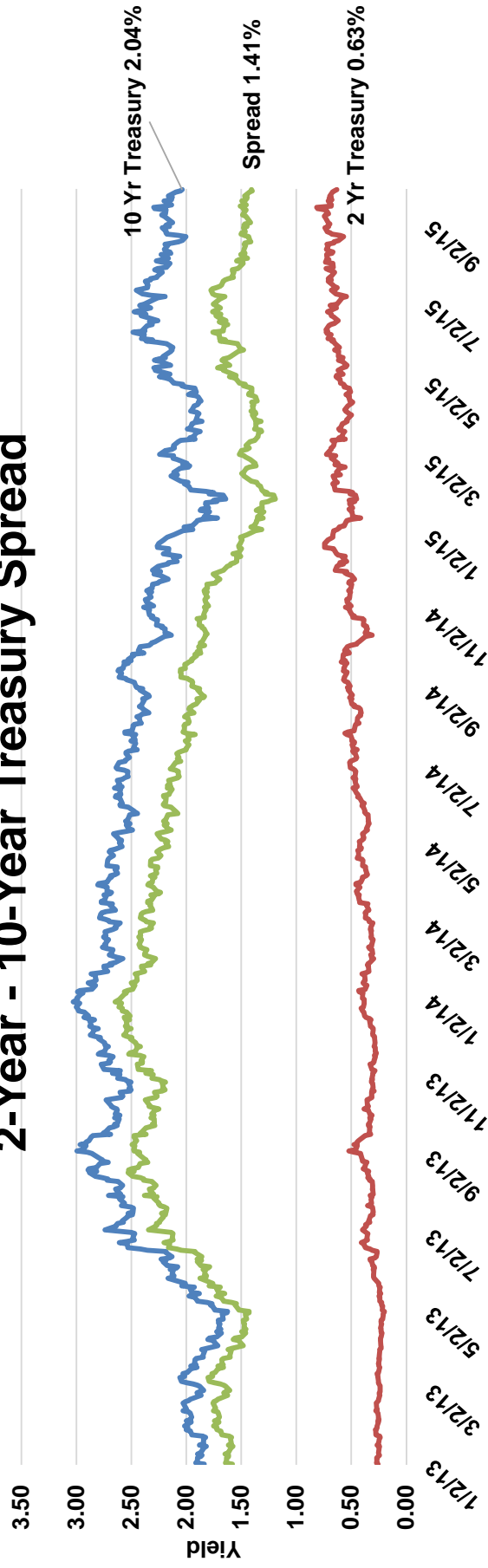
# U.S. Yield Movement



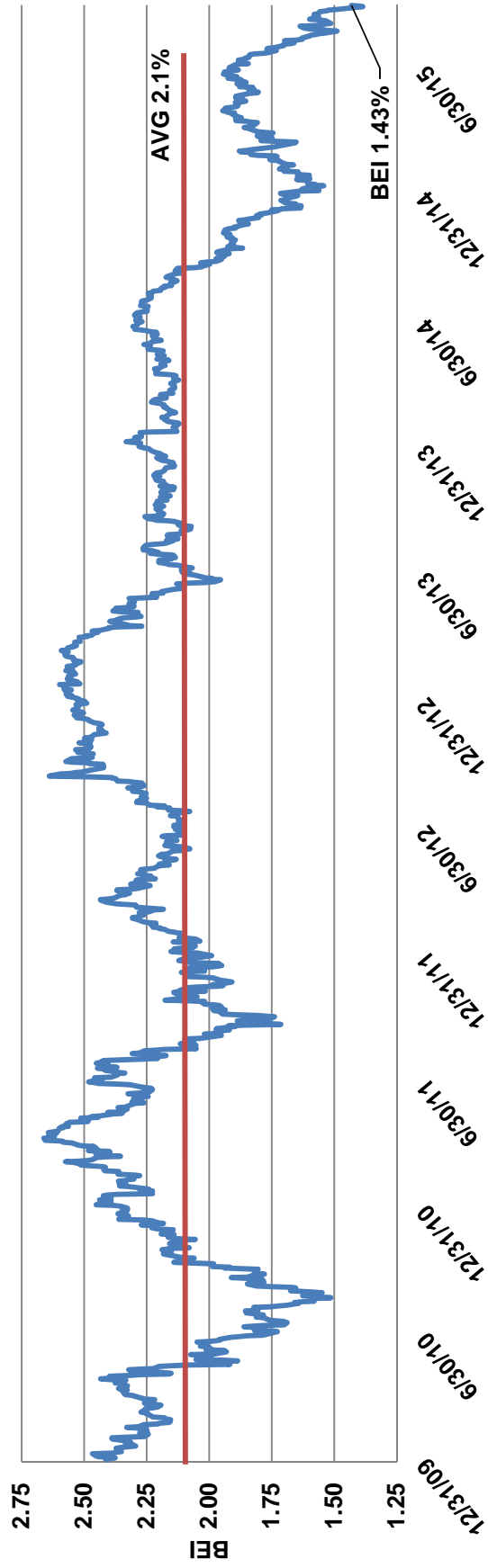
# FOMC DOT PLOT



## 2-Year - 10-Year Treasury Spread

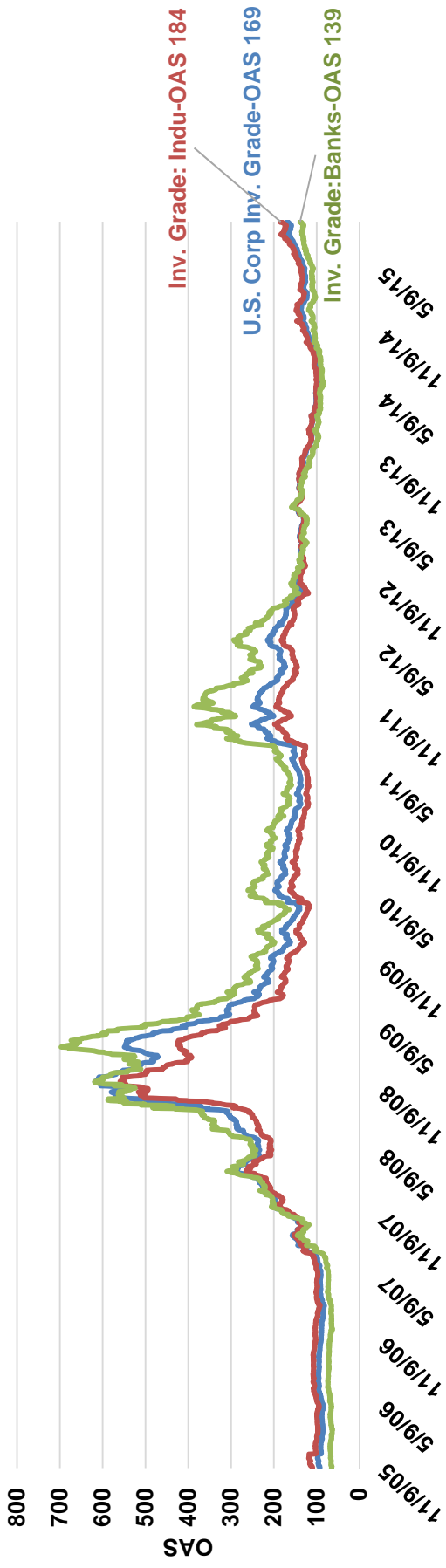


## 10-Year U.S. Treasury Breakeven Inflation

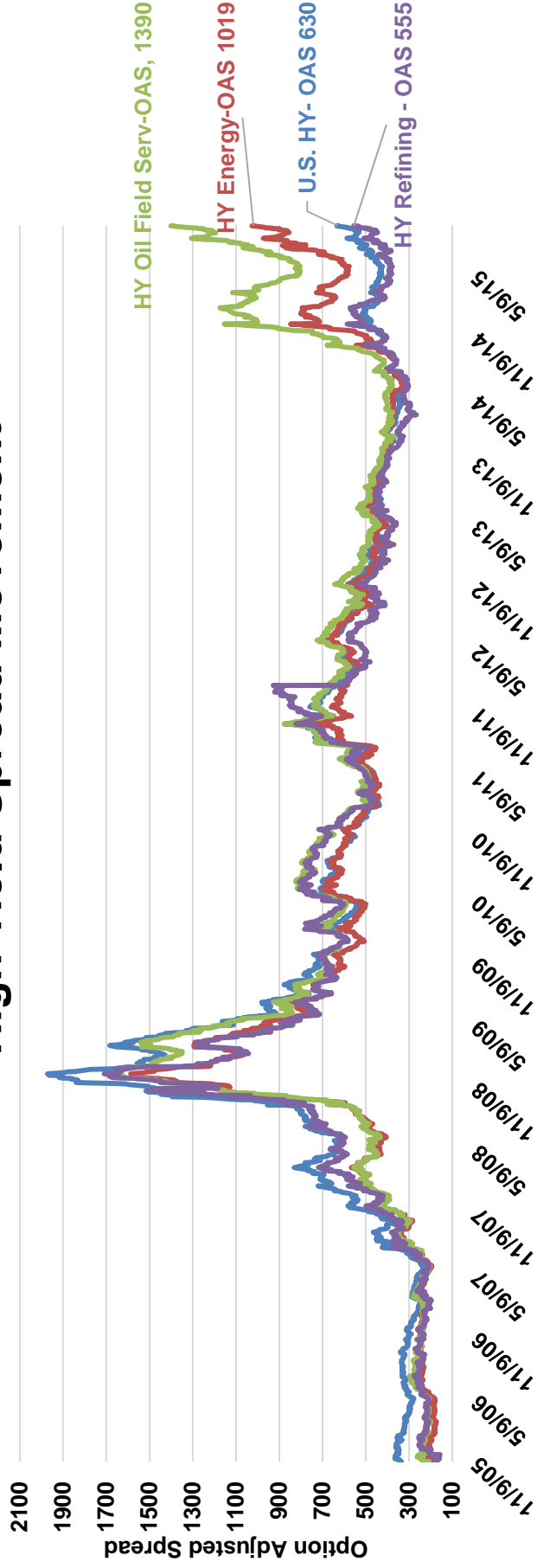


Source: Bloomberg

# Investment Grade OAS

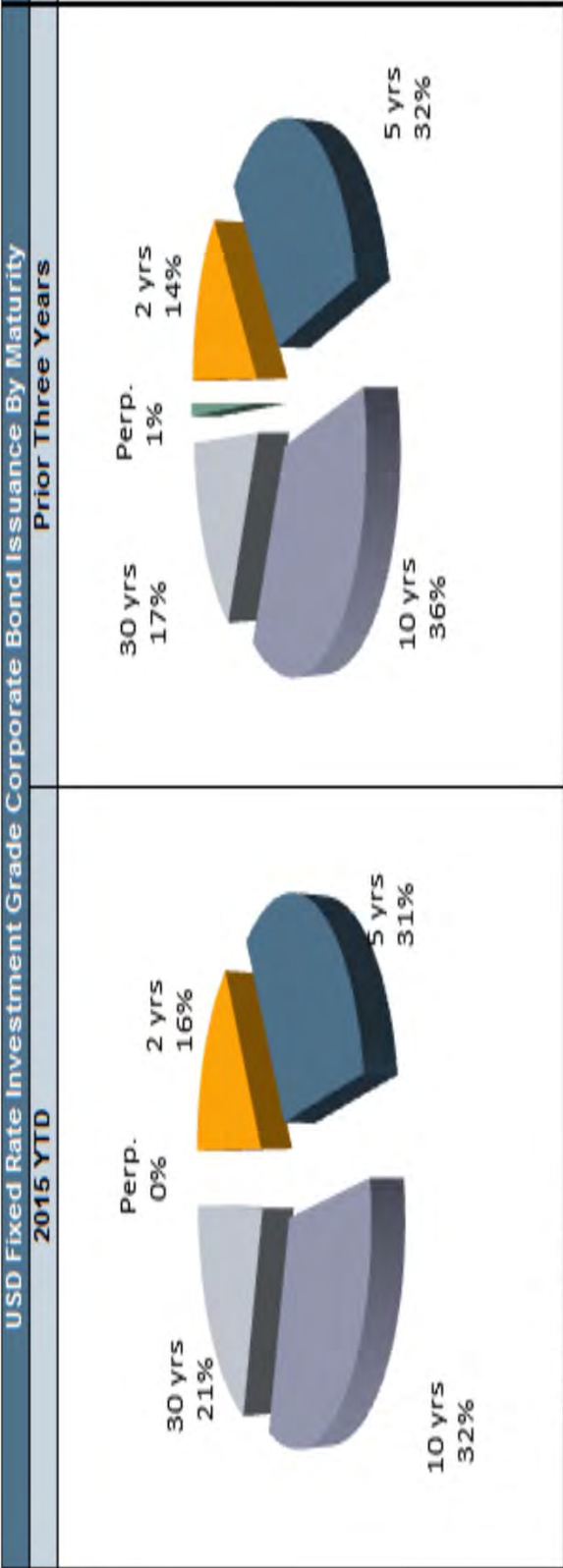


# High Yield Spread Movement

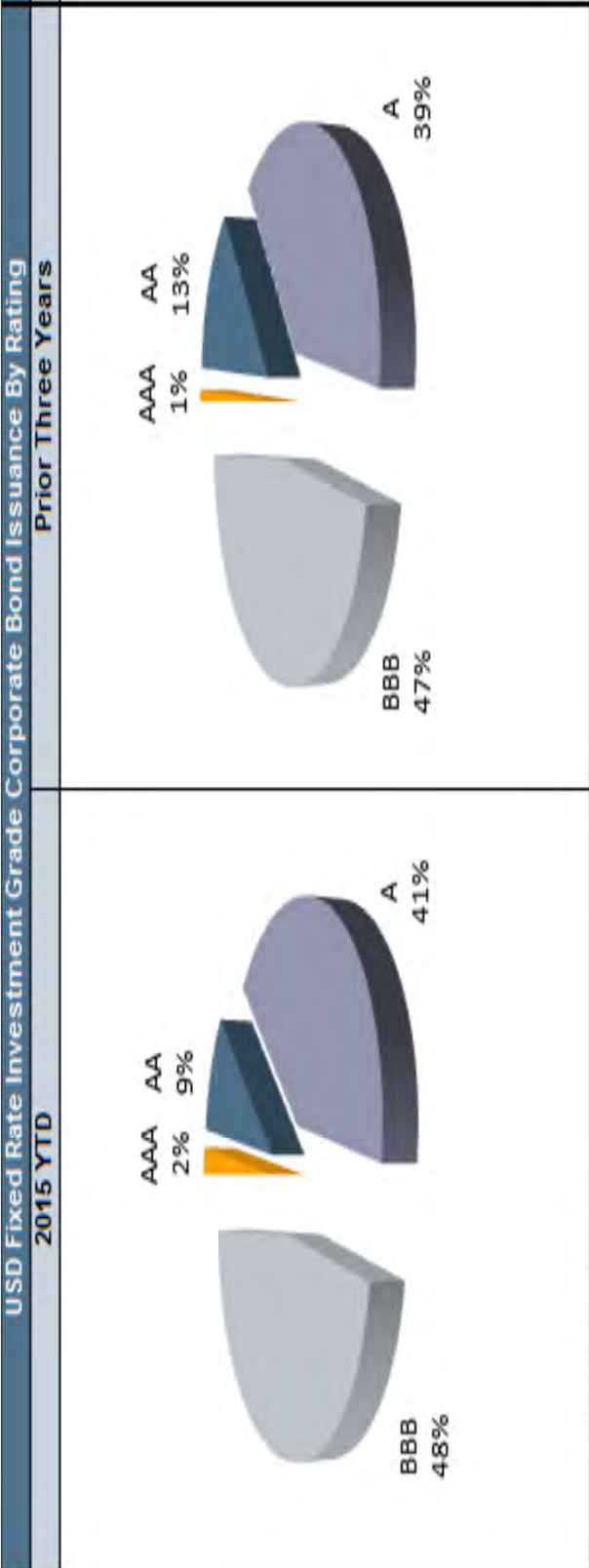


Source: Bloomberg

# USD Fixed Rate Investment Grade Corporate Bond Issuance by Maturity

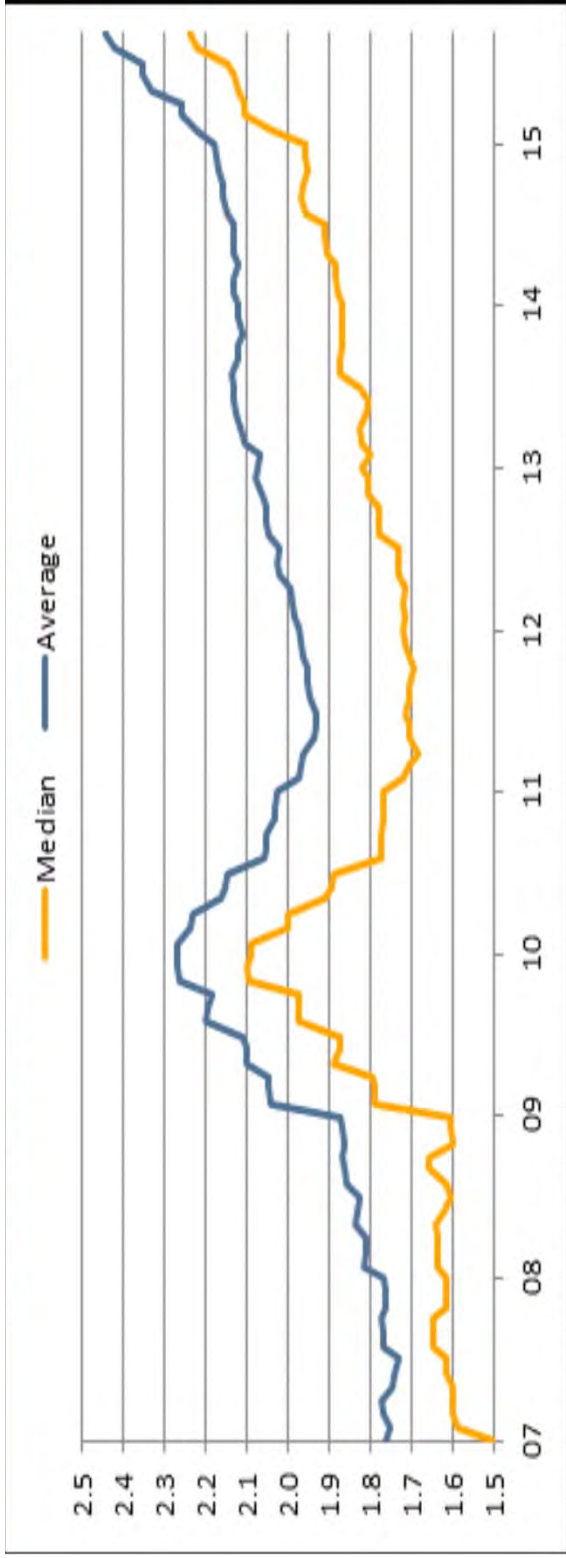


# USD Fixed Rate Investment Grade Corporate Bond Issuance by Rating



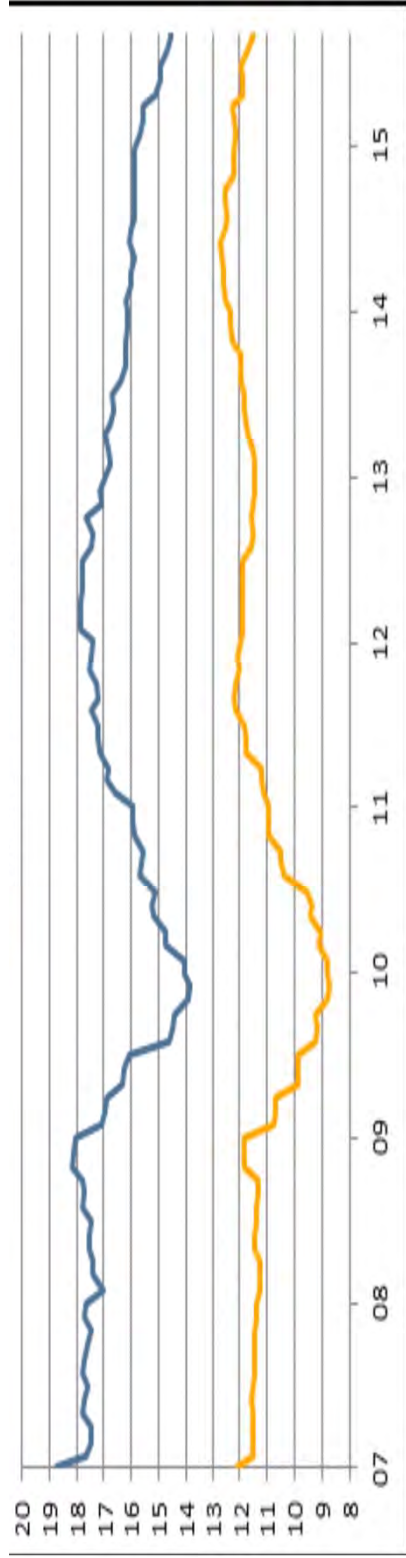
Source: CreditSights

# Total Debt/EBITDA for N. American High Grade Non-Financial Companies



Source: CreditSights Risk Products

# Interest Coverage Ratio for N. American High Grade Non-Financial Companies

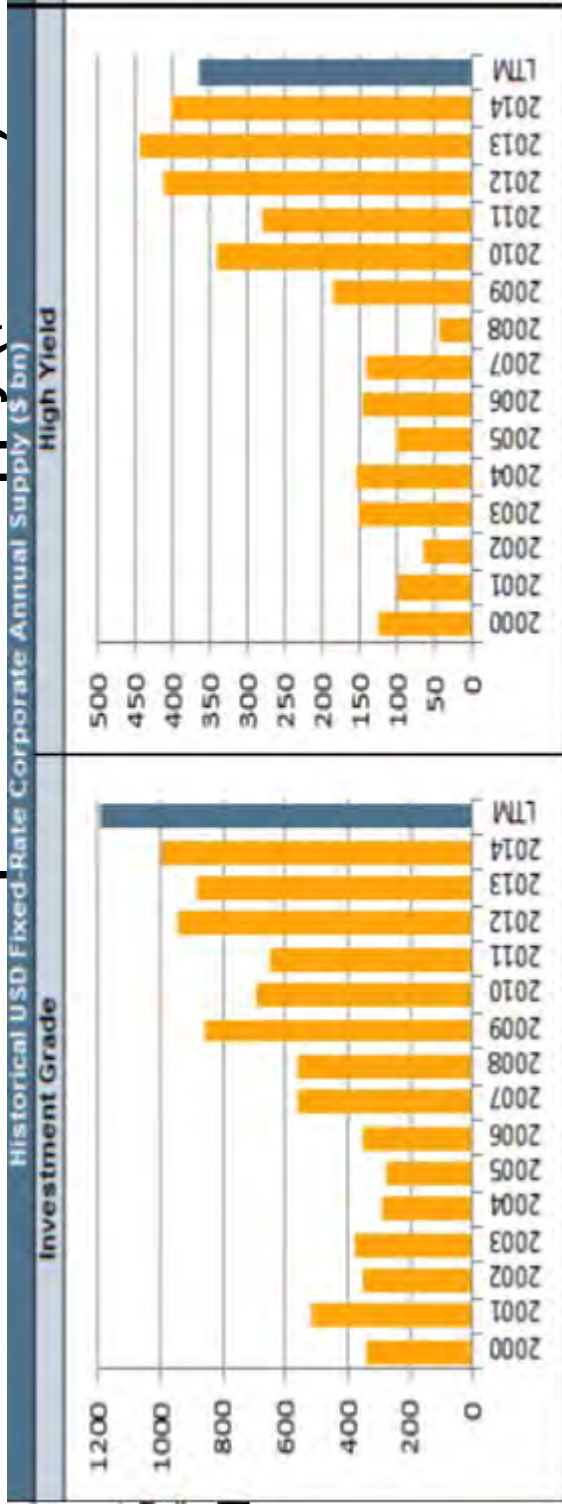


Source: CreditSights Risk Products

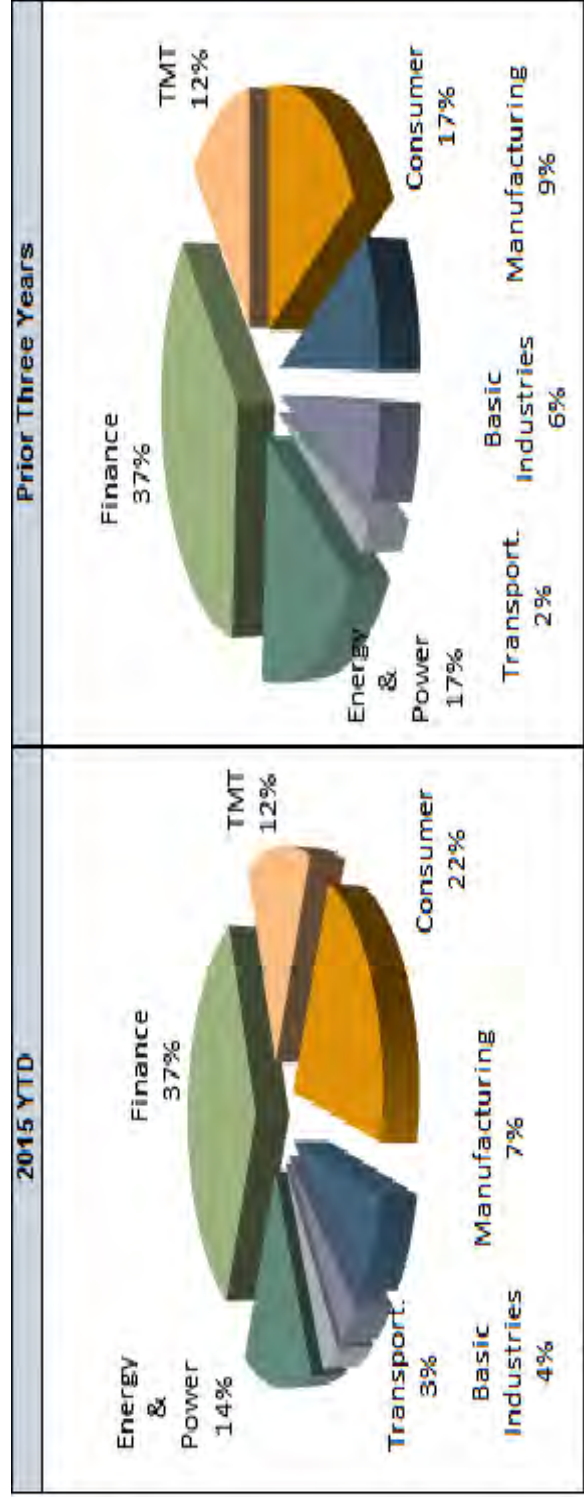
Average excludes values above 95th percentile and below 5th percentile to mitigate outliers.



# USD Fixed-Rate Corporate Bond Supply (\$ billion)

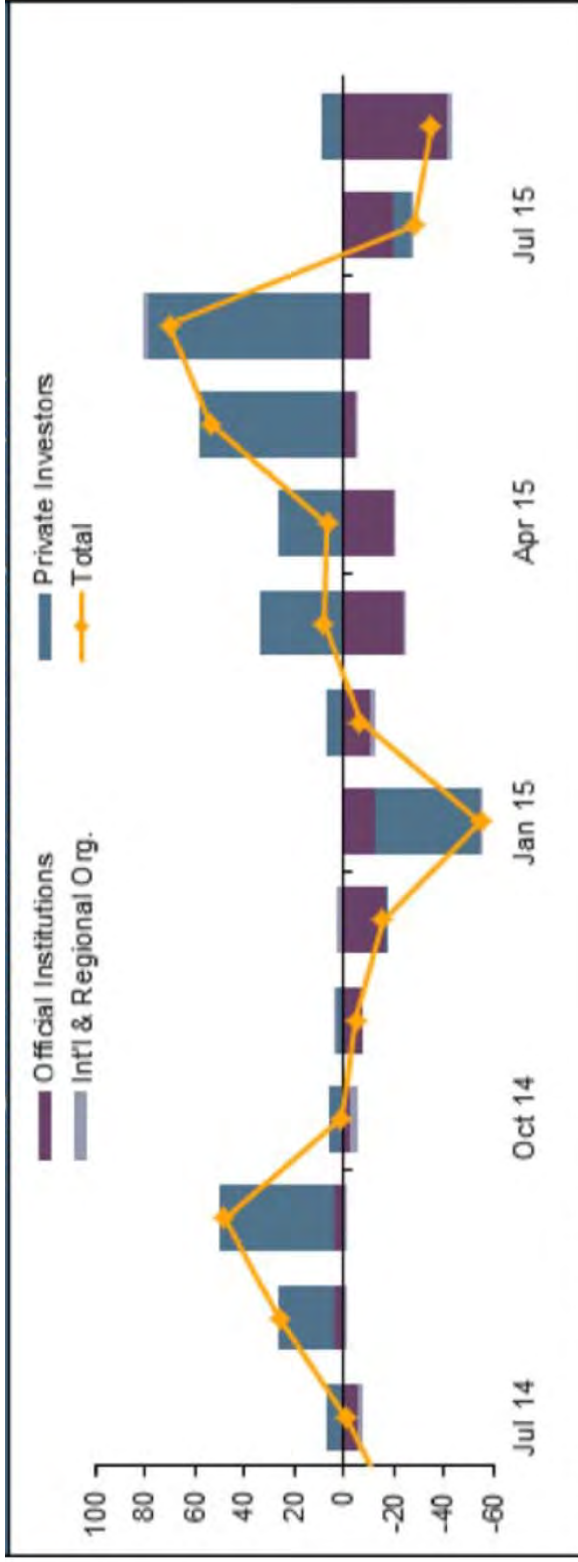


# USD Fixed-Rate Corporate Bond Issuance By Sector



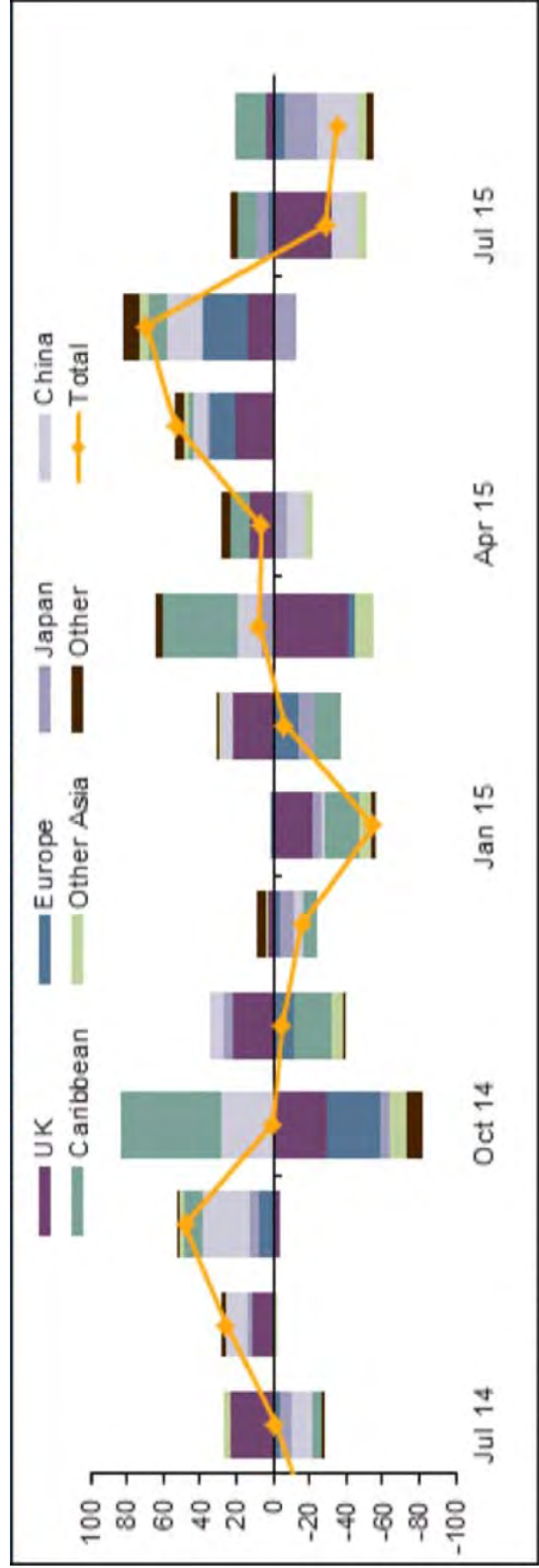
Source: CreditSights

## Foreign Net Purchases of U.S. Treasuries by Sector (\$ billion)



Source: CreditSights, US Treasury

## Foreign Net Purchases of U.S. Treasuries by Location (\$ billion)



Source: CreditSights





**STATE OF MICHIGAN  
RETIREMENT SYSTEMS**

**ABSOLUTE AND REAL RETURN REVIEW**

**INVESTMENT ADVISORY COMMITTEE MEETING**

**DECEMBER 1, 2015**



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



## EXECUTIVE SUMMARY

### Absolute Return

MPSERS Plan	1-Year	3-Years	5-Years	7-Years	10-Years
Absolute Return	2.4%	7.2%	5.7%	2.2%	N/A
HFRI FOF Conservative*	1.9%	4.9%	3.4%	1.2%	N/A

\*One month lag on the index

- The strategy of the Absolute Return portfolio is to further 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.
- Multi-Strategy/Event – The strategy was negative for the quarter. Given the turbulence in energy markets, managers suffered some short term pain, driven by midstream sector and credit exposure which was a drag throughout the quarter. Other detractors were driven by the pullback in equity markets in August and September as Event managers tended to be positioned net long, losing money in healthcare and industrials positions.
- Credit – Performance for credit managers was mixed for the quarter. Spreads across credit products widened in the third quarter. Long-leaning corporate strategies, although slightly insulated by the idiosyncratic and uncorrelated nature of many of their positions, still tended to suffer as a result of the broader “risk-off” environment. In particular, managers who were focused on smaller capital structures witnessed significant negative mark-to-market moves in a handful of their core positions, as liquidity dried up disproportionately for smaller companies. Furthermore, these off-the-run companies have received limited sponsorship from other market participants, which has exacerbated their selloff. Relative value / trading oriented credit strategies with more liquid portfolios and the flexibility to lower net exposures during times of heightened volatility, fared better than longer leaning fundamental and distressed strategies. Mortgage and structured credit managers performed well on the quarter, posting slight gains as their books proved resilient to the broader “risk-off” environment. While most ABS sectors did trade wider on the quarter, positive carry provided stability and offset these losses for the majority of structured credit managers.
- Equity – Performance over the quarter was positive, which was a good result especially given the general “risk-off” environment for equities characterized by heightened global volatility and against the backdrop of broader equity markets down 6.4% (S&P 500). In late August, investors grew increasingly concerned that a slowing China would have strong negative implications on the global economy. Despite the fall in markets in August, equity managers delivered alpha, which benefitted the portfolio in a market down over 6%. September saw heightened levels of sector dispersion most notably the rotation out of healthcare names. Realizing the sector overhang, managers allowed the negative performance to naturally bring down net long exposure and at the same time increased the number of short positions. The equity portfolio's exposure to market neutral strategies benefitted as managers were able to capture meaningful alpha especially on the short side over the quarter. These lower net, market neutral strategies fared well over the third quarter delivering strong performance largely from the short sides of their books with winners coming from the Gaming, Communications, Internet and Consumer Products sectors.
- Diversifying – Performance for diversifying strategies was mixed but negative overall for the quarter as global macro was most notably challenged. While the quarter got off to a good start,

August proved more challenging given the China-induced concerns over global growth and sell-off in risk assets. Manager performance during the month suffered from long equity positions in both Europe and China as well as short EUR and JPY FX positions. Although core views were not largely changed, risk levels were taken down across the board as managers moved to protect portfolios. In contrast, the quarter proved profitable for CTA managers. Short positions across commodities, in both energy and metals, contributed to performance in both the first and last month of the quarter.

- 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 strategies. We continue to favor managers who are able to generate returns on both the long and short sides and continue to observe the macro opportunity set while looking for attractive bottoms up opportunities.
- During the quarter, no new commitments were closed.

### **Real Return and Opportunistic**

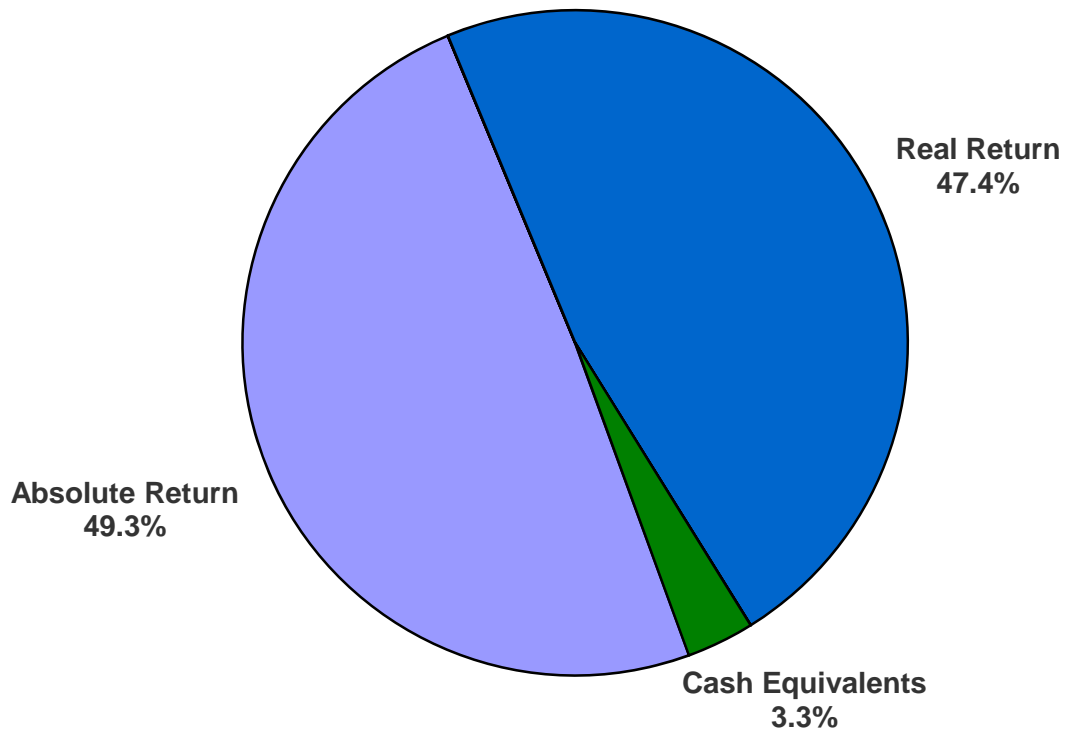
<b>MPSERS Plan</b>	<b>1-Year</b>	<b>3-Years</b>	<b>5-Years</b>	<b>7-Years</b>	<b>10-Years</b>
Real Return and Opport.	7.3%	12.5%	10.1%	N/A	N/A
Custom Benchmark	6.5%	7.0%	7.4%	N/A	N/A

- The strategy 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.
- Senior Secured Credit – The spread on the LSTA Leveraged Loan Index has widened from L+492 to L+547 since the beginning of the second quarter, its widest level since September 2012. The dislocation has been mostly concentrated within commodity-related sectors, but the volatility is beginning to spread to more defensive sectors as uncertainty increases. The supply and demand technical backdrop in the loan and high yield markets has not been overly negative as the loan market has grown moderately in size since January. The S&P/LSTA Leveraged Loan Index and Merrill Lynch U.S. High Yield Master II Index returned -1.36% and -4.90% respectively, for the quarter. The loan market size has increased modestly from \$830 billion at the beginning of January to \$844 billion at the end of September. Year-to-date total loan demand has held strong at \$65.9 billion, with \$77.6 billion in CLO issuance offsetting \$11.7 billion in redemptions from retail loan funds.
- Direct Lending – During the third quarter, managers have watched the number of high probability loan prospects in their pipelines swell to their five-year highs. Some of this growth has been driven by one of the largest players deciding to exit the market. The comfort level around alternative or private lending funds continues to grow and they are becoming the first option for middle market firms. Banks’ lending capabilities on the other hand are becoming more adversely affected by Basel III and other regulation as we approach end of the year deadlines.
- Energy Funds – For the quarter, Spot WTI crude prices were down 24% and spot natural gas prices were down 11%, with long-dated oil and gas commodity prices decreasing by similar amounts. With only approximately 30% 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.
- During the quarter, one new commitment was closed:
  - \$30 million Innocor ~ Private Credit



# SMRS

## Absolute, Real Return and Opportunistic 9/30/15



Market Value in Millions				
	<u>9/30/15</u>		<u>6/30/15</u>	
Absolute Return	\$4,317	49.3%	\$4,342	51.8%
Real Return	4,143	47.4%	3,979	47.4%
Cash Equivalents	289	3.3%	70	0.8%
<b>Total Investments</b>	<b><u>\$8,749</u></b>	<b><u>100.0%</u></b>	<b><u>\$8,391</u></b>	<b><u>100.0%</u></b>



# **SMRS**

## **Absolute Return**

### **9/30/15**

#### **Net Market Values by Entity**

	<u><b>Net Market Value</b></u>
Apollo Offshore Credit Strategies Fund Ltd.	\$ 140,957,470
Brevan Howard Multi-Strategy Fund, L.P.	53,581,575
Drawbridge Opportunities Fund	187,842,828
* EnTrust White Pine Partners L.P.	366,739,481
FrontPoint Multi-Strategy Fund Series A, L.P.	1,977,032
JM IV, LP	56,987,673
MP Securitized Credit Master Fund, L.P.	75,010,617
* Sand Hill, LLC	550,507,452
Spartan Partners L.P.	7,489,254
* <u>Tahquamenon Fund L.P.</u>	<u>2,875,634,433</u>
<b>Total Market Value</b>	<b><u>\$4,316,727,815</u></b>

\* Fund of Funds

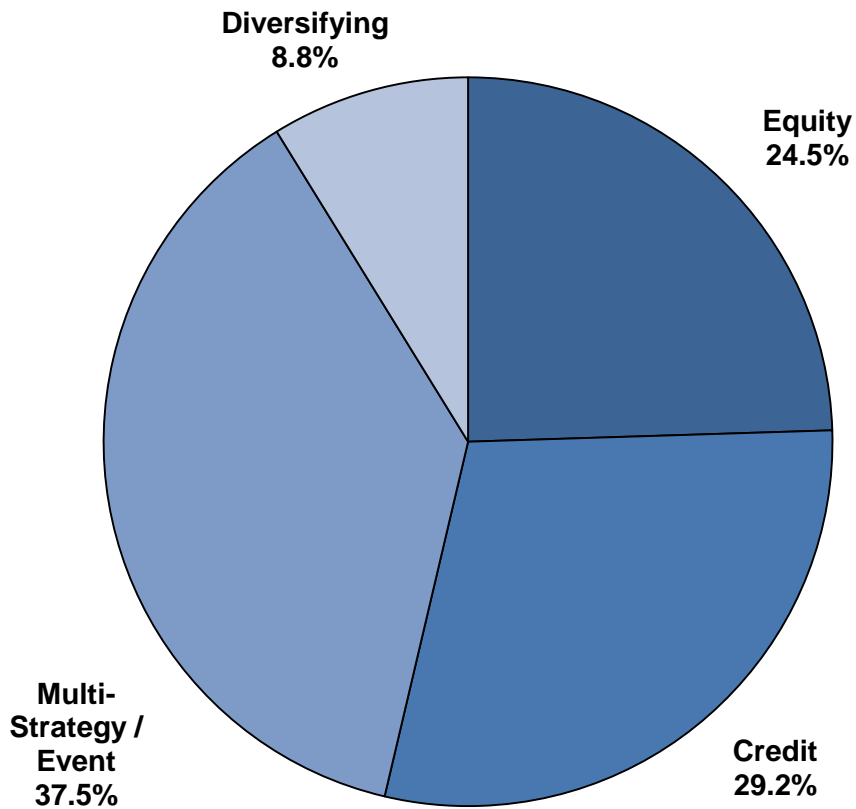


# SMRS

## Absolute Return

### 9/30/15

### Investments By Strategy



Strategy Breakdown			
Underlying Funds:	102	Median Position Size:	0.4%
Strategies:	4	Average Position Size:	1.0%
Relationships:	9	Largest Position Size:	7.3%



# SMRS

## Real Return and Opportunistic

### 9/30/15

#### Net Market Value by Entity

	<u>Net Market Value</u>	<u>Unfunded Commitment</u>
* Abernathy Fund I, LLC	\$ 287,311,840	\$ 87,940,586
Apollo Credit Opportunities Fund III LP	50,612,863	41,130,650
Apollo European Principal Finance Fund II	41,140,360	15,951,002
Apollo Financial Credit Investments Fund II	229,103,845	212,269,359
Apollo HK TMS Investments Holdings LP	29,710,158	-
Apollo Offshore Credit Fund Ltd	264,411,377	-
Apollo Offshore Structured Credit Recovery Fund II	30,511,385	-
Apollo Offshore Structured Credit Recovery Fund III	102,626,037	125,994,716
Blackstone Strategic Capital Holdings LP	11,302,940	114,159,057
Blue Peninsula Fund LP	32,516,227	167,660,000
Carlyle Intl Energy Partners LP	9,533,567	39,531,487
Carlyle Energy Mezzanine Opportunity Fund	-	50,000,000
* Content Holdings LLC	528,336,054	86,167,749
Elegantree Fund SPC	46,387,451	5,076,770
Energy Recapitalization and Restructuring Fund LP	39,408,891	18,889,372
ERR Michigan Holdings LP	8,721,906	2,335,070
* Fairfield Settlement Partners, LLC	59,793,341	58,718,523
FCO MA MI LP	19,841,811	179,921,607
Fortress MSR Opportunities Fund I A LP	117,754,132	-
* Galaxie Ave. Partners, LLC	99,900,000	-
GSO Credit Alpha Fund LP	19,546,382	80,326,991
Highbridge Principal Strategies - Specialty Loan Fund III	131,126,587	18,927,335
Hopen Life Sciences Fund II	5,092,577	3,900,000
** <b>Innocor</b>	<b>30,000,000</b>	-
JP Morgan Global Maritime Investment Fund LP	72,117,613	44,341,259
KANG Fund LP	17,143,924	-
KKR EI&G Fund	18,547,397	40,158,232
KKR Lending Partners I LP	66,477,353	-
KKR Lending Partners II LP	34,835,507	66,466,087
Lakewater LLC, Series 1	167,083,797	8,165,104
Lakewater LLC, Series 2	287,430,986	19,464,605
Lakewater LLC, Series 3	311,036,399	-
Lakewater LLC, Series 4	49,803,049	26,234,280
Lakewater LLC, Series 5	32,371,922	217,706,524
Merit Energy Partners LP	835,213	34,154,498
MidCap FinCo Holdings LTD	123,098,070	176,455,004
Napier Park Aircraft Leasing Vehicle I, LLC	29,569,415	69,667,620
Orion Mine Finance Fund 1A LP	32,987,866	16,390,057
Orion Mine Finance Fund I LP	92,137,976	27,418,202
Renaissance Venture Cap Fund II LP	4,879,864	19,500,000
REOG Fund II Coinvest LP	9,187,044	15,579,217
Ridgewood Energy Oil & Gas II	74,173,520	62,041,595
Ridgewood Energy Oil & Gas III	1,135,722	223,864,278
SJC Direct Lending Fund I, LP	49,342,229	16,746,006
SJC Direct Lending Fund II, LP	264,504,239	113,291,499
* Social Network Holdings, LLC	169,431,952	-
Varo Coinvestment LP	10,008,074	-
Warwick Energy Partners III	27,534,085	22,465,915
Income Accruals	2,663,014	-
<b>Total Market Value</b>	<b><u>\$ 4,143,025,961</u></b>	<b><u>\$ 2,529,010,255</u></b>

\* Fund of Funds

\*\* **New Commitment**



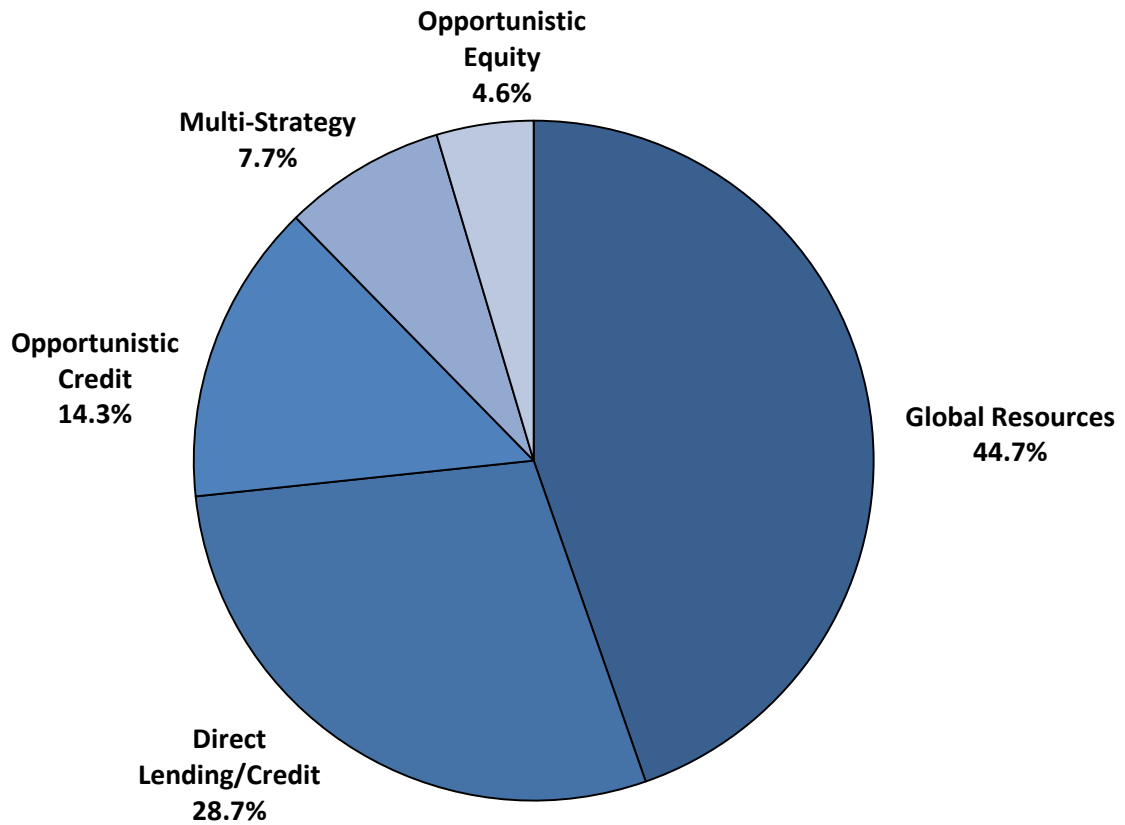


# SMRS

## Real Return and Opportunistic

9/30/15

### Investments By Strategy



Investment Strategy	
Global Resources	\$1,848,814,579
Direct Lending/Credit	\$1,186,933,840
Opportunistic Credit	\$594,079,128
Multi-Strategy	\$319,828,067
Opportunistic Equity	\$190,707,333



**STATE OF MICHIGAN  
RETIREMENT SYSTEMS**

**INTERNATIONAL EQUITY REVIEW**

**INVESTMENT ADVISORY COMMITTEE MEETING**

**DECEMBER 1, 2015**



**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	-8.7%	4.0%	3.5%	4.4%	2.7%
Benchmark Return	-12.2%	2.6%	2.2%	2.6%	1.8%
Peer Median Return	-9.5%	4.6%	4.0%	4.3%	3.9%
Rank vs. Peers	40	59	59	44	80

- International equity returns trailed U.S. equity returns in the third quarter as slowing growth and commodities pricing weakness impacted emerging markets. Developed market performance led emerging markets with better economic growth and currencies performance. Currency levels were mixed with the U.S. dollar stabilizing to the Euro and gaining strongly against the currencies of commodity related countries. Australian, Canadian, and emerging markets were negatively impacted by slower Chinese demand. Significant geopolitical risks remain unresolved, and political reforms are advancing very slowly in the more difficult economic environment. Chinese mainland A-Share Securities continue to influence overall volatility. Our international portfolio returns have exceeded their internal benchmark over all time periods.
- Performance comparisons with peer group returns remain difficult for longer periods. Peers have had a lower allocation to emerging markets when those markets underperformed developed markets, and often report global manager exposures, including a U.S. component, as international holdings. Our portfolio has maintained a high allocation to passive strategies over time, and that strategy choice underperformed active strategies in several periods. The advantages of equity indexing, including broader exposures, reduced overall risk and variance, and lower management costs have been very beneficial.
- The internally managed stock plus funds have continued to experience a headwind in dividend stocks and Libor note spreads, but have outperformed benchmarks over longer periods. All counterparties used for swap agreements, and the fixed income securities held as collateral continue to be rated investment grade.
- Indexed investments represent 33.5% of international equity exposure, and had a return of -11.2% in the third quarter and -8.8% for the year. The relative positive performance can be attributed to an overweight of small capitalization stocks in the selection of index fund exposure components in a challenging category.
- Active developed market fund managers had a return of -10.2% for the quarter and -6.3% for the year. Manager returns are well diversified, and reflect a combination of fundamental analysis driven and quantitative enhancement strategies. The resulting cumulative exposure is designed to produce a positive ensemble alpha through multiple expert processes.

- Total emerging market stock plus equity returns were negatively impacted by exposure to the Research Affiliates Fundamental Index (RAFI) fundamental factor subset index over the past year. The PIMCO RAFI fund has been replaced by another PIMCO fund targeting the MSCI Emerging Markets benchmark index.

## **Outlook**

- The outlook for international equities is positive based on slow improvement in the European economies, no serious long lasting disruption of trade resulting from geopolitical tensions, continued European Central Bank support of liquidity through QE actions, and attractive relative valuation with the U.S. market. Emerging markets have been negatively affected by lower energy and commodity prices, and slower export growth on a cyclical basis. Many economic concerns now appear to be discounted, but could be tested further if U.S. interest rates are raised by the Federal Reserve. Political instability and currency devaluation are and will remain important issues.
- External managers, diversified by style, are benefiting from a better environment for active stock selection with wider universe return dispersion. Value style factor performance has been challenged periodically, and small and mid-cap international stocks are experiencing greater volatility. Stock Plus absolute return strategies have been impacted by increasing interest rate concerns and risk concerns, but through focus on security selection and tactical opportunities, will earn returns in excess of overlay costs.
- Emerging markets performance will continue to benefit from growing local consumer demand trends. Positive governance, regulation, and financial system changes will improve investment opportunities in many countries. However, political instability, systemic corruption, rule of law, and unfavorable tax regimes will remain concerns. Announced infrastructure projects should stimulate emerging market economies, and China's plans for an Asian Infrastructure Investment Bank could be very supportive of regional and global trade. Commodity headwinds will abate with slow economic recoveries in developed countries.

## **Investment Plan**

- Move toward longer term objectives as a slow global recovery develops and relative valuations of international markets remain positive.
- Take advantage of opportunities to enhance returns in stock plus strategies. Collaborate with internal fixed income and equities staff for an effective hybrid approach to security research and selection.
- Prepare for derivative market changes and focus on further development of counterparty relationships as a strategic advantage.



# SMRS

## International Equities

9/30/15

Markets	Amount	Total	% of Total
<b>Indexed</b> (in millions)			
SSgA	\$1,675		
Vanguard	1,065		
<b>Total Indexed</b>		<b>\$2,740</b>	<b>33.5%</b>
<b>Stock Plus</b>			
Internal Swaps	\$1,581		
PIMCO	1,265		
<b>Total Stock Plus</b>		<b>\$2,846</b>	<b>34.7%</b>
<b>Active</b>			
Wellington	\$727		
Baillie Gifford	330		
Marathon London	329		
LA Capital	270		
Lazard	205		
T. Rowe Price	204		
Templeton	192		
MFS	177		
SSgA	170		
<b>Total Active</b>		<b>\$2,604</b>	<b>31.8%</b>

**TOTAL**

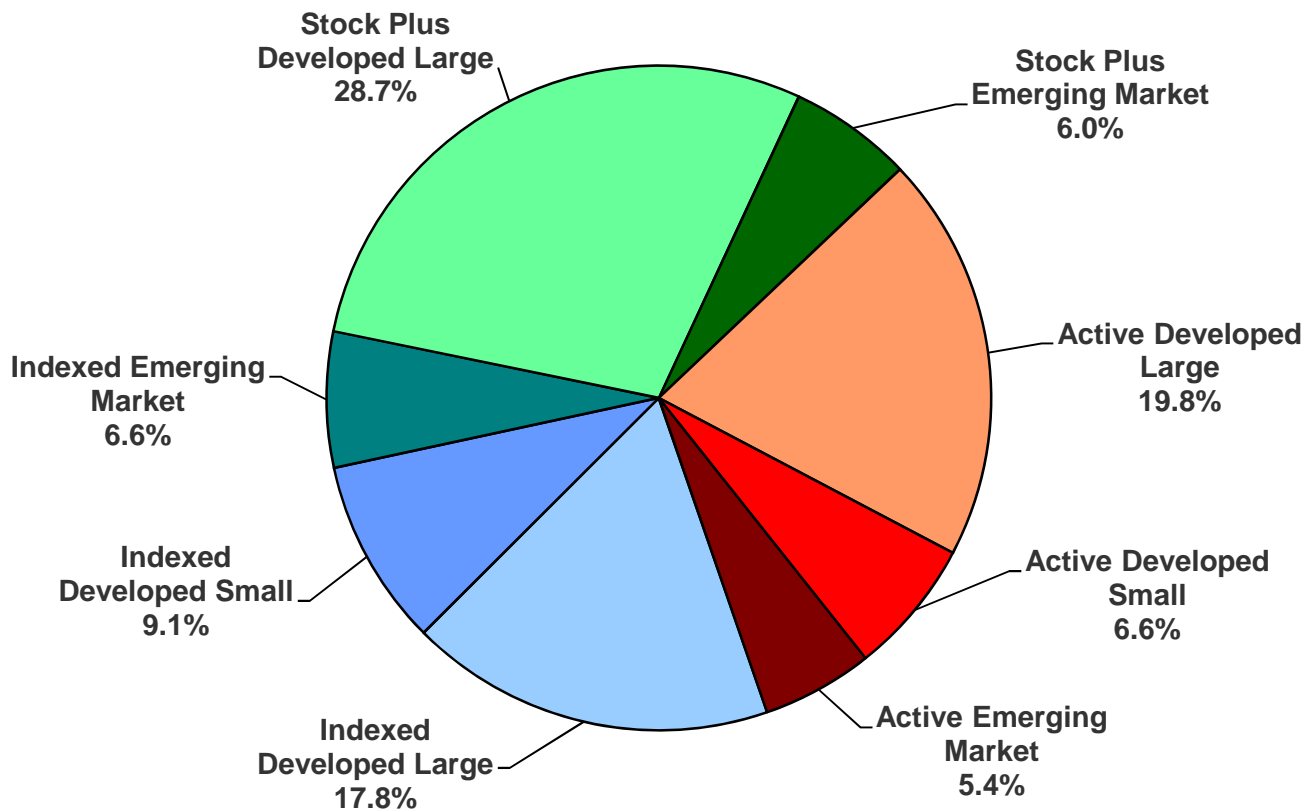
**\$8,190**

**100.0%**



# SMRS

## International Equity Exposure By Category 9/30/15



	Market Value in Millions			
	9/30/15		6/30/15	
<b>Indexed</b>				
Developed Large	\$1,455	17.8%	\$1,624	17.5%
Developed Small	742	9.1%	797	8.6%
Emerging Market	543	6.6%	664	7.2%
<b>Total Indexed Equity</b>	<b>\$2,740</b>	<b>33.5%</b>	<b>\$3,085</b>	<b>33.3%</b>
<b>Stock Plus</b>				
Developed Large	\$2,357	28.7%	\$2,669	28.7%
Emerging Market	489	6.0%	614	6.6%
<b>Total Stock Plus Equity</b>	<b>\$2,846</b>	<b>34.7%</b>	<b>\$3,283</b>	<b>35.3%</b>
<b>Active</b>				
Developed Large	\$1,619	19.8%	\$1,796	19.4%
Developed Small	539	6.6%	581	6.3%
Emerging Market	446	5.4%	529	5.7%
<b>Total Active Equity</b>	<b>\$2,604</b>	<b>31.8%</b>	<b>\$2,906</b>	<b>31.4%</b>
<b>Total International Equity</b>	<b>\$8,190</b>	<b>100.0%</b>	<b>\$9,274</b>	<b>100.0%</b>

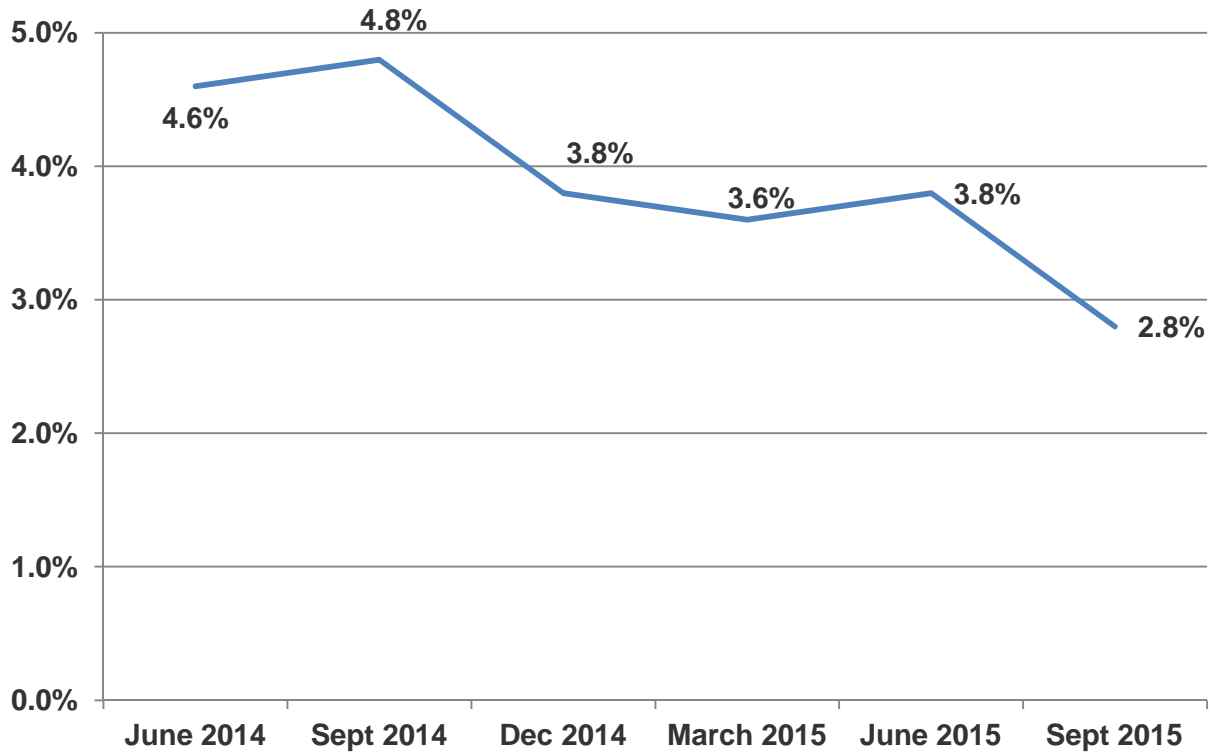
Michigan Department of Treasury, Bureau of Investments





# SMRS

## Emerging Market Allocation SMRS Versus Benchmark 9/30/15



### Investments by Region

<u>Date</u>	<u>EM Allocation SMRS Relative to Benchmark*</u>
June 2014	4.6%
Sept 2014	4.8%
Dec 2014	3.8%
March 2015	3.6%
June 2015	3.8%
Sept 2015	2.8%

\*As measured by Factset Equity Analytics



SMRS

## Active International Equities Composite

9/30/15

<b>Date:</b>	<b><u>9/30/15</u></b>	<b><u>6/30/15</u></b>	<b><u>3/31/15</u></b>
Assets (\$million):	\$2,589	\$2,906	\$2,848
Numbers of Securities:	1,643	1,684	1,686
Active Share:	55%	55%	59%

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.

<b>Characteristics:</b>	<b><u>SMRS</u></b>	<b><u>ACWI ex USA</u></b>
Weighted Average Capitalization (\$billion):	\$4.9	\$11.3
Trailing 12-month P/E:	17.5x	15.7x
Forecast P/E:	15.8x	14.6x
Price/Book:	1.7x	1.5x
Beta:	0.92	1.00
Dividend Yield:	2.7%	3.2%
3-5 Year EPS Growth Estimate:	12.3%	10.4%
Return on Equity:	9.7%	9.4%

### TOP TEN HOLDINGS – Active International Equities 9/30/15

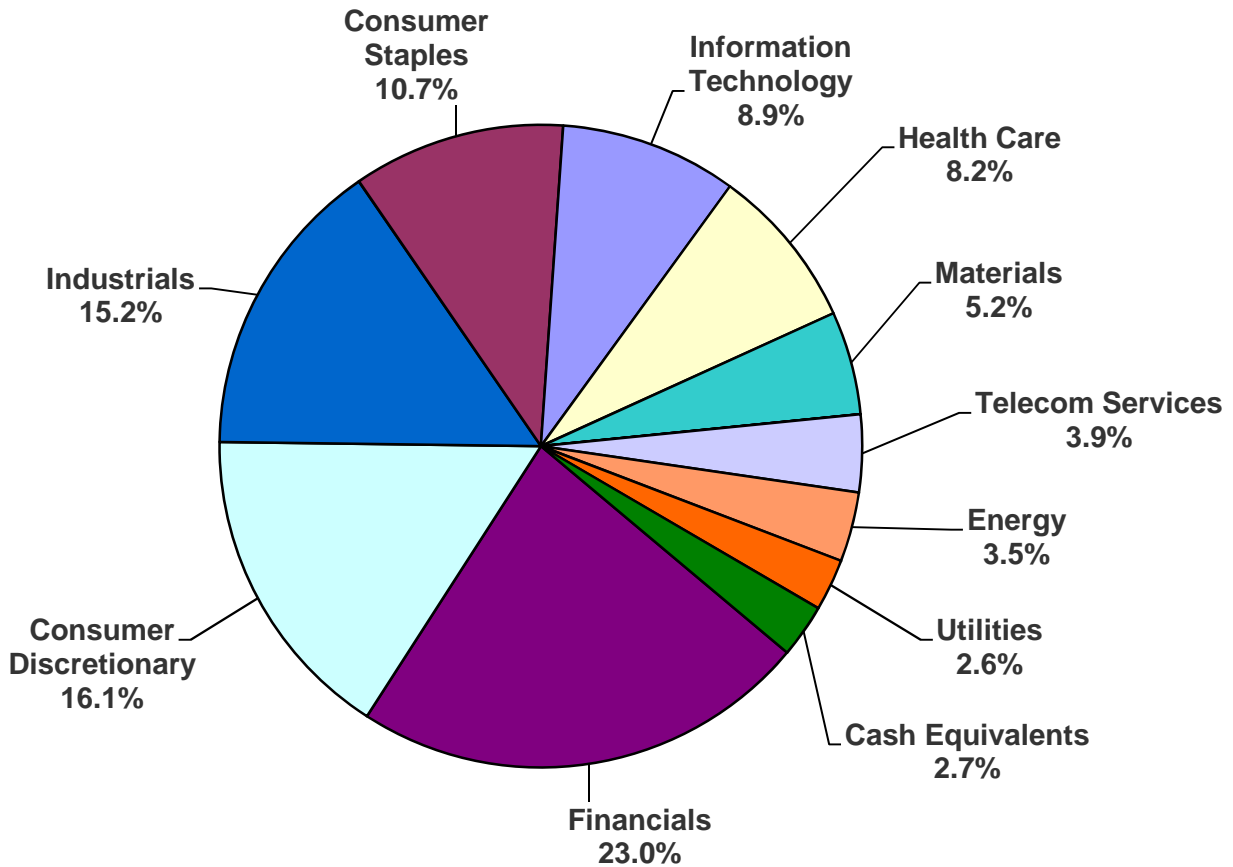
	<b>Portfolio Weight</b>	<b>Market Value</b>
Novartis AG	1.1%	\$28,583,621
Taiwan Semiconductor	0.7%	19,004,887
British American Tobacco	0.7%	17,977,702
Samsung Electronics	0.7%	17,567,441
Nestle	0.6%	15,262,288
Naspers	0.6%	15,255,759
TOTAL SA	0.6%	15,103,416
BNP Paribas	0.6%	14,994,111
Anheuser-Busch InBev	0.6%	14,720,915
Seven & I Holdings	<u>0.5%</u>	<u>12,717,572</u>
<b>TOTAL</b>	<b><u>6.7%</u></b>	<b><u>\$171,187,713</u></b>



# SMRS

## Active International Equity By Sector

9/30/15



### Market Value in Millions

9/30/15

	<u>Assets</u>	<u>Percent</u>	<u>Benchmark</u>	<u>Difference</u>
Financials	\$599	23.0%	27.3%	-4.3%
Consumer Discretionary	419	16.1%	12.0%	4.1%
Industrials	396	15.2%	11.1%	4.1%
Consumer Staples	279	10.7%	10.9%	-0.2%
Information Technology	232	8.9%	7.4%	1.5%
Health Care	213	8.2%	9.6%	-1.4%
Materials	135	5.2%	6.7%	-1.5%
Telecom Services	102	3.9%	5.2%	-1.3%
Energy	91	3.5%	6.3%	-2.8%
Utilities	68	2.6%	3.5%	-0.9%
Total Investments	\$2,534	97.3%	100.0%	
Cash Equivalents	70	2.7%	0.0%	2.7%
<b>Total</b>	<b>\$2,604</b>	<b>100.0%</b>	<b>100.0%</b>	

Benchmark: MSCI ACWI ex USA

**International Active Manager Performance - Net of Fees**  
9/30/15

<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>
<b>PIMCO Intl StocksPlus TR Strategy</b> MSCI EAFE Net Div Index (unhedged)	\$891,628,683	-12.2%	4.3%	4.4%	--	10/1/10
		-8.7%	5.6%	3.9%	--	
<b>Wellington Intl Research Equity</b> S&P BMI World Ex-US Index	550,769,363	-7.4%	6.4%	4.7%	4.8%	12/1/05
		-7.1%	6.5%	4.8%	3.9%	
<b>Pimco EM Stock Plus</b> MSCI Emerging Market Index	372,656,665	--	--	--	--	4/1/15
<b>Baillie Gifford ACWI Ex-US Alpha Strategy</b> MSCI ACWI Ex-US	330,100,397	-6.3%	3.7%	--	--	3/1/12
		-12.2%	2.3%	--	--	
<b>Marathon-London Intl Fund</b> MSCI EAFE Index	329,444,528	-2.0%	9.0%	--	--	2/1/12
		-8.7%	5.6%	--	--	
<b>LA Capital Emerging Market</b> MSCI Emerging Market Index	270,290,739	-16.2%	-3.9%	-1.3%	--	12/8/09
		-19.3%	-5.3%	-3.3%	--	
<b>Lazard Wilmington Intl Equity Portfolio</b> MSCI EAFE Net Div Index (unhedged)	205,200,000	-4.1%	--	--	--	5/1/14
		-8.7%	--	--	--	
<b>T Rowe Price Intl Core</b> MSCI EAFE Index	203,997,941	-7.3%	--	--	--	4/1/14
		-8.7%	--	--	--	
<b>Templeton Intl Smaller Companies Fund</b> MSCI All Country World Index Ex-US Small Cap	192,243,023	-2.6%	7.5%	--	--	6/1/12
		-6.4%	5.5%	--	--	
<b>MFS Intl Small Cap Equity Fund</b> MSCI All Country World Index Ex-US Small Cap	176,910,941	-1.8%	6.6%	--	--	5/1/12
		-6.4%	5.5%	--	--	
<b>Wellington Emerging Local Equity</b> MSCI Emerging Market Index	175,637,018	-14.9%	0.1%	--	--	12/1/11
		-19.3%	-5.3%	--	--	
<b>SSGA Small Cap Intl Alpha Strategy</b> S&P Developed Ex-US Small Cap	169,808,579	0.04%	10.8%	8.9%	8.4%	5/1/07
		-1.9%	8.8%	6.8%	6.6%	

**International Indexed Manager Performance, Net of Fees**  
9/30/15

<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>
<b>SSgA PMI Fund</b> S&P Developed Ex-US Large/Midcap	\$933,197,689	-10.2%	4.3%	3.6%	--	4/1/10
		-10.1%	4.7%	3.8%	--	
<b>SSgA EMI Fund - Europe/Pacific</b> S&P EPAC Small Cap	741,684,044	0.9%	10.6%	7.7%	--	4/1/10
		-1.9%	8.8%	6.8%	--	
<b>Vanguard Emerging Market</b> FTSE Emerging Index **	543,434,015	-18.2%	-5.1%	-3.3%	--	7/1/09
		-18.7%	-4.8%	-3.2%	--	
<b>Vanguard Developed Mkts Fund</b> FTSE Developed Ex-NA Net *	521,685,725	-3.9%	7.7%	5.4%	--	4/1/10
		-8.4%	5.5%	4.0%	--	

\* Benchmark change as of 5/28/13

\*\* Benchmark change as of 6/27/13

**STATE OF MICHIGAN  
RETIREMENT SYSTEMS**

**PRIVATE EQUITY REVIEW**

**INVESTMENT ADVISORY COMMITTEE MEETING**

**DECEMBER 1, 2015**



**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	11.7%	17.2%	16.8%	10.7%	13.4%
Benchmark Return	10.6%	20.4%	20.3%	15.6%	11.9%
Peer Median Return	7.6%	12.8%	11.4%	8.4%	10.0%
Rank vs. Peers	21	9	4	6	5

- The Private Equity Division annualized returns have been strong in absolute terms for all time periods over the past ten years; returning 11.7% and 13.4% over the past one and ten years respectively.
- The Private Equity Division annualized returns have been strong relative to peer median returns for all time periods over the past ten years, ranking in the top 8% and 10.0% of peers over the past one 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 6.6% annualized excess returns over the S&P 500 (10-year S&P 500 return 6.8%).

### Strategy Update

Over the past twelve months ending 9/30/15, the Private Equity Division returned approximately \$1.4 billion, net of contributions, to the pension fund. This trend has continued into the fourth quarter of 2015, albeit at a slower pace, as a low interest rate environment favors higher prices, asset sellers rather than buyers, and excess distributions over capital calls. The target allocation remains 18%.

- The Private Equity Division has approximately \$4.5 billion in unfunded commitments. New commitments closed during the quarter include:
  - \$50 million to Entertainment IP Fund; Small-middle market buyout fund
  - \$50 million to HarbourVest Partners Mezzanine Income Fund; Mezzanine Debt
- The Private Equity Division strategy is focused on the asset classes of: leveraged buyouts, venture, distressed debt, mezzanine debt, and special situations. The division is overweight leveraged buyouts. This strategy has resulted in higher, more consistent long-term returns (10+ years) vs. other asset classes. Other Asset classes include, but is not limited to venture, distressed, mezzanine, secondary and special situations.
- The Private Equity Division continues to allocate to the other asset classes for portfolio diversification and to capitalize on cyclical market dislocations.

- Recently, the Private Equity Division began evaluating co-investments and secondary opportunities to enhance returns and to average down fees.

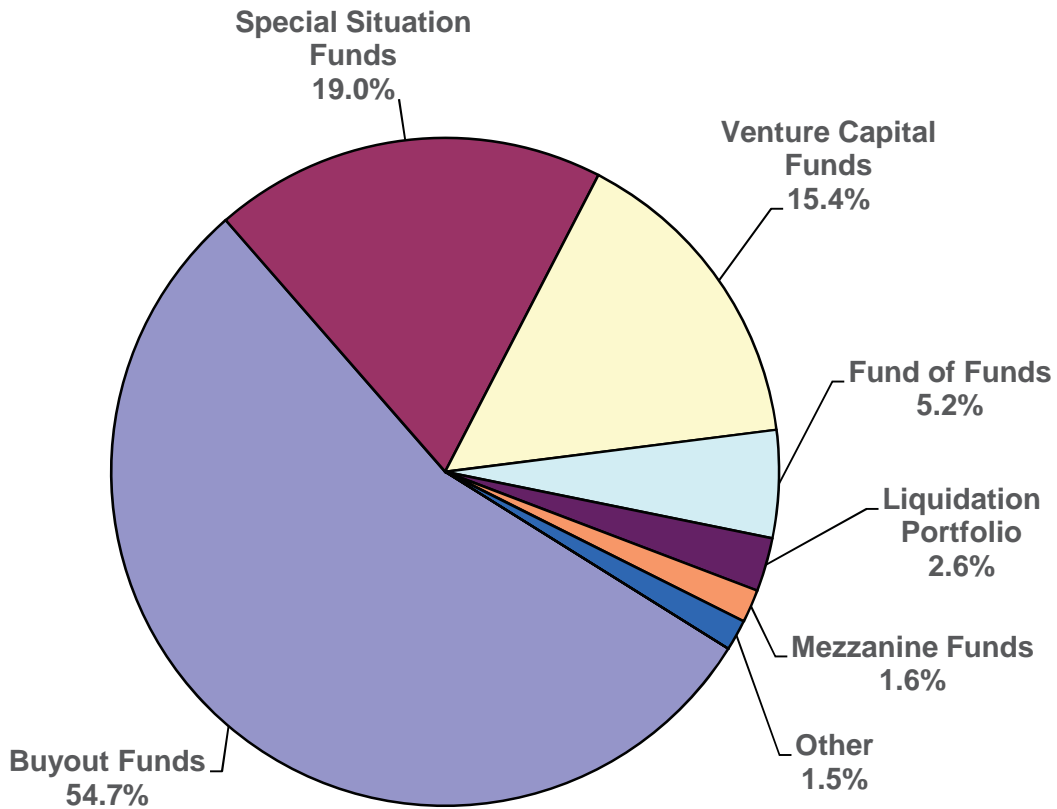
### **Market Environment**

- The third quarter was characterized by significant market volatility, low interest rates, ample liquidity, and high acquisition multiples. The weakness and volatility in the equity markets caused many companies to delay their IPOs or, in some cases, price their IPOs below expectations. But, private equity firms found success in monetizing their investments in the M&A market, which remained robust despite market volatility. The deal pipeline is full, but it's difficult to justify high acquisition multiples for companies with low intrinsic growth rates. The market for new deals is very competitive as private equity firms compete with both strategic and financial buyers.





# SMRS Private Equity 9/30/15



Market Value in Millions				
	9/30/15		6/30/15	
Buyout Funds	\$5,541	54.7%	\$5,481	55.5%
Special Situation Funds	1,919	19.0%	1,889	19.1%
Venture Capital Funds	1,562	15.4%	1,462	14.8%
Fund of Funds	526	5.2%	473	4.8%
Liquidation Portfolio	270	2.6%	259	2.6%
Mezzanine Funds	164	1.6%	168	1.7%
Other	142	1.5%	143	1.5%
<b>Total</b>	<b>\$10,124</b>	<b>100.0%</b>	<b>\$9,875</b>	<b>100.0%</b>

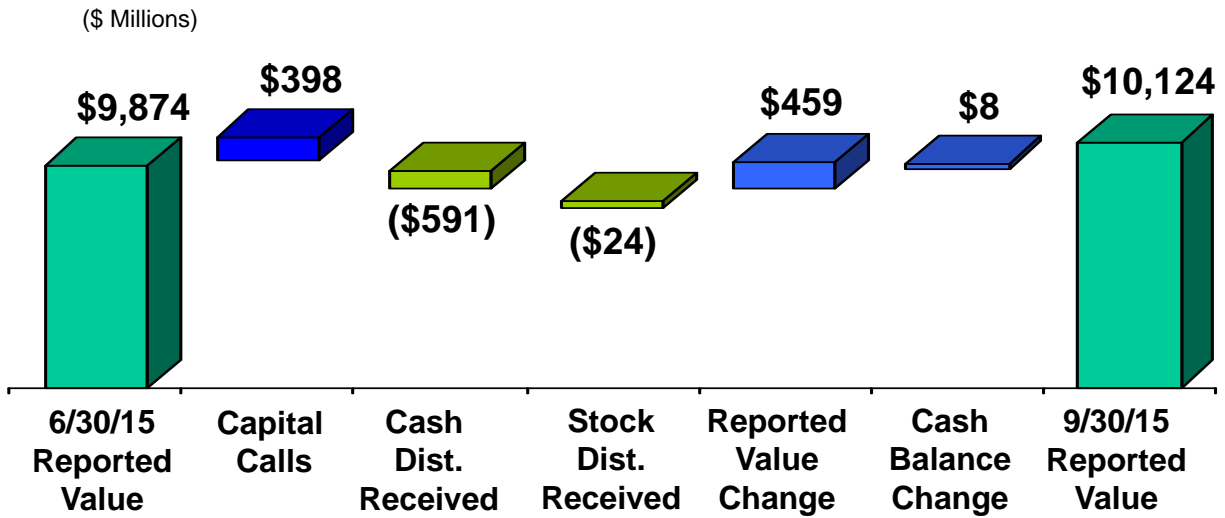


# SMRS

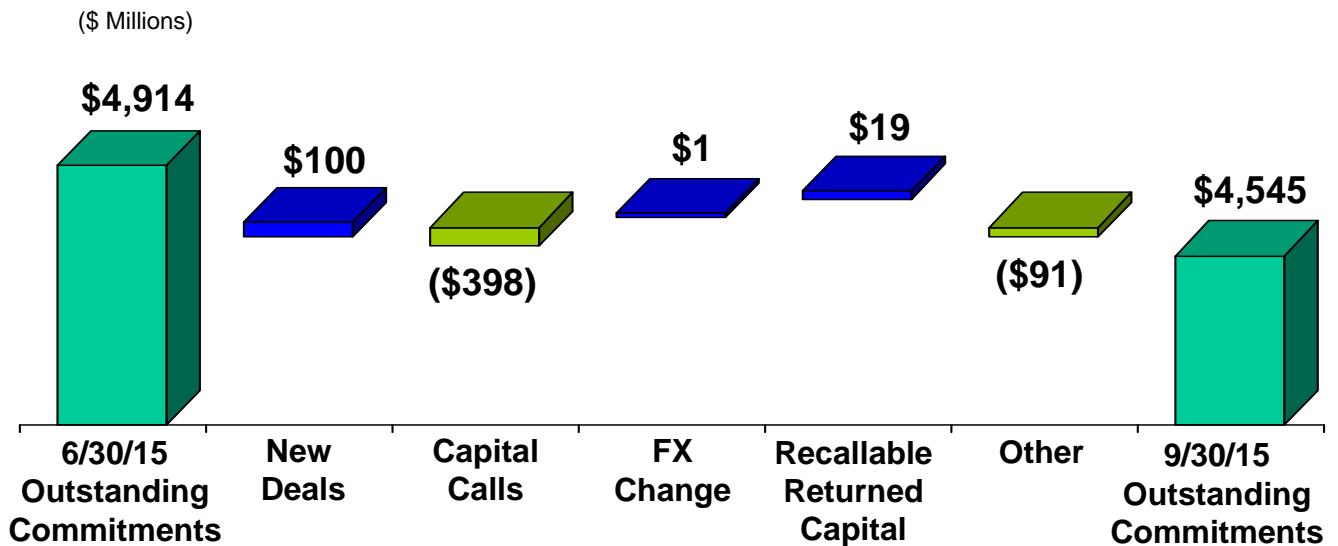
## Private Equity

9/30/15

### Invested Commitments



### Outstanding Commitments



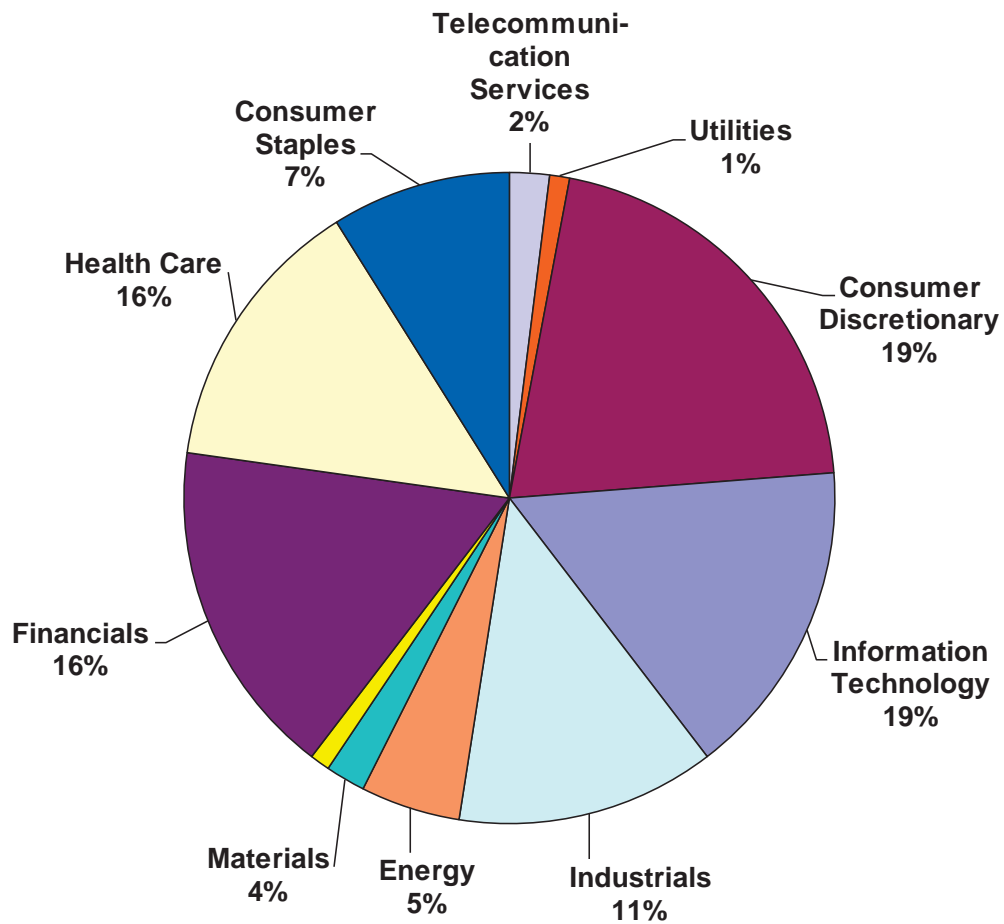


# SMRS

## Private Equity

### 9/30/15

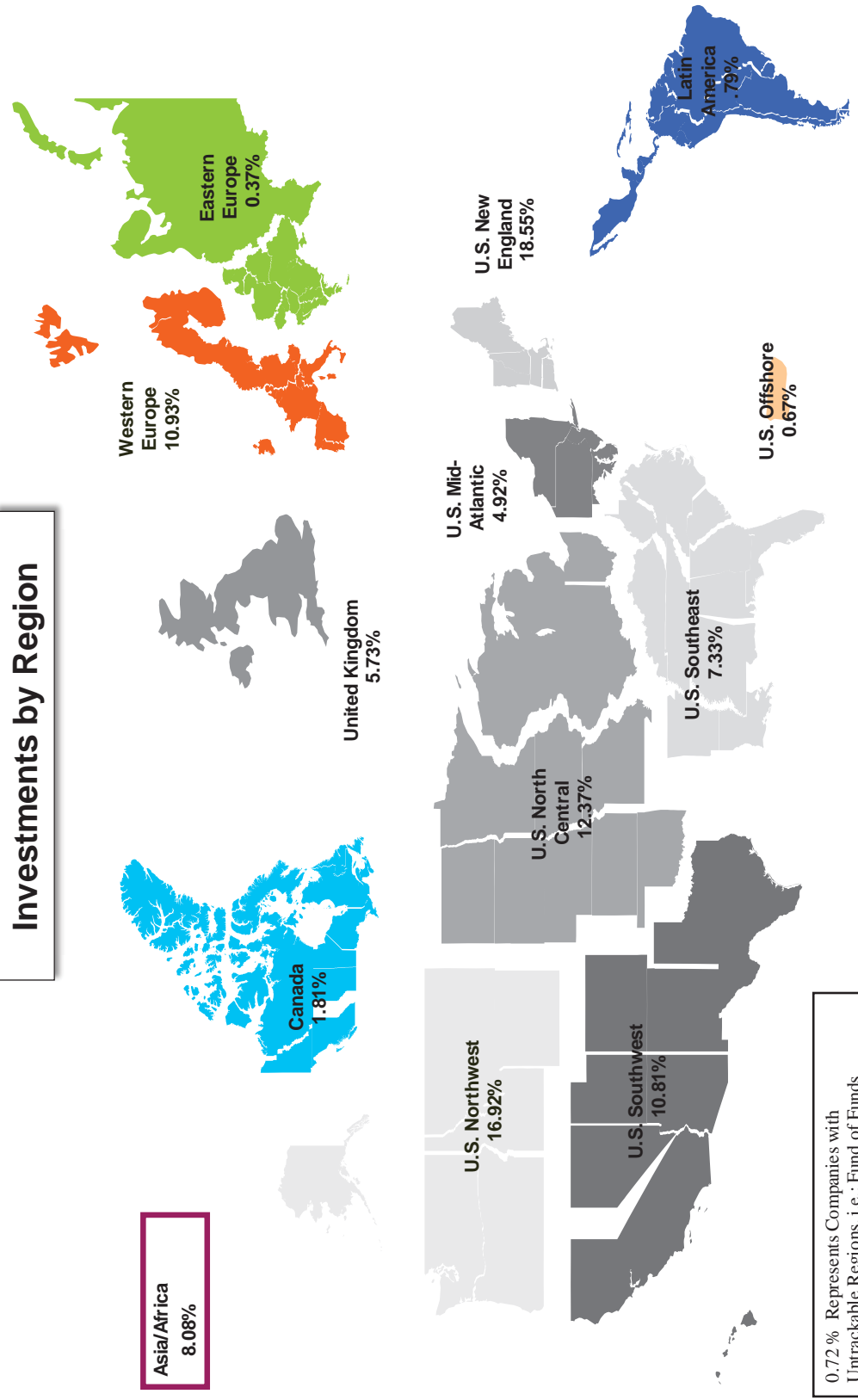
#### Investments by Industry



These numbers are based on the most recent available General Partner Data; primarily 6/30/15 and are subject to change.

**SMRS**  
Private Equity  
9/30/15

**Investments by Region**



0.72 % Represents Companies with Untrackable Regions, i.e.; Fund of Funds

Geographic Report: North America 73%, Europe 17%, Asia 8%, Other 2%



**SMRS**  
**Private Equity**  
**9/30/15**

**Portfolio by Vintage Year**

(\$ Millions)

<b>Asset Vintage</b>	<b>Reported Value</b>	<b>Outstanding Commitment</b>	<b>Total Exposure</b>
1986-98	\$ 45	\$ 16	\$ 61
1999	45	12	57
2000	111	30	141
2001	297	47	344
2002	174	9	183
2003	75	21	96
2004	404	67	471
2005	644	39	683
2006*	2,045	361	2,406
2007	1,454	202	1,656
2008	1,412	282	1,694
2009	164	16	180
2010	346	37	383
2011	683	316	999
2012	878	544	1,422
2013	355	381	736
2014	568	971	1,539
2015	282	1,194	1,476
Cash	139	-	139
Act. Small Cap - Stock Dist	3	-	3
<b>Total</b>	<b>\$ 10,124</b>	<b>\$ 4,545</b>	<b>\$ 14,669</b>

\*Liquidation portfolio is 2006 vintage

**FX Exposure**

(\$ Millions)

	<b>Reported Value</b>	<b>Outstanding Commitment</b>	<b>Total Exposure</b>	<b>Total (USD)</b>
Euro (\$1.11/ €)	€ 639	€ 318	€ 957	1,068
Pound (\$1.57/ £)	£9	£1	£10	15



**SMRS**  
**Private Equity**  
**9/30/15**

**Top 10 Sponsors**

(\$ Millions)

<u>Asset Type</u>	<u>Reported Value</u>	<u>Outstanding Commitment</u>	<u>Total</u>
Blackstone Capital Partners	\$ 458	\$ 461	\$ 919
KKR	256	661	917
Grosvenor Capital Management	158	696	854
The Carlyle Group	300	392	692
Warburg Pincus Capital	165	471	636
TPG	201	418	619
Advent International	109	403	512
Coller Capital	260	150	410
Leonard Green & Partners	70	330	400
Beringea	88	267	355
<b>Top 10 Total Value</b>	<b><u>\$ 2,065</u></b>	<b><u>\$ 4,249</u></b>	<b><u>\$ 6,314</u></b>

**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	5.2%	12.3%	17.9%	16.0%	35.3%
Venture Capital	5.5%	22.6%	18.6%	21.3%	33.3%
Special Situations	3.8%	5.7%	13.5%	14.0%	19.1%
Fund of Funds	4.0%	11.1%	13.1%	13.8%	29.3%
Mezzanine Debt	2.3%	7.9%	13.6%	14.2%	16.2%

\*These numbers are based on most recent available General Partner reported data; primarily 9/30/15 and are subject to change.



**SMRS**  
**Private Equity**  
**9/30/15**

**Net Market Values by Ownership Entity**

	<u>Adjusted Reported Value</u>	<u>Unfunded Commitment</u>
Accel Europe I, L.P.	\$ 18,153,352	\$ 1
Accel Europe II	15,186,539	3,300,000
Accel Growth Fund II, L.P.	12,893,800	1,260,000
Accel Growth Fund III, L.P.	8,612,071	5,460,000
Accel IX, L.P.	10,628,864	3,000,000
Accel VI, L.P.	1,399,147	0
Accel VII, L.P.	2,465,855	5,000,000
Accel VIII, L.P.	2,779,068	4,782,499
Accel VI-S	2,594,979	652,611
Accel X, L.P.	24,190,008	750,000
Accel XI, L.P.	7,111,111	1,680,000
Accel XII, L.P.	3,162,794	3,745,000
Advent Global Private Equity III	990,018	20
Advent Global Private Equity IV	1,854,081	0
Advent Global Private Equity V	26,386,454	10,500,000
Advent International GPE VI-A LP	222,671,803	7,899,980
Advent International GPE VII-B, L.P.	148,809,311	58,000,000
Advent Latin American Private Equity Fund VI, L.P.	2,573,311	32,200,000
Affinity Asia Pacific Fund II, L.P.	6	5,288,237
Affinity Asia Pacific Fund III, L.P.	82,702,864	14,164,365
Affinity Asia Pacific Fund IV (No.2) L.P.	61,029,650	84,432,562
APA Excelsior V	116,426	545,625
Apax Europe Fund VI	68,125,292	2,360,644
Apax Europe V, L.P.	420,941	0
Apax Europe VII, L.P.	88,227,527	3,162,706
Apax Excelsior VI	843,500	1,614,434
Apax US VII	20,132,743	417,509
Apax VIII - B, L.P.	65,644,240	40,636,492
Apollo Investment Fund VIII L.P.	21,442,308	77,664,929
Arboretum Ventures II	2,466,234	0
Arboretum Ventures III, L.P.	12,364,848	2,049,375
Arboretum Ventures IV, L.P.	2,160,000	27,840,000
Ares Corporate Opportunities Fund II	22,242,278	11,493,836
Ares Corporate Opportunities Fund III, LP	93,620,390	12,927,040
Ares Corporate Opportunities Fund IV, L.P.	72,477,183	33,684,069
ASF Norman, LLC Receivable	121,595,562	0
Austin Ventures VIII, L.P.	2,249,990	0
Avenue Special Situations Fund IV, L.P.	691,289	0
Avenue Special Situations Fund V, L.P.	2,241,101	0
Avenue Special Situations Fund VI (B), L.P.	34,751,196	0
AXA ASF Miller Co-Investment	58,520,840	23,071,187

	<u>Adjusted Reported Value</u>	<u>Unfunded Commitment</u>
Axiom Asia Private Capital Fund III, L.P.	17,126,585	19,739,264
Banc Fund VI	5,867,734	0
Banc Fund VII	43,174,430	0
Banc Fund VIII	27,217,236	0
Battery Ventures VI, L.P.	754,528	0
Battery Ventures VII, L.P.	11,598,663	0
Battery Ventures VIII	23,885,338	350,900
BC European Capital IX	63,473,167	22,927,147
BC European Capital VII, L.P.	547,465	0
BC European Capital VIII, L.P.	59,576,205	8,729,075
Berkshire Fund IV, L.P.	41,869	1,898,016
Berkshire Fund V, L.P.	215,106	3,281,560
Berkshire Fund VI, L.P.	41,471,066	6,922,675
Berkshire Fund VII, L.P.	89,095,463	4,697,797
Berkshire Fund VIII, L.P.	88,379,491	42,673,201
Blackstone Capital Partners IV	51,579,495	5,083,484
Blackstone Capital Partners V	139,549,220	17,093,344
Blackstone Capital Partners VI, LP	232,950,207	109,183,201
Blackstone Capital Partners VII, L.P.	0	300,000,000
Blackstone Capital Partners V-S	20,960,824	712,476
Bridgepoint Europe IV	46,254,302	6,738,185
Brockway Moran & Partners Fund III	6,516,470	3,946,061
Carlyle Europe Partners II	10,694,831	4,136,011
Carlyle Europe Partners III	68,271,499	12,432,389
Carlyle Europe Partners IV, L.P.	15,456,948	96,168,056
Carlyle Partners IV, L.P.	28,532,649	16,009,296
Carlyle Partners V L.P.	207,576,500	58,410,817
Carlyle Partners VI, L.P.	61,471,036	112,828,330
Castle Harlan Partners IV	9,554,712	5,286,319
Castle Harlan Partners V	42,729,328	41,721,990
CCMP Capital Investors II	95,394,741	10,337,108
CCMP Capital Investors III, L.P.	21,374,372	29,069,856
Centerbridge Capital Partners III, LP	12,044,604	63,064,919
Cerberus SMRS Partners, L.P.	91,864,886	15,804,657
Clarus Life Sciences II, L.P.	37,002,857	4,615,000
Clarus Lifesciences I	14,378,342	4,079,460
Clearstone Venture Partners II (idealab)	3,092,900	0
Clearstone Venture Partners III	27,469,114	1,209,000
CM Liquidity Fund, L.P.	0	25,000,000
CMEA Ventures VI	0	0
CMEA Ventures VII, L.P.	16,532,473	1,500,000
Coller International Partners IV	5,492,430	4,000,000
Coller International Partners V, L.P.	76,845,367	43,600,000
Coller International Partners VI, L.P.	67,571,555	37,223,267
Coller International Partners VII, L.P.	0	150,000,000
Crescent Mezzanine Partners VI, L.P.	54,554,783	20,331,916
DLJ Investment Partners II	155,817	0
DLJ Investment Partners III	19,054,120	63,189,384
DLJ Merchant Banking Partners III, L.P.	446,072	1,854,201
DLJ Merchant Banking Ptrs II, L.P.	432,699	1,856,746



	<u>Adjusted Reported Value</u>	<u>Unfunded Commitment</u>
Doughty Hanson & Co IV	26,852,468	2,679,732
Doughty Hanson & Co V	48,287,500	32,775,514
Doughty Hanson Co. III L.P.	28,167,494	3,102,822
EDF Ventures III	1,949,487	0
EnCap Energy Capital Fund X, L.P.	1,731,520	43,052,363
<b>** Entertainment IP Fund, L.P.</b>	<b>0</b>	<b>50,000,000</b>
Essex Woodlands Health IV	3,140,647	0
Essex Woodlands Health V	7,996,695	0
Essex Woodlands Health Ventures Fund VIII	77,955,038	3,375,000
Essex Woodlands Health VI	16,389,296	687,500
Essex Woodlands Health VII	63,727,067	0
FirstMark Capital I, L.P.	103,317,885	196,596
FirstMark Capital OF I, L.P.	8,083,495	12,400,000
FirstMark Capital P2, L.P.	168,350,000	0
Flagship Ventures Fund 2004	14,106,578	0
Flagship Ventures Fund 2007, L.P.	59,542,161	0
Flagship Ventures Fund IV, L.P.	71,015,960	2,250,000
Flagship Ventures Fund V	4,624,742	29,925,000
Fox Paine Capital Fund II, LP	21,765,257	15,539,184
FS Equity Partners VII, L.P.	9,902,510	88,228,766
GCM Grosvenor Fund Investment Program I, L.P.	22,954,069	1,454,574
GCM Grosvenor Fund Investment Program II, L.P.	76,834,909	16,736,475
GCM Grosvenor Fund Investment Program III - 2004	97,382,049	5,335,755
GCM Grosvenor Fund Investment Program III - 2006	111,676,581	12,404,165
GCM Grosvenor Fund Investment Program V, L.P.	104,786,018	18,717,008
GCM Grosvenor Fund Investment Program VI, L.P.	12,447,760	21,711,505
GCM Grosvenor SeasPriFIP LP (PIS06-10)	85,866,673	27,557,426
GCM Grosvenor SeasPriFIP LP (PIS14)	78,403,468	41,985,240
GCM Grosvenor SeasPriFIP LP (Seed)	105,951,655	11,933,191
G-II Acquisition Holdings Note	6,479,046	0
Glencoe Capital Michigan Opportunities Fund, LP	47,695,977	10,057,314
Globespan Capital Partners IV (Jafco)	19,295,238	0
Globespan Capital Partners V, LP	48,973,616	5,250,000
Green Equity Investors IV	30,573,893	1,136,036
Green Equity Investors V	208,736,910	25,966,435
Green Equity Investors VI, L.P.	90,130,711	42,501,683
Grotech Partners V	145,534	0
Grotech Partners VI	7,608,635	0
GSO Capital Opportunities Fund II, L.P.	16,373,363	26,062,661
H.I.G. Bayside Debt & LBO Fund II, LP	13,037,125	1,933,333
H.I.G. Brightpoint Capital Partners II	414,395	0
H.I.G. Capital Partners IV, L.P.	25,088,954	0
H.I.G. Europe Capital Partners L.P.	25,254,031	1,017,626
HarbourVest Dover Street VIII, L.P.	43,380,457	27,000,000
HarbourVest Int'l III Direct	2,650,297	1,000,000
HarbourVest Int'l III Partnership	2,630,723	1,200,000
<b>** HarbourVest Partners Mezzanine Income Fund</b>	<b>0</b>	<b>50,000,000</b>
HarbourVest V Partnership	355,955	300,000
HarbourVest VI - Direct Fund LP	5,266,138	750,000
HarbourVest VI Partnership	16,852,566	2,000,000

	<u>Adjusted Reported Value</u>	<u>Unfunded Commitment</u>
Healthcare Venture VI	675,020	0
Healthcare Venture VII	7,037,938	0
Healthcare Venture VIII	29,781,601	1,500,000
HVST - TOPE LLC	44,700,000	0
Insight Ventures Growth-Buyout Coinvestment Fund	11,709,696	37,875,000
Insight Venture Partners IX, L.P.	24,827,531	74,000,000
InterWest Partners IX	10,617,619	800,000
JAFCO America Technology Fund III	301,193	0
Kelso Investment Associates IX, L.P.		99,689,430
Kelso Investment Associates VII	5,359,391	4,970,176
Kelso Investment Associates VIII	143,328,861	28,735,779
Khosla Ventures III, L.P.	67,853,959	2,000,000
Khosla Ventures IV, L.P.	58,970,929	7,750,000
Khosla Ventures V, L.P.	16,264,915	33,500,000
KKR 2006 Fund, L.P.	211,811,259	8,059,689
KKR Asia	59,589,846	2,902,553
KKR Asian Fund II, L.P.	25,765,814	32,736,063
KKR China Growth Fund	38,512,392	18,799,891
KKR E2 Investors (Annex) Fund	4,061,238	587,747
KKR European Fund II	40,670,576	0
KKR European Fund III	96,696,547	22,139,073
KKR European Fund IV L.P.	10,276,411	116,413,425
KKR European Fund LP 1	2,526,734	0
KKR Millennium Fund	83,262,106	0
KKR North America Fund XI, L.P.	87,550,606	53,982,115
Lightspeed Venture Partners VI	2,209,322	0
Lightspeed Venture Partners VII, L.P.	47,413,790	510,436
Lion Capital Fund I (HME II)	118,875	11,321,407
Lion Capital Fund II	7,669,738	4,817,541
Lion Capital Fund III, L.P.	82,766,215	12,700,023
Matlin Patterson Global Opportunities Partners	37,306	0
MatlinPatterson Global Opportunities Partners II	2,841,975	0
MatlinPatterson Global Opportunities Partners III	70,870,189	6,028,461
Menlo Ventures IX, L.P.	7,156,612	0
Menlo Ventures VIII	397,650	0
Menlo Ventures X, L.P.	43,853,163	0
Menlo Ventures XI, L.P.	63,436,473	3,000,000
MeriTech Capital Partners II, L.P.	2,657,816	1,850,000
Meritech Capital Partners III, L.P.	28,259,338	600,000
Meritech Capital Partners IV, L.P.	17,333,498	425,000
Meritech Capital Partners V, L.P.	4,264,545	15,350,000
Michigan Growth Capital Partners II, L.P.	119,772,885	70,140,217
Michigan Growth Capital Partners, LP	147,513,752	17,817,491
Midtown Fund III, L.P.	1,710,466	0
Midtown II Liquidating Trust	2,344,625	0
MPM BioVentures III	10,064,020	0
New Leaf Growth Fund I, L.P.	122,791,766	6,833,333
New Leaf Ventures II, L.P.	23,385,395	350,000
New Leaf Ventures III, L.P.	6,478,020	30,750,000
Nordic Capital VI, L.P.	31,772,474	0

	<u>Adjusted Reported Value</u>	<u>Unfunded Commitment</u>
Nordic Capital VII	62,970,337	6,316,118
Nordic Capital VIII, L.P. (Alpha)	21,407,504	23,847,607
North Castle Partners III	3,732,952	429,407
Oak Investment Partners X, L.P.	8,912,563	0
Oak Investments Partners IX, L.P.	1,639,934	0
Oaktree Opportunities Fund X, L.P.	2,250,000	27,750,000
Oaktree Opportunities Fund Xb, L.P.	0	70,000,000
OCM Opportunities Fund IX, L.P.	70,850,955	3,750,000
OCM Opportunities Fund VII (B), L.P.	5,974,554	0
OCM Opportunities Fund VII, L.P.	7,696,985	0
OCM Opportunities Fund VIII B, L.P.	38,414,341	0
OCM Opportunities Fund VIII, L.P.	21,042,036	0
OCM Principal Opportunities Fund IV	26,395,789	5,002,377
Ocqueoc Holdings, LLC	10,836,889	0
One Liberty Fund III	774,801	0
One Liberty Fund IV	1,803,415	0
One Liberty Ventures 2000	8,794,254	0
Paine & Partners Capital Fund III, LP	115,796,803	5,746,532
Parthenon Investors II	3,525,883	3,186,779
Parthenon Investors III	36,955,225	4,518,428
Parthenon Investors IV, L.P.	21,010,356	19,423,138
Peninsula Capital Fund IV	13,223,324	2,201,026
Peninsula Fund VI, L.P.	0	40,000,000
Permira Europe III LP	1,976,502	0
Permira IV, L.P.	64,906,756	4,911,500
Phoenix Equity Partners IV	13,617,407	905,389
Primus Capital Fund V	5,621,344	712,500
Providence Equity Partners V, L.P.	59,355,709	13,040,010
Providence Equity Partners VI, L.P.	200,019,596	21,205,774
Public Pension Capital, LLC	2,661,104	47,348,485
Questor Partners Fund II	18,808,314	5,883,006
RFE Investment Partners VII, LP	22,500,702	173,332
RFE Investment Partners VIII, L.P.	17,530,748	13,603,972
RFE IV Venture	10,668	0
Rhone Partners V, L.P.	827,119	110,797,885
Riverside Capital Appreciation Fund VI, LP	34,437,959	41,066,339
Riverside Micro Cap Fund I, LP	36,444,053	6,658,657
Riverside Micro-Cap Fund II, L.P.	60,340,651	2,735,834
Riverside Micro-Cap Fund III, L.P.	31,191,142	14,530,202
Silver Lake Partners II	11,972,178	3,531,586
Silver Lake Partners III	93,347,349	19,303,187
Silver Lake Partners IV, L.P.	20,659,005	35,266,520
SM/TCP L.P.	17,426,584	28,261,110
Sprout Capital IX	778,655	0
TCW Shared Op Fund III	1,700,455	0
TCW Shared Op Fund IV	18,845	4,524,779
TCW/Crescent Mezzanine Partners III, L.P.	5,320,753	4,552,763
TCW/Crescent Mezzanine Partners IV, L.P.	10,886,479	6,030,737
TCW/Crescent Mezzanine Partners V, LLC	44,241,410	15,515,915
The Huron Fund III, L.P.	30,293,445	4,992,756

	<u>Adjusted Reported Value</u>	<u>Unfunded Commitment</u>
The Huron Fund IV, L.P.	7,819,495	25,624,346
The Shansby Group 4	2,902,111	520,829
The Shansby Group 5 (TSG5)	104,424,873	8,578,686
TPG IV (Texas Pacific Group IV)	17,916,323	211,725
TPG Partners III, LP	10,533,872	2,087,002
TPG Partners VI, L.P.	207,031,155	26,019,787
TPG Partners, VII, L.P.	3,288,849	146,711,151
TPG V (Texas Pacific Group V)	179,555,292	26,580,950
Trilantic Capital Partners V (North America) Fund A TSG6, L.P.	14,842,447	32,433,343
	101,227,230	55,169,246
Tullis - Dickerson Capital II	6,402,276	0
Tullis - Dickerson Capital III	11,168,603	0
Turnbridge Capital Partners I , LP	15,229,262	79,934,438
Unitas Asia Opportunity Fund	445,751	0
Unitas Asia Opportunity Fund III	55,937,890	23,733,215
Veritas Capital Fund V, L.P.	29,277,273	45,569,209
Veritas V Co-Investors, L.P.	5,000,000	20,000,000
Vista Equity Partners Fund V, L.P.	31,787,806	18,022,746
Warburg Pincus Energy MCIP, L.P.	7,524,409	17,571,109
Warburg Pincus Energy, L.P.	8,158,317	90,300,000
Warburg Pincus Equity Partners, L.P.	2,419,555	0
Warburg Pincus International Partners	14,896,033	0
Warburg Pincus Private Equity IX	42,225,397	0
Warburg Pincus Private Equity VIII, L.P.	27,419,848	0
Warburg Pincus Private Equity X, L.P.	203,903,457	0
Warburg Pincus Private Equity XI, L.P.	164,800,509	57,500,000
Weiss, Peck & Greer V (adm: Opus Capital)	215,601	386,240
WestAm COREplus Private Equity QP	5,174,502	2,086,719
WestAm Special Private Equity Partners	4,997,202	2,317,427
Wind Point Partners III	1,407,321	0
Wind Point Partners IV	55,916	1,541,518
Wind Point Partners V, L.P.	17,182,085	0
Wind Point Partners VI	36,683,688	6,500,000
Wind Point Partners VII	71,024,324	13,654,163
<b>* Total Private Equity</b>	<b>\$ 9,981,965,613</b>	<b>\$ 4,545,223,482</b>
Cash	108,997,778	-
Active Small Cap Cash	29,738,596	-
Active Small Cap	2,682,735	-
Income Accruals	436,138	-
<b>Grand Total</b>	<b>\$ 10,123,820,860</b>	<b>\$ 4,545,223,482</b>

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

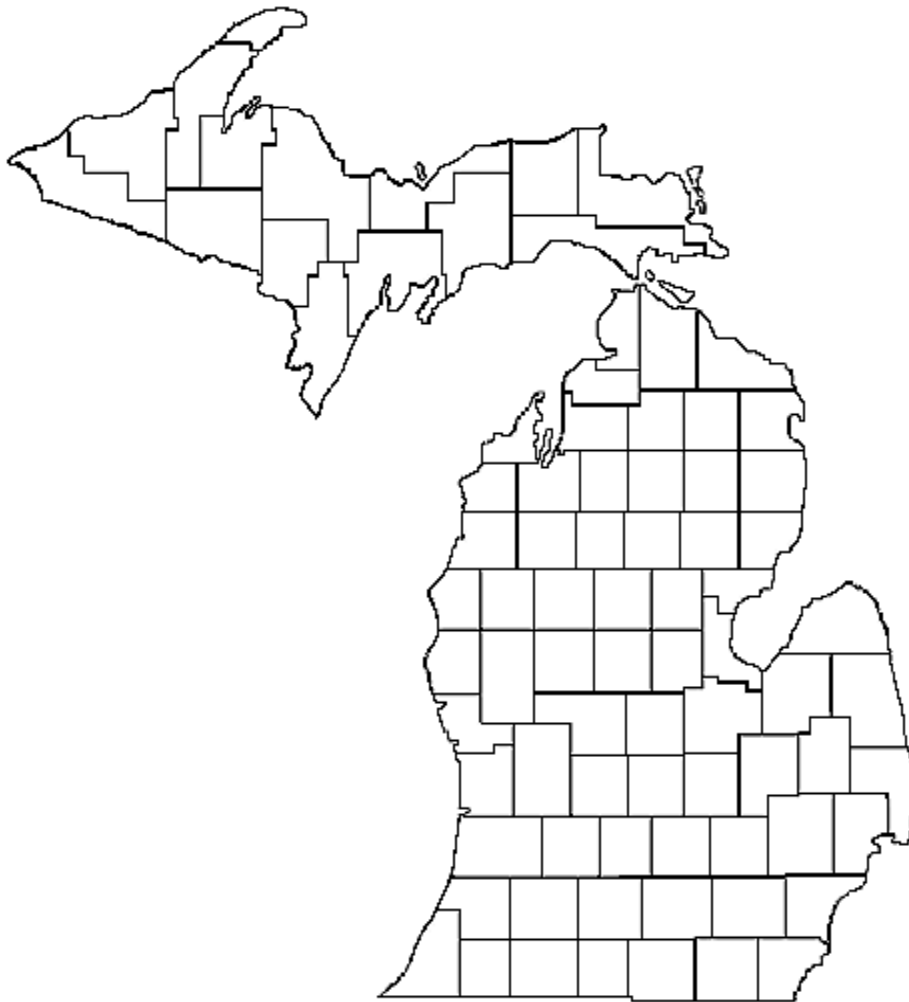
\*\* New Commitments made during quarter reported

**STATE OF MICHIGAN  
RETIREMENT SYSTEMS**

**REAL ESTATE AND  
INFRASTRUCTURE REVIEW**

**INVESTMENT ADVISORY COMMITTEE MEETING**

**DECEMBER 1, 2015**



**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	11.8%	13.2%	12.9%	2.4%	6.0%
NCREIF NPI	12.0%	10.5%	11.1%	4.5%	6.6%
Peer Median Return	12.5%	11.7%	12.7%	2.8%	5.7%
Rank vs. Peers	55	24	41	51	42

- Total Real Estate and Infrastructure Division (REID) value was \$5.9 billion with a total one-year return of 11.8%. Strong performance was the result of increased rental income and valuations in apartments and hospitality. Credit strategies and unique opportunities sourced by staff have also contributed to overall performance. The one-year return was somewhat impacted by the decline in foreign currency in REID's infrastructure investments.

## Strategy Update

- The REID strategy focused on developing apartments and industrial buildings in select urban markets, investing in under-managed office properties in markets that have strong economic fundamentals, adding value through leasing and improved management, and credit strategy investing through mezzanine debt opportunities and transitional properties yielding attractive cash flow and total returns. Also, REID has gained exposure in Europe where pricing and returns are favorable.
- The REID has been selling core assets at historically low capitalization rates where rental income increases are expected to be limited. The REID is also working with its advisors in executing the disposition of non-strategic properties in secondary markets at attractive values, returning \$1.8 billion in capital over the last 24 month period.
- The REID has approximately \$1.5 billion in unfunded commitments. New commitments closed during the quarter include:
  - \$50 million in TPG Real Estate Partners II, a commingled fund focused on real estate platform investments, managed by TPG Partners.
  - \$30 million in KBS/SM Fund III, LP, a to-be-built preleased office building in Raleigh, NC managed by KBS Realty Advisors.
  - \$30 million in IPF II Co-Invest, LP, residential properties in India managed by JP Morgan.
  - \$20 million in Eastport Properties, LLC, a mezzanine loan managed by AEW Partners and secured by two full-service hotels in metropolitan Washington, DC.

## Market Environment

- High quality core assets continue to be in high demand as investors, both domestic and international, seek long-term protection from volatility at the expense of historically low yields.

In major markets including New York, San Francisco, and Boston, properties are trading at near record low capitalization rates. Secondary markets are now being targeted by investors seeking higher yields. Development of apartments and condominiums in major urban markets has increased. Office and industrial construction has started in the major markets, the highest starts since 2007. Debt is fully available and competitive between lenders, resulting in low interest rates and attractive terms to borrowers.

- Fund flows to the infrastructure sector continue to remain robust, as investor interest in the asset class continues to grow with several funds raising over \$5 billion in capital. Opportunities include North American energy where distressed pricing is appearing, power generation, European transportation, and emerging market fundamental infrastructure projects.
- In the commercial mortgage-backed securities (CMBS) market, spreads over the swap rate for AAA-rated securities decreased 15 basis points (bps) from the prior quarter and now stand at 78 bps. Commercial Mortgage Alert reported that CMBS issuance is projected to be over \$110 billion for 2015 compared to \$99.8 billion in 2014. A wave of refinancing for 2007 ten-year vintage loans is on the horizon. New banking rules by the federal government could impact the number of commercial lenders in the market in 2016. This could make it difficult for borrowers to refinance properties, as borrowing costs are expected to rise, but this provides opportunities for non-bank lenders, where REID and its managers have focused its attention.

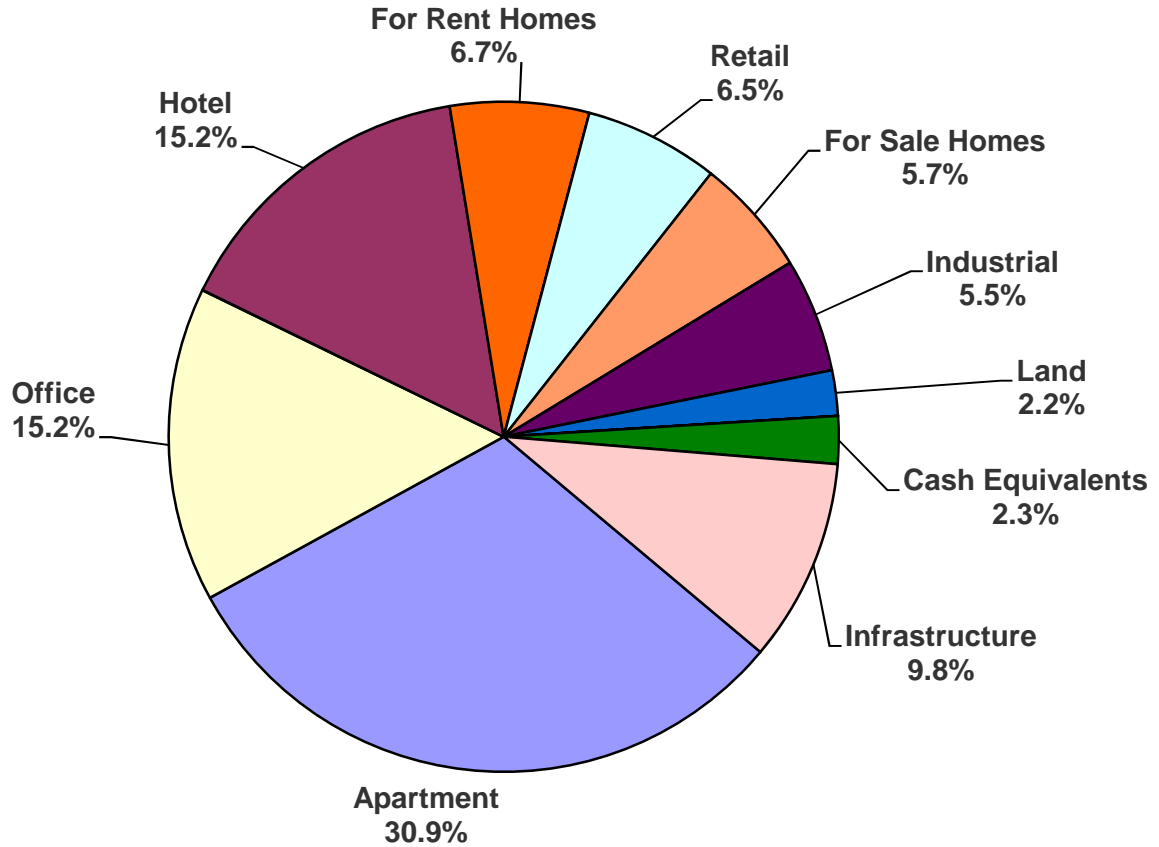




# SMRS

## Real Estate and Infrastructure

9/30/15



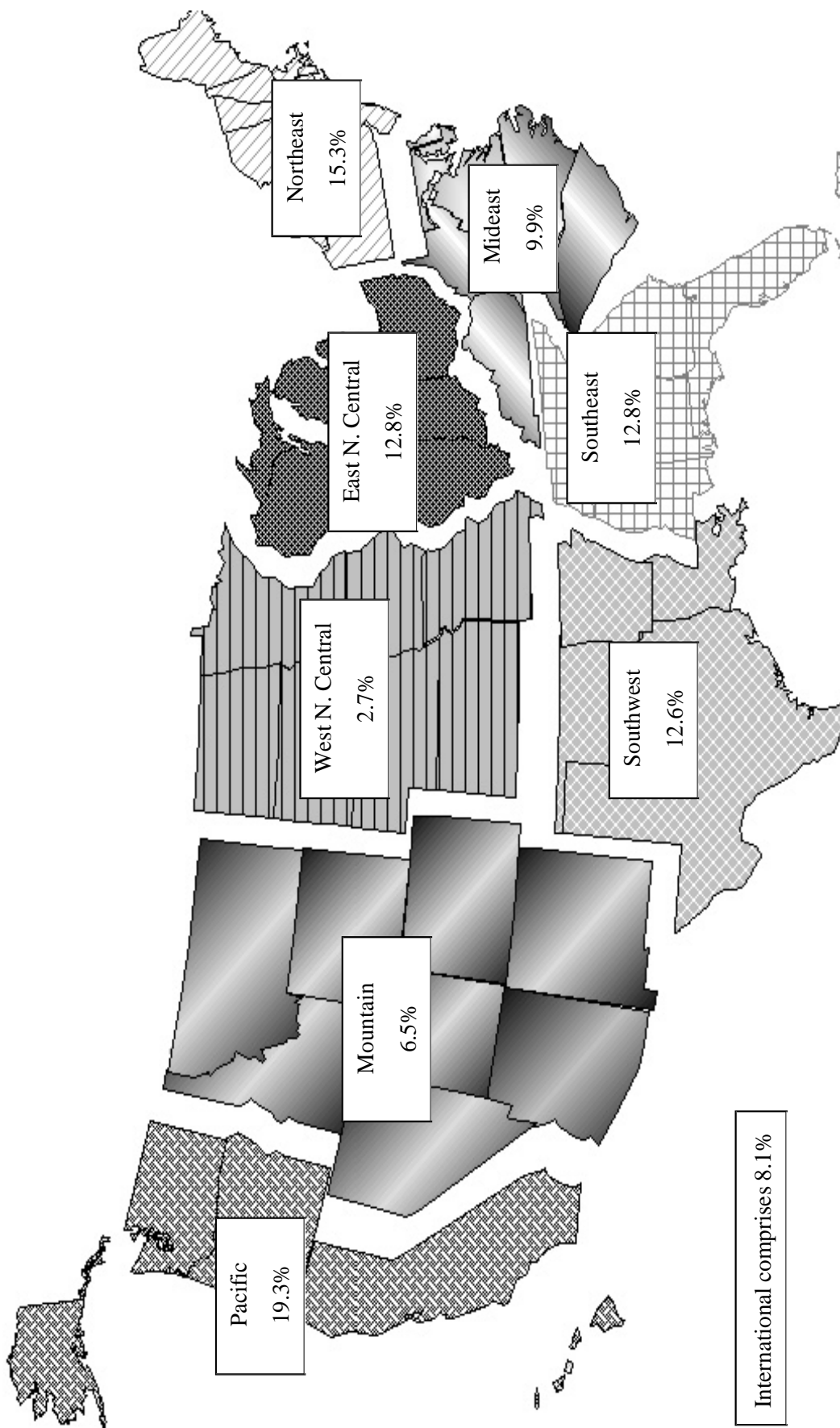
Market Value in Millions				
	9/30/15		6/30/15	
Apartment	\$1,840	30.9%	\$1,702	30.1%
Office	905	15.2%	908	16.0%
Hotel	902	15.2%	825	14.6%
Infrastructure	582	9.8%	564	10.0%
For Rent Homes	397	6.7%	397	7.0%
Retail	384	6.5%	374	6.6%
For Sale Homes	338	5.7%	329	5.8%
Industrial	326	5.5%	307	5.4%
Land	133	2.2%	133	2.3%
	<u>\$5,807</u>	<u>97.7%</u>	<u>\$5,539</u>	<u>97.8%</u>
Cash Equivalents	<u>139</u>	<u>2.3%</u>	<u>125</u>	<u>2.2%</u>
<b>Total Investments</b>	<b><u>\$5,946</u></b>	<b><u>100.0%</u></b>	<b><u>\$5,664</u></b>	<b><u>100.0%</u></b>



# SMRS

## Real Estate by Region

**Based on Net Market Value**  
(excludes cash & cash equivalents)  
9/30/15



Geographic regions defined by NCREIF, whose property index composition is: Pacific 30.6%, Mountain 5.4%, West N. Central 1.6%, Southwest 10.7%, East N. Central 7.8%, Southeast 9.7%, Northeast 21.3%, Midwest 12.9%



**SMRS**  
Real Estate and Infrastructure  
9/30/15

**Top Ten  
Advisors or Entity**

<u><b>Advisor or Entity</b></u>	<u><b>Net Market Value</b></u>
MWT Holdings, LLC (SHLP)	\$ 1,224,627,874
Clarion Partners (formerly ING Clarion)	620,937,558
Blackstone Group	556,785,100
Kensington Realty Advisors, Inc.	313,502,666
CIM Group, Inc.	235,883,856
Principal Real Estate Investors	233,958,618
Bentall Kennedy LP	228,145,744
Five Star Realty Partners, LLC	212,172,497
Domain Capital Advisors Inc	185,007,630
Rialto Capital	163,690,363
	\$ 3,974,711,906

**Occupancy  
by Property Type**

	<b>Apartment</b>	<b>Office</b>	<b>Industrial</b>	<b>Retail</b>	<b>Hotel</b>
SMRS Portfolio	94.3%	86.9%	90.5%	94.3%	76.8%
National Average	92.7%	86.6%	90.4%	94.1%	69.1%



**SMRS**  
**Net Market Values by Ownership Entity**  
**9/30/15**

**REAL ESTATE**

	<b>Net Market Value</b>	<b>Unfunded Commitment</b>
801 Grand Avenue Capital, LLC	\$ 85,328,401	\$ 0
AGL Annuity Contract GVA 0016	239,470,906	0
Avanath Affordable Housing I, LLC	26,439,120	2,492,748
Avanath Affordable Housing II, LLC	23,951,111	2,914,830
Beacon Capital Strategic Partners IV, LP	6,845,720	0
Beacon Capital Strategic Partners V, LP	9,123,237	2,500,000
Blackstone R/E IH3 Co-Inv Partners	397,242,897	0
Blackstone Real Estate Partners V, LP	41,266,702	2,087,026
Blackstone Real Estate Partners VI, LP	59,096,428	4,080,193
Blackstone Real Estate Partners VIII, LP	3,241,862	71,758,138
Capri Select Income II	135,606	0
Capri Urban Investors, LLC	17,107,123	0
CIM Fund III, LP	83,878,110	0
CIM Fund VIII, LP	31,848,805	70,384,617
CIM Urban REIT, LLC	91,857,770	0
CIM VI (Urban REIT), LLC	28,299,171	0
City Lights Investments, LLC	5,963	0
Clarion Gables Multifamily Trust	26,531,160	0
Cobalt Industrial REIT	1,901,637	0
Cobalt Industrial REIT II	2,372,364	0
CPI Capital Partners N.A., LP	2,346,067	0
CPI Capital Partners N.A. Secondary, LP	6,661,066	0
Crown Small Cap Real Estate	4,331,803	21,500,000
Devon Real Estate Conversion Fund, LP	5,676,786	0
Domain GVA-1, LLC	155,285,477	186,977,364
Domain Hotel Properties, LLC	424,114,764	0
Dynamic Retail Trust	75,404,207	0
* <b>Eastport Properties, LLC</b>	20,000,000	0
Gateway Capital R/E Fund II, LP	61,078,628	1,276,875
Great Lakes Property Group Trust	298,269,509	0
Invesco Mortgage Recovery Feeder Fund	25,977,696	140,620
Invesco Mortgage Recovery Fund II, LP	36,722,420	37,590,000
* <b>IPF II Co-Invest LP</b>	3,212,101	26,465,897
JBC North LaSalle, LLC	15,352,599	11,700,000
JBC Opportunity Fund III, LP	9,419,090	0
JP Morgan India Property Fund II, LLC	16,083,503	24,957,089
* <b>KBS/SM Fund III, LP</b>	102,076,933	30,000,000
L-A Saturn Acquisition, LP	33,960,501	0
Landmark Real Estate Partners V, LP	20,224,714	3,900,000
LaSalle Asia Opportunity Fund II, LP	272,749	0
LaSalle Asia Opportunity Fund III, LP	20,063,919	1,250,000
Lion Industrial Trust	149,066,298	0
Lion Mexico Fund, LP	21,225,336	0
Lowe Hospitality Investment Partners	157,222	0
Lubert-Adler Real Estate Fund VII, LP	20,903,154	52,500,000
MERS Acquisitions, Ltd.	126,519,169	0
MG Alliance, LLC	16,625,368	0
MIP Holdco, LLC	14,764,278	85,235,722
Morgan Stanley R/E Fund V - International	4,461,090	0

	<u>Net Market Value</u>	<u>Unfunded Commitment</u>
Morgan Stanley R/E Fund VI - International	35,924,073	0
Morgan Stanley R/E Fund V - U.S.	15,528,293	0
Morgan Stanley R/E Special Situations Fund III	56,351,924	0
MWT Holdings, LLC	1,224,627,874	0
Northpark-Land Associates, LLLP	29,722,153	64,500,000
Orange Investors LLC	36,634,144	0
Paladin Realty Brazil Investors III (USA), LP	34,750,727	0
Paladin Realty Latin America Investors IV-CI, LP	17,747,443	28,109,562
Principal Separate Account	148,630,217	0
Proprium RE Spec Situations Fund LP	16,772,079	11,984,814
Rialto Real Estate Fund, LP	36,483,317	0
Rialto Real Estate Fund II, LP	53,166,256	0
Rialto Mezzanine Partners Fund	74,040,790	0
SM Brell II, LP	57,580,375	0
Stockbridge Real Estate Fund II-C, LP	33,840,937	0
Strategic LP	229,216,072	43,600,000
TPG RE Finance Trust	94,989,295	5,659,260
* <b>TPG RE Fund II</b>	0	50,000,000
Trophy Property Development LP	61,196,654	7,408,100
True North High Yield Investment Fund II	29,203,724	5,000,000
True North Real Estate Fund III	9,586,202	39,109,428
Venture Center, LLC	40,155,540	0
Western National Realty Fund II, LP	22,454,512	0
	<u>\$ 5,224,803,140</u>	<u>\$ 895,082,284</u>
Short-Term Investments and Other	90,162,390	0
<b>Total Real Estate Investments</b>	<u><b>\$ 5,314,965,530</b></u>	<u><b>\$ 895,082,284</b></u>

### INFRASTRUCTURE

ArcLight Energy Partners Fund VI, LP	\$ 8,571,428	\$ 41,428,572
ASF VI Infrastructure B LP	7,702,619	22,132,534
ASF Como Co-Investment LP	34,123,112	19,764,949
Balfour Beatty Infrastructure Partners, LP	23,332,735	27,407,779
Blackstone Energy Partners, LP	55,937,211	6,074,914
Blackstone Energy Partners II, LP	0	85,000,000
Brookfield Infrastructure Fund II-B, LP	32,996,379	16,172,050
Customized Infrastructure Strategies, LP	79,504,313	8,678,303
Dalmore Capital Fund	68,470,961	0
First Reserve Energy Infrastructure Fund II, LP	3,646,967	70,553,806
GCM Grosvenor Infrastructure Investment Program, LP	52,671,569	0
GCM Grosvenor Customized Infrastructure Strategies II, LP	8,581,520	52,861,534
GSO Energy Select Opportunities Fund LP	0	50,000,000
JP Morgan AIRRO India Sidecar Fund US, LLC	72,596,969	5,033,815
JP Morgan AIRRO Fund II US, LLC	12,794,035	83,384,246
KKR Eagle Co-Invest GP LTD	15,698,425	14,582,543
KKR Global Infrastructure Investors, LP	70,626,871	10,963,470
StonePeak Infrastructure Fund LP	34,701,194	44,249,452
	<u>\$ 581,956,309</u>	<u>\$ 558,287,967</u>
Short-Term Investments and Other	49,305,533	0
<b>Total Infrastructure Investments</b>	<u><b>\$ 631,261,842</b></u>	<u><b>\$ 558,287,967</b></u>
<b>TOTAL INVESTMENTS</b>	<u><b>\$ 5,946,227,372</b></u>	<u><b>\$ 1,453,370,251</b></u>

\* New or additional commitment made during the quarter reported



**STATE OF MICHIGAN  
RETIREMENT SYSTEMS**

**BASKET CLAUSE REVIEW**

**INVESTMENT ADVISORY COMMITTEE MEETING**

**DECEMBER 1, 2015**



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







# SMRS

## Basket Clause Investments

9/30/15

<u>Asset Class</u>	<u>Value</u>
Total Absolute Return	\$4,316,727,815
Total Real Return and Opportunistic	804,200,117
Total International Equity	270,290,739
Total Long-Term Fixed Income	<u>33,786,323</u>
<b>Total Basket Clause Investments</b>	<b><u>\$5,425,004,994</u></b>

The basket clause investments at September 30, 2015, were \$5.4 billion or 9.1% of the total portfolio value of \$59.4 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.**

