#### FUND EVALUATION REPORT

## Massachusetts Housing Finance Agency Retirement System

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Quarterly Review March 31, 2018

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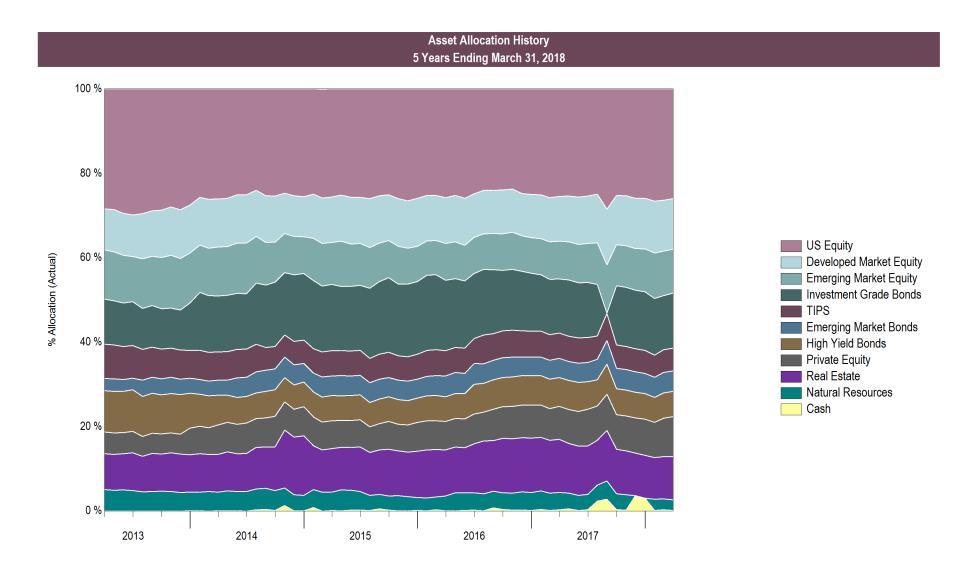
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	Allocation vs. Targ	gets and Policy			
	Current Balance	Current Allocation	Policy	Policy Range	Within IPS Range?
US Equity	\$38,390,698	26%	25%	20% - 30%	Yes
Developed Market Equity	\$17,644,115	12%	10%	6% - 14%	Yes
Emerging Market Equity	\$15,434,882	10%	10%	6% - 14%	Yes
Investment Grade Bonds	\$19,146,729	13%	10%	6% - 14%	Yes
TIPS	\$8,049,050	5%	6%	4% - 8%	Yes
Emerging Market Bonds	\$7,145,137	5%	5%	3% - 7%	Yes
High Yield Bonds	\$8,831,425	6%	6%	3% - 9%	Yes
Private Equity	\$13,937,435	9%	10%	6% - 14%	Yes
Real Estate	\$15,098,893	10%	10%	7% - 13%	Yes
Natural Resources	\$3,800,989	3%	3%	1% - 5%	Yes
Infrastructure	-	-	5%	0% - 8%	Yes
Cash	\$144,922	0%	0%	0% - 5%	Yes
Total	\$147,624,276	100%	100%		







	Asset Class Perform	nance Summ	nary						
	Market Value (\$)	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total Retirement System	147,624,276	100.0	0.0	9.5	6.3	6.3	5.4	5.6	Jul-01
60% MSCI ACWI / 40% Barclays Global Aggregate			0.0	11.7	6.2	6.2	4.6	6.0	Jul-01
InvestorForce All DB \$50mm-\$250mm Gross Median			-0.3	9.9	6.5	7.8	6.4	6.3	Jul-01
Domestic Equity Assets	38,390,698	26.0	-0.6	13.8	10.3	13.0	9.8	7.0	Jul-01
Russell 3000			-0.6	13.8	10.2	13.0	9.6	7.1	Jul-01
eV US Large Cap Equity Net Median			-0.9	13.3	9.1	12.3	9.1	7.4	Jul-01
Total International Developed Market Equity	17,644,115	12.0	-1.0	17.4	7.6	7.9	4.7	6.7	Jul-01
MSCI EAFE			-1.5	14.8	5.6	6.5	2.7	5.5	Jul-01
eV EAFE Core Equity Net Median			-1.0	16.9	6.8	7.7	3.9	6.8	Jul-01
International Emerging Market Equity Assets	15,434,882	10.5	1.6	20.3	7.2	2.7	1.8	1.9	Jul-07
MSCI Emerging Markets			1.4	24.9	8.8	5.0	3.0	3.3	Jul-07
eV Emg Mkts Equity Net Median			1.4	24.0	9.0	5.3	3.9	3.9	Jul-07
Investment Grade Bond Assets	19,146,729	13.0	-1.3	1.4	1.3	1.8	3.9	4.6	Jul-01
BBgBarc US Aggregate TR			-1.5	1.2	1.2	1.8	3.6	4.5	Jul-01
eV US Core Fixed Inc Gross Median			-1.4	1.6	1.6	2.2	4.3	5.0	Jul-01
High Yield Bond Assets	8,831,425	6.0	-1.8	2.7	4.2	4.7	7.1	6.3	Feb-05
CSFB High Yield Index			-0.8	3.7	5.2	4.9	7.8	6.9	Feb-05
eV US High Yield Fixed Inc Gross Median			-0.7	4.1	4.9	5.0	7.9	7.2	Feb-05
TIPS Assets	8,049,050	5.5	-0.8	0.9	1.2	0.0	2.9	4.1	Jul-07
BBgBarc US TIPS TR			-0.8	0.9	1.3	0.0	2.9	4.1	Jul-07
eV US TIPS / Inflation Fixed Inc Net Median			-0.8	1.0	1.2	0.0	2.9	4.2	Jul-07
Emerging Market Debt Assets	7,145,137	4.8	-0.3	7.3	2.9	-3.3		-3.3	Mar-13
50% JPM EMBI GD / 50% JPM GBI-EM			1.3	8.6	5.7	2.0	5.5	1.9	Mar-13
eV Emg Mkt Fixed Inc Unhedged Gross Median	1		-0.4	6.9	6.2	3.6	6.7	3.5	Mar-13
Real Estate Assets	15,098,893	10.2	2.1	8.4	10.4	10.7	2.8	5.9	Apr-05
NCREIF ODCE (net)			2.0	7.1	9.0	10.4	4.2	6.7	Apr-05



	Market Value (\$)	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Private Equity Assets	13,937,435	9.4	3.2	9.1	7.1	8.4	5.6	5.3	Oct-03
Cambridge Associates US All PE (1 Qtr Lag)			5.3	17.6	12.0	13.6	9.8	14.6	Oct-03
Natural Resources & Commodities Assets	3,800,989	2.6	-7.2	-7.2	-3.3	-8.4		-6.4	Jul-11
S&P Global Large MidCap Commodity and Resources NET			-3.1	12.1	4.1	-0.5		-2.3	Jul-11
Cash	144,922	0.1							



	Trailin	g Gross Pe	rformance							
	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total Retirement System	147,624,276	100.0		0.0	9.5	6.3	6.3	5.4	5.6	Jul-0
60% MSCI ACWI / 40% Barclays Global Aggregate InvestorForce All DB \$50mm-\$250mm Gross Median				0.0 -0.3	11.7 9.9	6.2 6.5	6.2 7.8	4.6 6.4	6.0 6.3	Jul-0 Jul-0
Domestic Equity Assets	38,390,698	26.0	26.0	-0.6	13.8	10.3	13.0	9.8	7.0	Jul-0
Russell 3000				-0.6	13.8	10.2	13.0	9.6	7.1	Jul-0
eV US Large Cap Equity Net Median				-0.9	13.3	9.1	12.3	9.1	7.4	Jul-0
SSgA Russell 1000 Value Index-NL	16,864,116	11.4	43.9	-2.8	7.1	8.0	10.9	7.8	7.3	Jan-0
Russell 1000 Value				-2.8	6.9	7.9	10.8	7.8	7.2	Jan-0
eV US Large Cap Value Equity Gross Median				-2.1	10.4	8.8	11.7	9.0	8.4	Jan-0
SSgA Russell 1000 Growth-NL	18,087,438	12.3	47.1	1.4	21.2	12.9	15.5	11.4	9.8	Jul-0
Russell 1000 Growth				1.4	21.3	12.9	15.5	11.3	9.8	Jul-0
eV US Large Cap Growth Equity Gross Median				2.2	21.3	11.7	15.2	11.1	9.6	Jul-0
SSgA Russell 2000 Index-NL	3,439,144	2.3	9.0	0.0	11.9	8.5	11.6		13.4	Aug-10
Russell 2000				-0.1	11.8	8.4	11.5	9.8	13.3	Aug-1
eV US Small Cap Core Equity Gross Median				-0.2	12.0	9.2	12.7	11.1	14.6	Aug-1
Total International Developed Market Equity	17,644,115	12.0	12.0	-1.0	17.4	7.6	7.9	4.7	6.7	Jul-0
MSCI EAFE				-1.5	14.8	5.6	6.5	2.7	5.5	Jul-0
eV EAFE Core Equity Net Median				-1.0	16.9	6.8	7.7	3.9	6.8	Jul-0
SSgA MSCI EAFE Index-NL	13,064,903	8.9	74.0	-1.4	15.2	5.9	6.8		7.4	Aug-10
MSCI EAFE				-1.5	14.8	5.6	6.5	2.7	7.0	Aug-1
eV EAFE Core Equity Gross Median				-0.9	17.6	7.5	8.3	4.5	8.9	Aug-1
SSgA MSCI EAFE Small Cap Index-NL	4,579,212	3.1	26.0	0.3	23.8	12.5	11.3	-	11.4	Aug-10
MSCI EAFE Small Cap				0.2	23.5	12.3	11.1	6.5	11.1	Aug-1
eV EAFE Small Cap Core Gross Median				-0.1	24.1	13.2	12.5	7.9	13.6	Aug-1



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	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
International Emerging Market Equity Assets	15,434,882	10.5	10.5	1.6	20.3	7.2	2.7	1.8	1.9	Jul-07
MSCI Emerging Markets				1.4	24.9	8.8	5.0	3.0	3.3	Jul-07
eV Emg Mkts Equity Net Median				1.4	24.0	9.0	5.3	3.9	3.9	Jul-07
DFA Emerging Markets Value (Net)	2,859,029	1.9	18.5	2.2	19.8	10.1	4.3	2.6	2.7	Jul-07
MSCI Emerging Markets Value NR USD				1.6	18.1	6.6	2.6	2.2	2.8	Jul-07
eV Emg Mkts Equity Net Median				1.4	24.0	9.0	5.3	3.9	3.9	Jul-07
LMCG Emerging Markets (Net)	6,410,134	4.3	41.5	1.8	23.6				11.1	Aug-15
MSCI Emerging Markets				1.4	24.9	8.8	5.0	3.0	12.7	Aug-15
eV Emg Mkts Equity Net Median				1.4	24.0	9.0	5.3	3.9	12.3	Aug-15
KB Investors Emerging Markets Equity (Net)	6,165,719	4.2	39.9	0.6	15.6				14.5	Oct-15
MSCI Emerging Markets				1.4	24.9	8.8	5.0	3.0	19.4	Oct-15
eV Emg Mkts Equity Net Median				1.4	24.0	9.0	5.3	3.9	18.9	Oct-15
Investment Grade Bond Assets	19,146,729	13.0	13.0	-1.3	1.4	1.3	1.8	3.9	4.6	Jul-01
BBgBarc US Aggregate TR				-1.5	1.2	1.2	1.8	3.6	4.5	Jul-01
eV US Core Fixed Inc Gross Median				-1.4	1.6	1.6	2.2	4.3	5.0	Jul-01
Longfellow Investment Grade Bond	19,146,729	13.0	100.0	-1.3					-1.4	Sep-17
BBgBarc US Aggregate TR				-1.5	1.2	1.2	1.8	3.6	-1.5	Sep-17
eV US Core Fixed Inc Gross Median				-1.4	1.6	1.6	2.2	4.3	-1.3	Sep-17
High Yield Bond Assets	8,831,425	6.0	6.0	-1.8	2.7	4.2	4.7	7.1	6.3	Feb-05
CSFB High Yield Index				-0.8	3.7	5.2	4.9	7.8	6.9	Feb-05
eV US High Yield Fixed Inc Gross Median				-0.7	4.1	4.9	5.0	7.9	7.2	Feb-05
Columbia Insitutional High Yield	8,831,425	6.0	100.0	-1.8	2.7	4.2	4.7		5.8	Mar-12
BBgBarc US High Yield TR				-0.9	3.8	5.2	5.0	8.3	6.2	Mar-12
eV US High Yield Fixed Inc Gross Median				-0.7	4.1	4.9	5.0	7.9	6.2	Mar-12



									As of Mar	ch 31, 2018
	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
TIPS Assets	8,049,050	5.5	5.5	-0.8	0.9	1.2	0.0	2.9	4.1	Jul-07
BBgBarc US TIPS TR				-0.8	0.9	1.3	0.0	2.9	4.1	Jul-07
eV US TIPS / Inflation Fixed Inc Net Median				-0.8	1.0	1.2	0.0	2.9	4.2	Jul-07
SSgA TIPS-NL	8,049,050	5.5	100.0	-0.8	0.9	1.2	0.0	2.9	4.1	Jul-07
BBgBarc US TIPS TR				-0.8	0.9	1.3	0.0	2.9	4.1	Jul-07
eV US TIPS / Inflation Fixed Inc Gross Median				-0.7	1.1	1.4	0.2	3.0	4.2	Jul-07
Emerging Market Debt Assets	7,145,137	4.8	4.8	-0.3	7.3	2.9	-3.3		-3.3	Mar-13
50% JPM EMBI GD / 50% JPM GBI-EM				1.3	8.6	5.7	2.0	5.5	1.9	Mar-13
eV Emg Mkt Fixed Inc Unhedged Gross Median				-0.4	6.9	6.2	3.6	6.7	3.5	Mar-13
Logan Circle Emerging Markets Debt (Net)	3,477,047	2.4	48.7	0.5	8.2				8.6	Nov-16
Logan Circle Custom Benchmark				0.3	6.3	5.5	2.8	5.6	5.3	Nov-16
eV Emg Mkt Fixed Inc Unhedged Gross Median				-0.4	6.9	6.2	3.6	6.7	6.8	Nov-16
Aberdeen Emerging Markets Bond Fund	3,668,090	2.5	51.3	-0.9	6.6				9.1	Dec-16
50% JPM EMBI GD / 50% JPM GBI-EM				1.3	8.6	5.7	2.0	5.5	11.8	Dec-16
JP Morgan GBI EM Global Diversified TR USD				4.4	13.0	5.4	-0.7	3.7	16.5	Dec-16
eV Emg Mkt Fixed Inc Unhedged Gross Median				-0.4	6.9	6.2	3.6	6.7	10.3	Dec-16
Real Estate Assets	15,098,893	10.2	10.2	2.1	8.4	10.4	10.7	2.8	5.9	Apr-05
NCREIF ODCE (net)				2.0	7.1	9.0	10.4	4.2	6.7	Apr-05
AG Realty Fund IV	4,103	0.0	0.0					- 1		
TA Associates Realty Fund IX	19,452	0.0	0.1					- 1		
TA Associates Realty Fund X	1,952,299	1.3	12.9							
Intercontinental U.S. REIF (Net)	5,662,051	3.8	37.5	2.6	8.7	10.9			10.5	Oct-14
NCREIF ODCE (net)				2.0	7.1	9.0	10.4	4.2	9.6	Oct-14

AG Realty Fund IV, TA Associates Realty Fund IX, and TA Associates Realty Fund X are based on December 31, 2017 fair market value, adjusted for subsequent cash flows.



As of March 31, 2018

	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
AEW Core Property Trust (Net)  NCREIF ODCE (net)	7,460,988	5.1	49.4	1.5 2.0	6.3 7.1	8.8 9.0	10.4	 4.2	9.0 9.6	Oct-14 Oct-14
Private Equity Assets	13,937,435	9.4	9.4	3.2	9.1	7.1	8.4	5.6	5.3	Oct-03
Cambridge Associates US All PE (1 Qtr Lag)				5.3	17.6	12.0	13.6	9.8	14.6	Oct-03
Ascent Venture Partners - Fund II	6,031	0.0	0.0					- 1		
Ascent Venture Partners - Fund III	79,887	0.1	0.6					- 1		
Ascent Venture Partners - Fund IV	145,097	0.1	1.0							
Ascent Venture Partners - Fund V	943,470	0.6	6.8							
Ascent Venture Partners - Fund VI	880,285	0.6	6.3							
Constitution Capital Partners Ironsides III	2,435,094	1.6	17.5							
Constitution Capital Partners Ironsides IV	536,987	0.4	3.9							
Constitution Capital Direct IV	2,407,022	1.6	17.3							
Goldman Sachs PEP 2005	781,493	0.5	5.6							
HarbourVest Partners VIII	1,039,583	0.7	7.5							
HarbourVest Partners IX	3,353,016	2.3	24.1							
HarbourVest X Buyout Fund	1,329,469	0.9	9.5					- 1		

Private Equity Assets: Based on December 31, 2017 fair market value, adjusted for subsequent cash flows.



	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Natural Resources & Commodities Assets	3,800,989	2.6	2.6	-7.2	-7.2	-3.3	-8.4		-6.4	Jul-11
S&P Global Large MidCap Commodity and Resources NET				-3.1	12.1	4.1	-0.5	-	-2.3	Jul-11
SSgA S&P Global LargeMidCap Natural Resources Index	3,800,989	2.6	100.0						-7.4	Feb-18
S&P Global Large MidCap Commodity and Resources NET				-3.1	12.1	4.1	-0.5	-	-7.5	Feb-18
Cash	144,922	0.1	0.1							
Cash STIF	144,922	0.1	100.0							



	Calendar \	ear Perfo	rmance							
	2017 (%)	2016 (%)	2015 (%)	2014 (%)	2013 (%)	2012 (%)	2011 (%)	2010 (%)	2009 (%)	2008 (%)
Total Retirement System	14.4	9.6	-2.7	4.3	10.9	12.2	2.2	12.5	17.7	-24.7
60% MSCI ACWI / 40% Barclays Global Aggregate	17.1	5.7	-2.5	2.8	12.1	11.5	-2.1	10.2	23.3	-25.9
Domestic Equity Assets	21.0	13.1	0.4	12.4	33.5	16.3	1.0	17.5	30.8	-38.3
Russell 3000	21.1	12.7	0.5	12.6	33.6	16.4	1.0	16.9	28.3	-37.3
SSgA Russell 1000 Value Index-NL	13.8	17.3	-3.7	13.4	32.5	17.4	0.4	15.6	20.0	-36.8
Russell 1000 Value	13.7	17.3	-3.8	13.5	32.5	17.5	0.4	15.5	19.7	-36.8
SSgA Russell 1000 Growth-NL	30.2	7.2	5.6	13.1	33.5	15.4	2.6	16.7	37.2	-38.4
Russell 1000 Growth	30.2	7.1	5.7	13.0	33.5	15.3	2.6	16.7	37.2	-38.4
SSgA Russell 2000 Index-NL	14.7	21.5	-4.4	5.0	38.9	16.4	-4.1			_
Russell 2000	14.6	21.3	-4.4	4.9	38.8	16.3	-4.2	26.9	27.2	-33.8
Total International Developed Market Equity	27.5	1.6	2.0	-4.7	24.4	18.1	-12.6	11.4	36.3	-41.5
MSCI EAFE	25.0	1.0	-0.8	-4.9	22.8	17.3	-12.1	7.8	31.8	-43.4
SSgA MSCI EAFE Index-NL	25.5	1.4	-0.5	-4.6	23.1	17.7	-11.9			
MSCI EAFE	25.0	1.0	-0.8	-4.9	22.8	17.3	-12.1	7.8	31.8	-43.4
SSgA MSCI EAFE Small Cap Index-NL	33.3	2.4	9.7	-4.7	29.5	20.1	-15.0			_
MSCI EAFE Small Cap	33.0	2.2	9.6	-4.9	29.3	20.0	-15.9	22.0	46.8	-47.0
International Emerging Market Equity Assets	32.2	11.7	-18.1	-4.4	-3.8	18.8	-25.6	22.1	92.3	-53.9
MSCI Emerging Markets	37.3	11.2	-14.9	-2.2	-2.6	18.2	-18.4	18.9	78.5	-53.3
DFA Emerging Markets Value (Net)	33.8	19.8	-18.8	-4.4	-3.8	18.8	-25.6	22.1	92.3	-53.9
MSCI Emerging Markets Value NR USD	28.1	14.9	-18.6	-4.1	-5.1	15.9	-17.9	19.8	79.1	-50.3
LMCG Emerging Markets (Net)	35.1	7.0								
MSCI Emerging Markets	37.3	11.2	-14.9	-2.2	-2.6	18.2	-18.4	18.9	78.5	-53.3



	2017 (%)	2016 (%)	2015 (%)	2014 (%)	2013 (%)	2012 (%)	2011 (%)	2010 (%)	2009 (%)	2008 (%)
KB Investors Emerging Markets Equity (Net)	27.2	12.0								
MSCI Emerging Markets	37.3	11.2	-14.9	-2.2	-2.6	18.2	-18.4	18.9	78.5	-53.3
Investment Grade Bond Assets	3.5	2.7	0.8	6.1	-3.1	4.6	8.5	6.7	9.7	3.8
BBgBarc US Aggregate TR	3.5	2.6	0.5	6.0	-2.0	4.2	7.8	6.5	5.9	5.2
Longfellow Investment Grade Bond	<del></del>									
BBgBarc US Aggregate TR	3.5	2.6	0.5	6.0	-2.0	4.2	7.8	6.5	5.9	5.2
High Yield Bond Assets	6.8	11.5	-0.2	4.1	6.0	13.6	6.2	12.9	43.2	-23.3
CSFB High Yield Index	7.0	18.3	-4.9	1.9	7.5	14.7	5.5	14.4	54.2	-26.2
Columbia Insitutional High Yield	6.8	11.5	-0.2	4.1	6.0					
BBgBarc US High Yield TR	7.5	17.1	-4.5	2.5	7.4	15.8	5.0	15.1	58.2	-26.2
TIPS Assets	3.0	4.5	-1.4	3.6	-8.6	6.9	13.5	6.3	11.3	-2.4
BBgBarc US TIPS TR	3.0	4.7	-1.4	3.6	-8.6	7.0	13.6	6.3	11.4	-2.4
SSgA TIPS-NL	3.0	4.5	-1.4	3.6	-8.6	6.9	13.5	6.3	11.3	-2.4
BBgBarc US TIPS TR	3.0	4.7	-1.4	3.6	-8.6	7.0	13.6	6.3	11.4	-2.4
Emerging Market Debt Assets	13.3	10.0	-15.2	-8.5			-			-
50% JPM EMBI GD / 50% JPM GBI-EM	12.7	10.2	-7.1	0.7	-7.1	17.2	2.8	13.8	26.0	-8.6
Logan Circle Emerging Markets Debt (Net)	13.4									
Logan Circle Custom Benchmark	10.6	10.4	-3.9	1.4	-4.4	17.9	2.0	12.6	27.9	-11.7
Aberdeen Emerging Markets Bond Fund	13.3									
50% JPM EMBI GD / 50% JPM GBI-EM	12.7	10.2	-7.1	0.7	-7.1	17.2	2.8	13.8	26.0	-8.6



As of March 31, 2018

	2017 (%)	2016 (%)	2015 (%)	2014 (%)	2013 (%)	2012 (%)	2011 (%)	2010 (%)	2009 (%)	2008 (%)
Real Estate Assets	8.5	9.0	13.8	12.8	10.1	12.5	16.7	12.7	-38.9	-14.2
NCREIF ODCE (net)	6.7	7.8	14.0	11.5	12.9	9.8	15.0	15.3	-30.4	-10.7
AG Realty Fund IV										
TA Associates Realty Fund IX										
TA Associates Realty Fund X										
Intercontinental U.S. REIF (Net)	7.5	10.9	12.5							
NCREIF ODCE (net)	6.7	7.8	14.0	11.5	12.9	9.8	15.0	15.3	-30.4	-10.7
AEW Core Property Trust (Net)	6.6	7.6	12.8							
NCREIF ODCE (net)	6.7	7.8	14.0	11.5	12.9	9.8	15.0	15.3	-30.4	-10.7
Private Equity Assets	11.8	6.3	0.8	13.5	9.5	9.2	7.9	19.9	-14.2	-2.8
Cambridge Associates US All PE (1 Qtr Lag)	16.8	8.7	6.0	17.9	17.5	15.2	15.1	18.3	-10.3	-4.9

Ascent Venture Partners - Fund II

Ascent Venture Partners - Fund III

Ascent Venture Partners - Fund IV

Ascent Venture Partners - Fund V

Ascent Venture Partners - Fund VI

Constitution Capital Partners Ironsides III

Constitution Capital Partners Ironsides IV

Constitution Capital Direct IV

Goldman Sachs PEP 2005



## Massachusetts Housing Finance Agency Retirement System

							Retirer	ımary			
								A	As of March 31, 2018		
	2017 (%)	2016 (%)	2015 (%)	2014 (%)	2013 (%)	2012 (%)	2011 (%)	2010 (%)	2009 (%)	2008 (%)	
HarbourVest Partners VIII											
HarbourVest Partners IX											
HarbourVest X Buyout Fund											
Natural Resources & Commodities Assets	-0.9	53.7	-38.0	-22.6	-0.3	6.5	-		-		
S&P Global Large MidCap Commodity and Resources NET	18.1	30.8	-27.5	-9.9	-2.9	7.0	-14.1	19.5			
SSgA S&P Global LargeMidCap Natural Resources Index											
S&P Global Large MidCap Commodity and Resources NET	18.1	30.8	-27.5	-9.9	-2.9	7.0	-14.1	19.5			
Cash											
Cash STIF											



Statistics Summary 5 Years Ending March 31, 2018						
	Anlzd Return	Anlzd Standard Deviation	Information Ratio	Beta	Sharpe Ratio	Tracking Error
Total Retirement System	6.3%	6.1%	0.0	0.8	1.0	2.0%
60% MSCI ACWI / 40% Barclays Global Aggregate	6.2%	7.1%		1.0	0.8	0.0%
Total Equity	9.5%	10.4%	-0.9	1.0	0.9	3.8%
Russell 3000	13.0%	10.0%		1.0	1.3	0.0%
Domestic Equity Assets	13.0%	10.0%	-0.3	1.0	1.3	0.2%
Russell 3000	13.0%	10.0%		1.0	1.3	0.0%
SSgA Russell 1000 Value Index-NL	10.7%	10.0%	-0.7	1.0	1.0	0.1%
Russell 1000 Value	10.8%	10.0%		1.0	1.0	0.0%
SSgA Russell 1000 Growth-NL	15.4%	10.5%	-2.6	1.0	1.4	0.0%
Russell 1000 Growth	15.5%	10.5%		1.0	1.4	0.0%
SSgA Russell 2000 Index-NL	11.4%	13.8%	-0.3	1.0	0.8	0.1%
Russell 2000	11.5%	13.8%		1.0	0.8	0.0%
nternational Equity Assets	5.1%	12.7%	-0.6	1.0	0.4	2.8%
MSCI ACWI ex USA IMI Gross	6.7%	11.8%		1.0	0.5	0.0%
Total International Developed Market Equity	7.8%	11.7%	1.3	1.0	0.6	1.1%
MSCI EAFE	6.5%	11.9%		1.0	0.5	0.0%
SSgA MSCI EAFE Index-NL	6.7%	11.9%	1.9	1.0	0.5	0.1%
MSCI EAFE	6.5%	11.9%		1.0	0.5	0.0%
SSgA MSCI EAFE Small Cap Index-NL	11.1%	11.7%	-0.1	1.0	0.9	0.2%
MSCI EAFE Small Cap	11.1%	11.8%		1.0	0.9	0.0%



	Anlzd Return	Anlzd Standard Deviation	Information Ratio	Beta	Sharpe Ratio	Tracking Error
International Emerging Market Equity Assets	2.6%	15.6%	-0.9	1.0	0.1	2.6%
MSCI Emerging Markets	5.0%	15.0%		1.0	0.3	0.0%
DFA Emerging Markets Value	4.3%	16.6%	0.7	1.0	0.2	2.3%
MSCI Emerging Markets Value NR USD	2.6%	16.0%		1.0	0.1	0.0%
LMCG Emerging Markets				-		
MSCI Emerging Markets	5.0%	15.0%		1.0	0.3	0.0%
KB Investors Emerging Markets Equity				-		
MSCI Emerging Markets	5.0%	15.0%		1.0	0.3	0.0%
Fixed Income Assets	1.4%	4.0%	-0.4	1.3	0.3	1.9%
BBgBarc US Universal TR	2.2%	2.9%		1.0	0.6	0.0%
Investment Grade Bond Assets	1.8%	3.0%	-0.1	1.0	0.5	0.3%
BBgBarc US Aggregate TR	1.8%	2.9%		1.0	0.5	0.0%
Longfellow Investment Grade Bond				-		
BBgBarc US Aggregate TR	1.8%	2.9%		1.0	0.5	0.0%
High Yield Bond Assets	4.6%	4.7%	-0.1	0.8	0.9	2.1%
CSFB High Yield Index	4.9%	5.3%		1.0	0.9	0.0%
Columbia Insitutional High Yield	4.6%	4.7%	-0.2	0.8	0.9	1.9%
BBgBarc US High Yield TR	5.0%	5.3%		1.0	0.9	0.0%
TIPS Assets	0.0%	4.5%	-0.7	1.0	-0.1	0.0%
BBgBarc US TIPS TR	0.0%	4.5%		1.0	-0.1	0.0%
SSgA TIPS-NL	0.0%	4.5%	-1.0	1.0	-0.1	0.1%
BBgBarc US TIPS TR	0.0%	4.5%		1.0	-0.1	0.0%
Emerging Market Debt Assets	-3.3%	11.3%	-1.4	1.3	-0.3	3.9%
50% JPM EMBI GD / 50% JPM GBI-EM	2.0%	8.3%		1.0	0.2	0.0%



	Anlzd Return	Anlzd Standard Deviation	Information Ratio	Beta	Sharpe Ratio	Tracking Error
Logan Circle Emerging Markets Debt						
Logan Circle Custom Benchmark	2.8%	6.9%		1.0	0.4	0.0%
Aberdeen Emerging Markets Bond Fund				-		
50% JPM EMBI GD / 50% JPM GBI-EM	2.0%	8.3%		1.0	0.2	0.0%
Real Estate Assets	10.7%	4.5%	0.2	1.0	2.3	1.3%
NCREIF ODCE (net)	10.4%	4.4%		1.0	2.3	0.0%
AG Realty Fund IV	0.0%	0.0%	-2.4	0.0		4.4%
NCREIF ODCE (net)	10.4%	4.4%		1.0	2.3	0.0%
TA Associates Realty Fund IX	11.9%	9.1%	0.2	1.1	1.3	7.7%
NCREIF ODCE (net)	10.4%	4.4%		1.0	2.3	0.0%
TA Associates Realty Fund X	11.2%	6.9%	0.1	0.9	1.6	5.8%
NCREIF ODCE (net)	10.4%	4.4%		1.0	2.3	0.0%
Intercontinental U.S. REIF				-		
NCREIF ODCE (net)	10.4%	4.4%		1.0	2.3	0.0%
AEW Core Property Trust						
NCREIF ODCE (net)	10.4%	4.4%		1.0	2.3	0.0%
Private Equity Assets	8.4%	5.4%	-1.3	0.6	1.5	4.1%
Cambridge Associates US All PE (1 Qtr Lag)	13.6%	6.7%		1.0	2.0	0.0%
Ascent Venture Partners - Fund II	39.1%	37.6%	0.7	2.0	1.0	35.7%
Cambridge Associates US All PE (1 Qtr Lag)	13.6%	6.7%		1.0	2.0	0.0%
Ascent Venture Partners - Fund III	-9.2%	15.5%	-1.4	0.2	-0.6	16.3%
Cambridge Associates US All PE (1 Qtr Lag)	13.6%	6.7%		1.0	2.0	0.0%



	Anlzd Return	Anlzd Standard Deviation	Information Ratio	Beta	Sharpe Ratio	Tracking Error
Ascent Venture Partners - Fund IV	-27.2%	37.7%	-1.1	-0.3	-0.7	38.7%
Cambridge Associates US All PE (1 Qtr Lag)	13.6%	6.7%		1.0	2.0	0.0%
Ascent Venture Partners - Fund V	8.1%	7.3%	-0.8	0.5	1.1	7.1%
Cambridge Associates US All PE (1 Qtr Lag)	13.6%	6.7%		1.0	2.0	0.0%
Ascent Venture Partners - Fund VI				-		
Cambridge Associates US All PE (1 Qtr Lag)	13.6%	6.7%		1.0	2.0	0.0%
Constitution Capital Partners Ironsides III				-		
Cambridge Associates US All PE (1 Qtr Lag)	13.6%	6.7%		1.0	2.0	0.0%
Constitution Capital Partners Ironsides IV				-		
Cambridge Associates US All PE (1 Qtr Lag)	13.6%	6.7%		1.0	2.0	0.0%
Constitution Capital Direct IV				-		
Cambridge Associates US All PE (1 Qtr Lag)	13.6%	6.7%		1.0	2.0	0.0%
Goldman Sachs PEP 2005	6.0%	6.4%	-1.2	0.5	0.9	6.1%
Cambridge Associates US All PE (1 Qtr Lag)	13.6%	6.7%		1.0	2.0	0.0%
HarbourVest Partners VIII	15.6%	6.9%	0.6	0.9	2.2	3.5%
Cambridge Associates US All PE (1 Qtr Lag)	13.6%	6.7%		1.0	2.0	0.0%
HarbourVest Partners IX						
Cambridge Associates US All PE (1 Qtr Lag)	13.6%	6.7%		1.0	2.0	0.0%
HarbourVest X Buyout Fund						
Cambridge Associates US All PE (1 Qtr Lag)	13.6%	6.7%		1.0	2.0	0.0%
Natural Resources & Commodities Assets	-8.4%	24.9%	-0.6	1.3	-0.3	13.5%
S&P Global Large MidCap Commodity and Resources NET	-0.5%	16.7%		1.0	-0.1	0.0%
SSgA S&P Global LargeMidCap Natural Resources Index				-		
S&P Global Large MidCap Commodity and Resources NET	-0.5%	16.7%		1.0	-0.1	0.0%



**Retirement System Detail** 

# **Domestic Equity Assets**

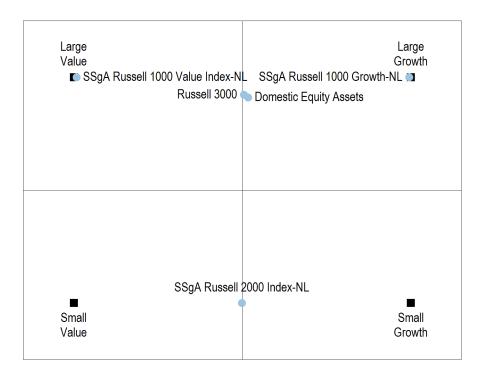
#### **Domestic Equity Assets**

As of March 31, 2018

Asset Allocation on March 31, 2018					
	Actual	Actual			
SSgA Russell 1000 Growth-NL	\$18,087,438	47.1%			
SSgA Russell 1000 Value Index-NL	\$16,864,116	43.9%			
SSgA Russell 2000 Index-NL	\$3,439,144	9.0%			
Total	\$38,390,698	100.0%			

#### Return Summary Ending March 31, 2018 20.0 13.7 13.8 15.0 13.0 13.0 10.2 10.2 10.0 Rate of Return % 5.0 0.0 -0.6 -0.6 -2.0 -5.0 -10.0 QTD Mar-18 1 Year 3 Years 5 Years Domestic Equity Assets Russell 3000

#### Domestic Equity Assets Style Map 3 Years Ending March 31, 2018



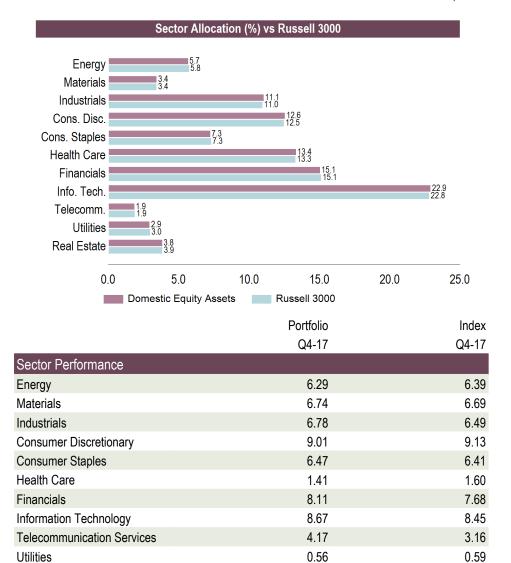


#### **Domestic Equity Assets**

As of March 31, 2018

Domestic Equity Assets Characteristics					
	Portfolio	Index	Portfolio		
	Q1-18	Q1-18	Q4-17		
Market Value					
Market Value (\$M)	38.4		38.6		
Number Of Holdings	2937	2958	2944		
Characteristics					
Weighted Avg. Market Cap. (\$B)	150.1	152.0	149.0		
Median Market Cap (\$B)	2.1	1.7	2.1		
P/E Ratio	25.5	23.5	26.6		
Yield	1.9	1.8	1.8		
EPS Growth - 5 Yrs.	14.8	9.4	13.5		
Price to Book	5.1	4.3	5.8		
Beta (holdings; domestic)	1.0	1.0	1.1		

Top 10 Holdings				
APPLE	3.2%			
MICROSOFT	2.3%			
AMAZON.COM	1.7%			
FACEBOOK CLASS A	1.5%			
BERKSHIRE HATHAWAY 'B'	1.4%			
JOHNSON & JOHNSON	1.3%			
JP MORGAN CHASE & CO.	1.3%			
EXXON MOBIL	1.3%			
ALPHABET 'C'	1.2%			
ALPHABET A	1.1%			
Total	16.3%			





2.60

2.99

Real Estate

As of March 31, 2018

Asset Allocation on March 31, 2018						
	Actual	Actual				
DFA Emerging Markets Value	\$2,859,029	8.6%				
KB Investors Emerging Markets Equity	\$6,165,719	18.6%				
LMCG Emerging Markets	\$6,410,134	19.4%				
SSgA MSCI EAFE Index-NL	\$13,064,903	39.5%				
SSgA MSCI EAFE Small Cap Index-NL	\$4,579,212	13.8%				
Total	\$33,078,997	100.0%				

#### Return Summary Ending March 31, 2018 30.0 25.0 20.0 18.3 17.6 Rate of Return % 15.0 10.0 7.2 7.2 6.7 5.1 5.0 0.1 0.0 -1.0 -1.6 -10.0 QTD Mar-18 5 Years 1 Year 3 Years International Equity Assets MSCI ACWI ex USA IMI Gross

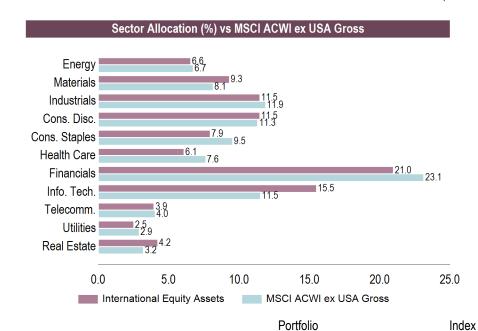
#### International Equity Assets Style Map 3 Years Ending March 31, 2018





Total International Equity Characteristics						
	Portfolio	Index	Portfolio			
	Q1-18	Q1-18	Q4-17			
Market Value						
Market Value (\$M)	33.1	-	33.0			
Number Of Holdings	5744	1864	5699			
Characteristics						
Weighted Avg. Market Cap. (\$B)	50.1	65.0	50.4			
Median Market Cap (\$B)	1.2	8.5	1.3			
P/E Ratio	18.3	18.6	19.4			
Yield	3.0	3.0	2.8			
EPS Growth - 5 Yrs.	10.9	9.9	8.0			
Price to Book	3.1	2.5	3.2			
Beta (holdings; domestic)	1.0	1.1	1.0			

Top 10 Holdings	
TAIWAN SEMICON.MNFG.	1.5%
CHINA CON.BANK 'H'	1.3%
SAMSUNG ELECTRONICS	1.0%
TENCENT HOLDINGS	1.0%
INDL&COML.BOC.'H'	0.9%
NESTLE 'R'	0.7%
ALIBABA GROUP HLDG.SPN. ADR 1:1	0.7%
HON HAI PRECN.IND.	0.6%
NETEASE ADR 1:25	0.6%
HSBC HOLDINGS	0.6%
Total	8.9%



	Q4-17	Q4-17
Sector Performance		
Energy	8.59	7.53
Materials	7.88	8.20
Industrials	4.43	4.76
Consumer Discretionary	9.23	6.09
Consumer Staples	5.71	5.39
Health Care	0.78	1.29
Financials	4.09	4.59
Information Technology	6.68	6.27
Telecommunication Services	1.91	1.47
Utilities	0.93	-0.46
Real Estate	6.09	6.20



Total International Equity Region Allocation						
vs MSCI ACWI ex USA Gross						
Region	% of Total	% of Bench	% Diff			
North America ex U.S.	0.0%	6.1%	-6.1%			
United States	0.3%	0.0%	0.3%			
Europe Ex U.K.	23.8%	31.6%	-7.8%			
United Kingdom	9.0%	11.9%	-2.9%			
Pacific Basin Ex Japan	10.4%	8.0%	2.4%			
Japan	14.1%	16.7%	-2.7%			
Emerging Markets	42.1%	25.2%	16.8%			
Other	0.4%	0.5%	-0.1%			
Total	100.0%	100.0%	0.0%			



Total International Equity Country Allocation				
	vs MSCI ACWI ex USA Gross			
Country	% of Total	% of Bench	% Diff	
ARGENTINA	0.0%	0.0%	0.0%	
AUSTRALIA	3.5%	4.5%	-1.0%	
AUSTRIA	0.2%	0.2%	0.1%	
BAHRAIN	0.0%	0.0%	0.0%	
BANGLADESH	0.0%	0.0%	0.0%	
BELGIUM	0.7%	0.8%	-0.1%	
BRAZIL	4.0%	1.9%	2.1%	
BULGARIA	0.0%	0.0%	0.0%	
CANADA	0.0%	6.1%	-6.1%	
CHILE	0.3%	0.3%	-0.1%	
CHINA	7.4%	7.6%	-0.2%	
COLOMBIA	0.1%	0.1%	0.0%	
CROATIA	0.0%	0.0%	0.0%	
CZECH REPUBLIC	0.0%	0.0%	0.0%	
DENMARK	0.9%	1.3%	-0.3%	
EGYPT	0.0%	0.0%	0.0%	
ESTONIA	0.0%	0.0%	0.0%	
FINLAND	0.6%	0.7%	-0.1%	
FRANCE	4.7%	7.5%	-2.7%	
GERMANY	4.7%	6.6%	-1.9%	
GREECE	0.1%	0.1%	0.0%	
HONG KONG	5.9%	2.5%	3.4%	
HUNGARY	0.4%	0.1%	0.3%	
INDIA	5.1%	2.1%	3.0%	



Country	% of Total	% of Bench	% Diff
INDONESIA	1.1%	0.5%	0.6%
IRELAND	0.3%	0.3%	0.0%
ISRAEL	0.3%	0.3%	0.0%
ITALY	1.6%	1.7%	-0.2%
JAPAN	14.1%	16.7%	-2.7%
JORDAN	0.0%	0.0%	0.0%
KAZAKHSTAN	0.0%	0.0%	0.0%
KENYA	0.0%	0.0%	0.0%
KOREA	6.4%	3.8%	2.6%
KUWAIT	0.0%	0.0%	0.0%
LEBANON	0.0%	0.0%	0.0%
LITHUANIA	0.0%	0.0%	0.0%
LUXEMBOURG	0.1%	0.0%	0.1%
MALAYSIA	1.1%	0.6%	0.4%
MAURITIUS	0.0%	0.0%	0.0%
MEXICO	1.3%	0.7%	0.5%
MOROCCO	0.0%	0.0%	0.0%
NETHERLANDS	2.1%	2.5%	-0.4%
NEW ZEALAND	0.2%	0.1%	0.1%
NIGERIA	0.0%	0.0%	0.0%
NORWAY	0.5%	0.5%	0.0%
OMAN	0.0%	0.0%	0.0%
OTHER	0.1%	0.0%	0.1%
PAKISTAN	0.0%	0.0%	0.0%
PERU	0.0%	0.1%	-0.1%
PHILIPPINES	0.1%	0.3%	-0.2%
POLAND	0.2%	0.3%	-0.1%



Country	% of Total	% of Bench	% Diff
PORTUGAL	0.1%	0.1%	0.0%
QATAR	0.0%	0.1%	-0.1%
ROMANIA	0.0%	0.0%	0.0%
RUSSIA	1.3%	0.9%	0.4%
SERBIA	0.0%	0.0%	0.0%
SINGAPORE	0.9%	0.9%	-0.1%
SLOVENIA	0.0%	0.0%	0.0%
SOUTH AFRICA	2.7%	1.7%	1.0%
SPAIN	1.6%	2.2%	-0.6%
SRI LANKA	0.0%	0.0%	0.0%
SWEDEN	1.7%	1.8%	-0.1%
SWITZERLAND	3.7%	5.4%	-1.7%
TAIWAN	6.8%	3.0%	3.8%
THAILAND	2.3%	0.6%	1.6%
TUNISIA	0.0%	0.0%	0.0%
TURKEY	1.1%	0.2%	0.9%
UKRAINE	0.0%	0.0%	0.0%
UNITED ARAB EMIRATES	0.3%	0.2%	0.1%
UNITED KINGDOM	9.0%	11.9%	-2.9%
UNITED STATES	0.3%	0.0%	0.3%
VIETNAM	0.0%	0.0%	0.0%
Total	100.0%	100.0%	0.0%

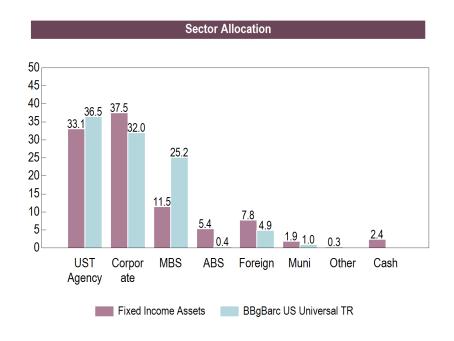


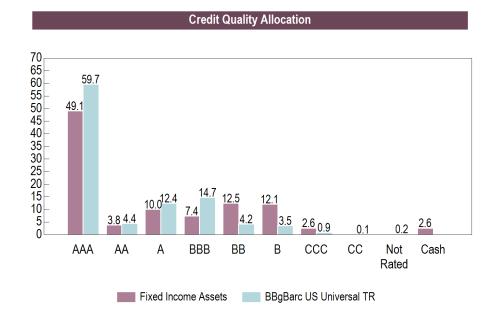
## **Fixed Income Assets**

#### Fixed Income Assets

Asset Allocation on March 31, 2018				
	Actual	Actual		
Aberdeen Emerging Markets Bond Fund	\$3,668,090	8.5%		
Columbia Insitutional High Yield	\$8,831,425	20.5%		
Logan Circle Emerging Markets Debt	\$3,477,047	8.1%		
Longfellow Investment Grade Bond	\$19,146,729	44.3%		
SSgA TIPS-NL	\$8,049,050	18.6%		
Total	\$43,172,342	100.0%		

Total Fixed Income Fixed Income Characteristics				
vs. BBgBa	arc US Universal TR			
	Portfolio	Index	Portfolio	
	Q4-17	Q4-17	Q3-17	
Fixed Income Characteristics				
Yield to Maturity	3.34	3.03	3.99	
Average Duration	5.23	5.77	5.06	
Average Quality	Α	AA	Α	
Weighted Average Maturity	7.53	12.05	7.94	







## **Portfolio Reviews**

## SSgA Russell 1000 Value Index-NL

Acc	ount Information
Account Name	SSgA Russell 1000 Value Index-NL
Account Structure	Commingled Fund
Investment Style	Passive
Inception Date	1/01/05
Account Type	Equity
Benchmark	Russell 1000 Value
Universe	eV US Large Cap Value Equity Gross

Portfolio Performance Summary						
	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	Inception (%)	Inception Date
SSgA Russell 1000 Value Index-NL	-2.8	7.1	8.0	10.9	7.3	Jan-05
Russell 1000 Value	-2.8	6.9	7.9	10.8	7.2	Jan-05
eV US Large Cap Value Equity Gross Median	-2.1	10.4	8.8	11.8	8.4	Jan-05
eV US Large Cap Value Equity Gross Rank	73	86	68	71	84	Jan-05

Top 10 Holdings	
BERKSHIRE HATHAWAY 'B'	3.2%
JP MORGAN CHASE & CO.	3.1%
EXXON MOBIL	2.6%
JOHNSON & JOHNSON	2.4%
BANK OF AMERICA	2.4%
INTEL	2.0%
WELLS FARGO & CO	1.9%
AT&T	1.8%
CHEVRON	1.8%
CISCO SYSTEMS	1.8%
Total	23.1%

SSaA Bussell	1000 Value Index	NI Characteristic	20
33yA Kusseii	Portfolio	Index	Portfolio
	Q1-18	Q1-18	Q4-17
Market Value			
Market Value (\$M)	16.9		17.4
Number Of Holdings	704	711	707
Characteristics			
Weighted Avg. Market Cap. (\$B)	113.5	113.4	119.6
Median Market Cap (\$B)	9.1	9.0	9.5
P/E Ratio	20.9	20.4	24.4
Yield	2.5	2.4	2.3
EPS Growth - 5 Yrs.	6.5	5.1	12.2
Price to Book	2.3	2.5	2.5
Beta (holdings; domestic)	1.0	1.0	1.1
Sector Distribution			
Energy	10.7	10.7	11.0
Materials	2.9	2.9	2.9
Industrials	8.2	8.2	8.4
Consumer Discretionary	6.7	6.7	6.8
Consumer Staples	8.1	8.1	8.6
Health Care	13.6	13.6	13.5
Financials	27.1	27.1	26.7
Information Technology	9.3	9.3	8.5
Telecommunication Services	2.9	2.9	3.0
Utilities	5.8	5.9	5.9
Real Estate	4.6	4.6	4.7



## SSgA Russell 1000 Growth-NL

Ac	count Information
Account Name	SSgA Russell 1000 Growth-NL
Account Structure	Commingled Fund
Investment Style	Passive
Inception Date	7/01/07
Account Type	Equity
Benchmark	Russell 1000 Growth
Universe	eV US Large Cap Growth Equity Gross

Portfolio Performance Summary						
	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	Inception (%)	Inception Date
SSgA Russell 1000 Growth-NL	1.4	21.2	12.9	15.5	9.8	Jul-07
Russell 1000 Growth	1.4	21.3	12.9	15.5	9.8	Jul-07
eV US Large Cap Growth Equity Gross Median	2.2	21.5	11.8	15.2	9.6	Jul-07
eV US Large Cap Growth Equity Gross Rank	65	51	32	43	46	Jul-07

Top 10 Holdings	
APPLE	6.6%
MICROSOFT	5.3%
AMAZON.COM	4.5%
FACEBOOK CLASS A	2.9%
ALPHABET 'C'	2.4%
ALPHABET A	2.4%
VISA 'A'	1.7%
HOME DEPOT	1.6%
UNITEDHEALTH GROUP	1.6%
BOEING	1.4%
Total	30.5%



# SSgA Russell 2000 Index-NL

Account Information				
Account Name	SSgA Russell 2000 Index-NL			
Account Structure	Commingled Fund			
Investment Style	Passive			
Inception Date	8/01/10			
Account Type	Equity			
Benchmark	Russell 2000			
Universe	eV US Small Cap Core Equity Gross			

Portfolio Performance Summary						
	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	Inception (%)	Inception Date
SSgA Russell 2000 Index-NL	0.0	11.9	8.5	11.6	13.4	Aug-10
Russell 2000	-0.1	11.8	8.4	11.5	13.3	Aug-10
eV US Small Cap Core Equity Gross Median	-0.2	12.0	9.3	12.7	14.6	Aug-10
eV US Small Cap Core Equity Gross Rank	47	52	64	69	81	Aug-10

Top 10 Holdings				
NEKTAR THERAPEUTICS	0.8%			
CASH - USD	0.7%			
GRUBHUB	0.4%			
BLUEBIRD BIO	0.4%			
SAGE THERAPEUTICS	0.3%			
MKS INSTRUMENTS	0.3%			
CURTISS WRIGHT	0.3%			
KNIGHT-SWIFT TRSP.HDG. 'A'	0.3%			
ASPEN TECHNOLOGY	0.3%			
EPAM SYSTEMS	0.3%			
Total	4.0%			

SSaA Bussa	II 2000 Index I	VI Characteristics	
55yA Russe	Portfolio	NL Characteristics	Portfolio
	Q1-18	Q1-18	Q4-17
Market Value	Q1-10	Q1-10	Q <del>1</del> -17
Market Value (\$M)	3.4		3.4
Number Of Holdings	1963	1983	1967
Characteristics			
Weighted Avg. Market Cap. (\$B)	2.5	2.5	2.3
Median Market Cap (\$B)	0.9	0.8	0.8
P/E Ratio	17.2	16.8	21.0
Yield	1.3	1.1	1.3
EPS Growth - 5 Yrs.	11.5	9.5	9.1
Price to Book	3.7	3.1	3.9
Beta (holdings; domestic)	1.2	1.2	1.3
Sector Distribution			
Energy	3.6	3.5	4.0
Materials	4.3	4.3	4.5
Industrials	15.2	15.3	15.4
Consumer Discretionary	12.1	12.1	12.5
Consumer Staples	2.3	2.3	2.8
Health Care	16.3	16.6	15.2
Financials	17.9	18.0	17.9
Information Technology	17.4	17.6	16.6
Telecommunication Services	0.6	0.6	0.8
Utilities	3.2	3.3	3.5
Real Estate	6.3	6.3	6.6



# SSgA MSCI EAFE Index-NL

Account Information			
Account Name	SSgA MSCI EAFE Index-NL		
Account Structure	Commingled Fund		
Investment Style	Passive		
Inception Date	8/01/10		
Account Type	Equity		
Benchmark	MSCI EAFE		
Universe	eV EAFE Core Equity Gross		

Portfolio Performance Summary						
	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	Inception (%)	Inception Date
SSgA MSCI EAFE Index-NL	-1.4	15.2	5.9	6.8	7.4	Aug-10
MSCI EAFE	-1.5	14.8	5.6	6.5	7.0	Aug-10
eV EAFE Core Equity Gross Median	-0.9	17.7	7.5	8.3	8.9	Aug-10
eV EAFE Core Equity Gross Rank	70	73	81	85	89	Aug-10

Top 10 Holdings				
NESTLE 'R'	1.6%			
HSBC HOLDINGS	1.3%			
NOVARTIS 'R'	1.2%			
TOYOTA MOTOR	1.1%			
ROCHE HOLDING	1.1%			
CASH - USD	1.0%			
ROYAL DUTCH SHELL A(LON)	1.0%			
TOTAL	0.9%			
BP	0.9%			
ROYAL DUTCH SHELL B	0.8%			
Total	10.8%			

SSgA MSCI EAFE Index-NL Characteristics							
	Portfolio	Index	Portfolio				
	Q1-18	Q1-18	Q4-17				
Market Value							
Market Value (\$M)	13.1		13.3				
Number Of Holdings	943	926	963				
Characteristics							
Weighted Avg. Market Cap. (\$B)	56.9	56.9	60.1				
Median Market Cap (\$B)	11.2	11.2	11.3				
P/E Ratio	19.0	18.1	20.6				
Yield	3.2	3.2	2.9				
EPS Growth - 5 Yrs.	9.7	8.7	5.5				
Price to Book	2.9	2.5	3.2				
Beta (holdings; domestic)	1.1	1.0	1.1				
Sector Distribution							
Energy	5.3	5.3	5.3				
Materials	7.9	8.0	8.2				
Industrials	14.4	14.6	14.6				
Consumer Discretionary	12.5	12.6	12.2				
Consumer Staples	10.9	11.0	11.2				
Health Care	10.0	10.2	10.2				
Financials	20.9	21.1	21.2				
Information Technology	6.5	6.5	6.4				
Telecommunication Services	3.8	3.8	3.9				
Utilities	3.3	3.3	3.2				
Real Estate	3.5	3.5	3.6				



# SSgA MSCI EAFE Small Cap Index-NL

Account Information				
Account Name	SSgA MSCI EAFE Small Cap Index-NL			
Account Structure	Commingled Fund			
Investment Style	Passive			
Inception Date	8/01/10			
Account Type	Equity			
Benchmark	MSCI EAFE Small Cap			
Universe	eV EAFE Small Cap Core Gross			

Portfolio Performance Summary						
	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	Inception (%)	Inception Date
SSgA MSCI EAFE Small Cap Index-NL	0.3	23.8	12.5	11.3	11.4	Aug-10
MSCI EAFE Small Cap	0.2	23.5	12.3	11.1	11.1	Aug-10
eV EAFE Small Cap Core Gross Median	-0.1	24.3	13.2	12.5	13.6	Aug-10
eV EAFE Small Cap Core Gross Rank	42	57	61	70	87	Aug-10

Top 10 Holdings			
SMURFIT KAPPA GROUP	0.4%		
INFORMA	0.3%		
TEMENOS GROUP	0.3%		
LEG IMMOBILIEN	0.3%		
RENTOKIL INITIAL	0.3%		
SMITH (DS)	0.3%		
AMS	0.3%		
SCA 'B'	0.3%		
KINGSPAN GROUP	0.3%		
MONCLER	0.2%		
Total	2.8%		

339A MOCI EAR	•	-NL Characteristics	D (( "
	Portfolio	Index	Portfolio
	Q1-18	Q1-18	Q4-17
Market Value			
Market Value (\$M)	4.6		4.6
Number Of Holdings	2302	2288	2316
Characteristics			
Weighted Avg. Market Cap. (\$B)	2.9	2.9	2.8
Median Market Cap (\$B)	1.2	1.2	1.2
P/E Ratio	20.6	19.0	21.5
Yield	2.4	2.3	2.2
EPS Growth - 5 Yrs.	16.1	13.0	14.3
Price to Book	3.2	2.6	3.4
Beta (holdings; domestic)	0.9	0.9	0.9
Sector Distribution			
Energy	2.4	2.4	2.5
Materials	9.4	9.4	9.5
Industrials	21.3	21.3	21.3
Consumer Discretionary	15.8	15.8	16.1
Consumer Staples	6.8	6.8	6.9
Health Care	7.4	7.3	6.7
Financials	11.6	11.6	11.6
Information Technology	11.5	11.5	11.5
Telecommunication Services	1.3	1.3	1.4
Utilities	2.1	2.1	2.0
Real Estate	10.4	10.5	10.4



# DFA Emerging Markets Value

Account Information				
Account Name	DFA Emerging Markets Value			
Account Structure	Mutual Fund			
Investment Style	Active			
Inception Date	7/01/07			
Account Type	Equity			
Benchmark	MSCI Emerging Markets Value NR USD			
Universe	eV Emg Mkts Equity Net			

Portfolio Performance Summary						
	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	Inception (%)	Inception Date
DFA Emerging Markets Value	2.2	19.8	10.1	4.3	2.7	Jul-07
MSCI Emerging Markets Value NR USD	1.6	18.1	6.6	2.6	2.8	Jul-07
eV Emg Mkts Equity Net Median	1.4	24.2	9.0	5.3	3.8	Jul-07
eV Emg Mkts Equity Net Rank	28	75	36	72	87	Jul-07

Top 10 Holdings	
CHINA CON.BANK 'H'	2.4%
RELIANCE INDUSTRIES	2.3%
INDL&COML.BOC.'H'	2.2%
VALE ON	1.7%
STANDARD BK.GP.	1.6%
VALE ON ADR 1:1	1.4%
PTT FB	1.3%
PTRO.BRAO.ADR 1:2	1.1%
BANK OF CHINA 'H'	1.1%
HYUNDAI MOTOR	1.0%
Total	16.1%

	DFA Characte	ristics	
	Portfolio	Index	Portfolio
	Q1-18	Q1-18	Q4-17
Market Value			
Market Value (\$M)	2.9		2.8
Number Of Holdings	2379	542	2325
Characteristics			
Weighted Avg. Market Cap. (\$B)	25.3	41.7	23.3
Median Market Cap (\$B)	0.4	5.7	0.4
P/E Ratio	14.0	12.9	16.4
Yield	2.9	3.3	2.7
EPS Growth - 5 Yrs.	3.5	6.0	-0.1
Price to Book	1.3	1.7	1.4
Beta (holdings; domestic)	1.1	1.1	1.1
Sector Distribution			
Energy	14.7	12.6	13.4
Materials	17.8	10.6	18.2
Industrials	9.1	5.6	9.0
Consumer Discretionary	8.5	6.3	9.0
Consumer Staples	3.2	3.4	3.2
Health Care	0.6	1.3	0.5
Financials	28.9	35.8	28.6
Information Technology	8.5	10.5	8.7
Telecommunication Services	3.1	6.3	2.9
Utilities	1.4	3.9	1.6
Real Estate	4.2	3.6	3.9



# LMCG Emerging Markets

Account Information			
Account Name	LMCG Emerging Markets		
Account Structure	Commingled Fund		
Investment Style	Active		
Inception Date	8/01/15		
Account Type	Equity		
Benchmark	MSCI Emerging Markets		
Universe	eV Emg Mkts Equity Net		

Portfolio Performance Summary						
	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	Inception (%)	Inception Date
LMCG Emerging Markets	2.0	24.7			11.4	Aug-15
MSCI Emerging Markets	1.4	24.9	8.8	5.0	12.7	Aug-15
eV Emg Mkts Equity Net Median	1.4	24.2	9.0	5.3	12.3	Aug-15
eV Emg Mkts Equity Net Rank	37	44			63	Aug-15

Top 10 Holdings	
TENCENT HOLDINGS	5.3%
SAMSUNG ELECTRONICS	4.4%
TAIWAN SEMICON.MNFG.	3.8%
ALIBABA GROUP HLDG.SPN. ADR 1:1	3.7%
CHINA CON.BANK 'H'	2.2%
HOUSING DEVELOPMENT FIN.	1.7%
ITAU UNIBANCO HOLDING PN	1.7%
NASPERS	1.5%
CNOOC	1.4%
SK HYNIX	1.4%
Total	27.1%

LMCG Emerging Markets Characteristics				
	Portfolio	Index	Portfolio	
	Q1-18	Q1-18	Q4-17	
Market Value				
Market Value (\$M)	6.4		6.3	
Number Of Holdings	110	847	113	
Characteristics				
Weighted Avg. Market Cap. (\$B)	89.7	91.9	88.6	
Median Market Cap (\$B)	10.9	5.9	10.0	
P/E Ratio	19.5	20.3	20.1	
Yield	2.7	2.3	2.4	
EPS Growth - 5 Yrs.	12.8	13.1	9.8	
Price to Book	3.4	2.7	4.2	
Beta (holdings; domestic)	1.1	1.1	1.1	
Sector Distribution				
Energy	8.0	7.2	7.8	
Materials	8.2	7.3	9.9	
Industrials	2.7	5.2	3.2	
Consumer Discretionary	11.0	9.6	10.8	
Consumer Staples	5.2	6.4	5.5	
Health Care	3.0	2.8	3.0	
Financials	25.3	24.0	21.1	
Information Technology	28.5	27.7	28.2	
Telecommunication Services	4.6	4.6	5.7	
Utilities	1.7	2.4	2.2	
Real Estate	1.8	2.8	2.6	



# KB Investors Emerging Markets Equity

Account Information			
Account Name	KB Investors Emerging Markets Equity		
Account Structure	Commingled Fund		
Investment Style	Active		
Inception Date	10/01/15		
Account Type	Equity		
Benchmark	MSCI Emerging Markets		
Universe	eV Emg Mkts Equity Net		

Portfolio Performance Summary						
	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	Inception (%)	Inception Date
KB Investors Emerging Markets Equity	0.8	16.6			14.9	Oct-15
MSCI Emerging Markets	1.4	24.9	8.8	5.0	19.4	Oct-15
eV Emg Mkts Equity Net Median	1.4	24.2	9.0	5.3	18.9	Oct-15
eV Emg Mkts Equity Net Rank	66	90			85	Oct-15

Top 10 Holdings	
TAIWAN SEMICON.MNFG.	5.7%
CHINA CON.BANK 'H'	3.8%
TATA CONSULTANCY SVS.	3.1%
NCSOFT	3.0%
INDL&COML.BOC.'H'	2.8%
NETEASE ADR 1:25	2.6%
INFOSYS	2.5%
BAJAJ AUTO	2.2%
HCL TECHNOLOGIES	2.2%
CASH - USD	2.0%
Total	29.8%

KB Investors Em	nerging Markets	<b>Equity Characteris</b>	stics
	Portfolio	Index	Portfolio
	Q1-18	Q1-18	Q4-17
Market Value			
Market Value (\$M)	6.2		6.1
Number Of Holdings	124	847	117
Characteristics			
Weighted Avg. Market Cap. (\$B)	41.9	91.9	38.7
Median Market Cap (\$B)	7.2	5.9	7.1
P/E Ratio	16.0	20.3	15.9
Yield	3.5	2.3	3.5
EPS Growth - 5 Yrs.	11.1	13.1	10.6
Price to Book	3.2	2.7	3.0
Beta (holdings; domestic)	1.0	1.1	0.9
Sector Distribution			
Energy	6.5	7.2	7.9
Materials	7.3	7.3	6.9
Industrials	6.3	5.2	6.7
Consumer Discretionary	9.4	9.6	8.2
Consumer Staples	6.5	6.4	6.1
Health Care	2.5	2.8	2.4
Financials	23.3	24.0	23.7
Information Technology	27.6	27.7	28.5
Telecommunication Services	5.2	4.6	4.6
Utilities	1.7	2.4	2.2
Real Estate	1.7	2.8	2.8

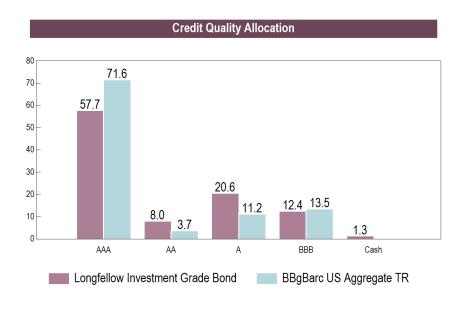


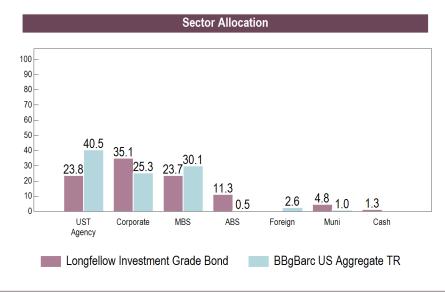
#### Longfellow Investment Grade Bond

Account Information					
Account Name	Longfellow Investment Grade Bond				
Account Structure	Separate Account				
Investment Style	Active				
Inception Date	9/01/17				
Account Type	Fixed				
Benchmark	BBgBarc US Aggregate TR				
Universe	eV US Core Fixed Inc Gross				

Portfolio Performance Summary							
	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	Inception (%)	Inception Date	
Longfellow Investment Grade Bond	-1.3		-		-1.4	Sep-17	
BBgBarc US Aggregate TR	-1.5	1.2	1.2	1.8	-1.5	Sep-17	
eV US Core Fixed Inc Gross Median	-1.4	1.6	1.6	2.2	-1.3	Sep-17	
eV US Core Fixed Inc Gross Rank	37				58	Sep-17	

Longfellow Investment Grade Bond Characteristics vs. BBgBarc US Aggregate TR							
	Portfolio	Index					
	Q1-18	Q1-18					
Fixed Income Characteristics							
Yield to Maturity	3.3	3.0					
Average Duration	5.6	6.1					
Average Quality	AA	AA					
Weighted Average Maturity	7.4	13.0					





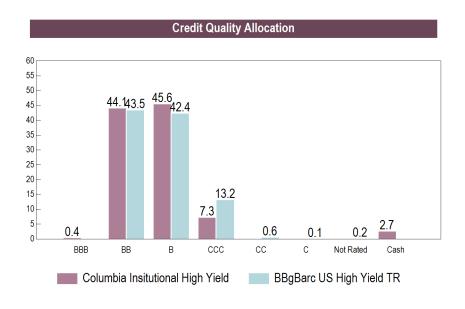


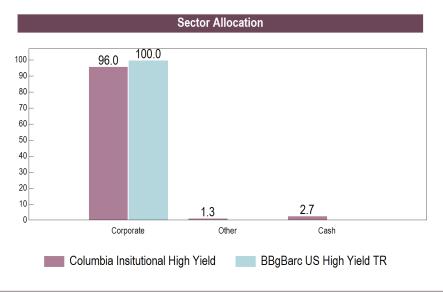
#### Columbia Insitutional High Yield

Account Information					
Account Name	Columbia Insitutional High Yield				
Account Structure	Commingled Fund				
Investment Style	Active				
Inception Date	3/01/12				
Account Type	Fixed				
Benchmark	BBgBarc US High Yield TR				
Universe	eV US High Yield Fixed Inc Gross				

Portfolio Performance Summary						
	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	Inception (%)	Inception Date
Columbia Insitutional High Yield	-1.8	2.7	4.2	4.7	5.8	Mar-12
BBgBarc US High Yield TR	-0.9	3.8	5.2	5.0	6.2	Mar-12
eV US High Yield Fixed Inc Gross Median	-0.7	4.1	5.0	5.0	6.2	Mar-12
eV US High Yield Fixed Inc Gross Rank	99	92	77	63	67	Mar-12

Columbia Insitutional High Yield Characteristics vs. BBgBarc US High Yield TR							
	Portfolio	Index	Portfolio				
	Q1-18 Q1-18 Q						
Fixed Income Characteristics							
Yield to Maturity	5.6	6.2	4.9				
Average Duration	4.1	4.1	4.0				
Average Quality	BB	В	BB				
Weighted Average Maturity	7.1	6.2	7.1				





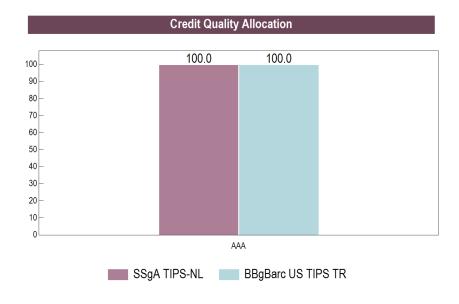


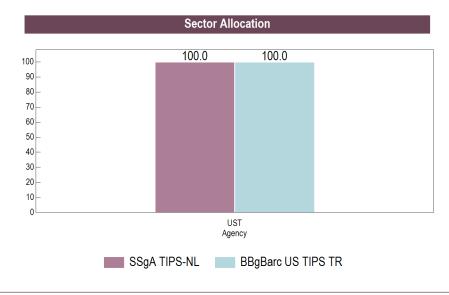
# SSgA TIPS-NL

Account Information					
Account Name	SSgA TIPS-NL				
Account Structure	Commingled Fund				
Investment Style	Passive				
Inception Date	7/01/07				
Account Type	Fixed				
Benchmark	BBgBarc US TIPS TR				
Universe	eV US TIPS / Inflation Fixed Inc Gross				

Portfolio Performance Summary						
	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	Inception (%)	Inception Date
SSgA TIPS-NL	-0.8	0.9	1.2	0.0	4.1	Jul-07
BBgBarc US TIPS TR	-0.8	0.9	1.3	0.0	4.1	Jul-07
eV US TIPS / Inflation Fixed Inc Gross Median	-0.7	1.1	1.4	0.2	4.2	Jul-07
eV US TIPS / Inflation Fixed Inc Gross Rank	79	69	88	81	61	Jul-07

SSgA TIPS-NL Characteristics vs. BBgBarc US TIPS TR							
	Portfolio	Index	Portfolio				
	Q1-18	Q1-18	Q4-17				
Fixed Income Characteristics							
Yield to Maturity	2.8	0.5	2.3				
Average Duration	5.0	5.0	5.8				
Average Quality	AAA	AAA	AAA				
Weighted Average Maturity	8.2	8.2	8.3				





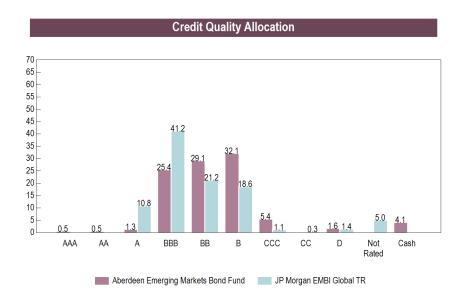


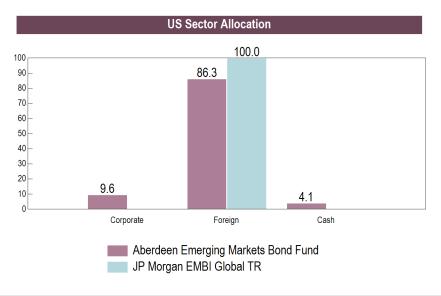
### Aberdeen Emerging Markets Bond Fund

Account Information					
Account Name	Aberdeen Emerging Markets Bond Fund				
Account Structure	Commingled Fund				
Investment Style	Active				
Inception Date	12/01/16				
Account Type	Fixed				
Benchmark	50% JPM EMBI GD / 50% JPM GBI-EM				
Universe	eV Emg Mkt Fixed Inc Unhedged Gross				

Portfolio Performance Summary							
	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	Inception (%)	Inception Date	
Aberdeen Emerging Markets Bond Fund	-0.9	6.6	-		9.1	Dec-16	
50% JPM EMBI GD / 50% JPM GBI-EM	1.3	8.6	5.7	2.0	11.8	Dec-16	
JP Morgan GBI EM Global Diversified TR USD	4.4	12.9	5.4	-0.7	16.4	Dec-16	
eV Emg Mkt Fixed Inc Unhedged Gross Median	-0.4	6.9	6.2	3.6	10.3	Dec-16	
eV Emg Mkt Fixed Inc Unhedged Gross Rank	61	54			59	Dec-16	

Aberdeen Emerging Markets Bond Fund Fixed Income Characteristics vs. JP Morgan EMBI Global TR							
Portfolio Index Portfo							
	Q1-18	Q1-18	Q4-17				
Fixed Income Characteristics							
Yield to Maturity	5.9	5.4	5.4				
Average Duration	5.9	7.0	6.0				
Average Quality	BB	BB	BB				
Weighted Average Maturity	9.8	11.2	9.6				





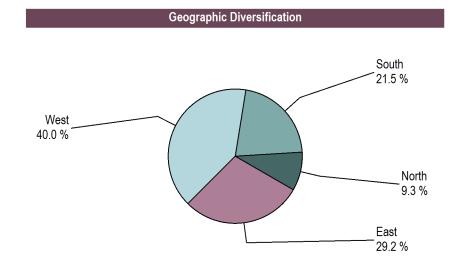


#### Intercontinental U.S. REIF

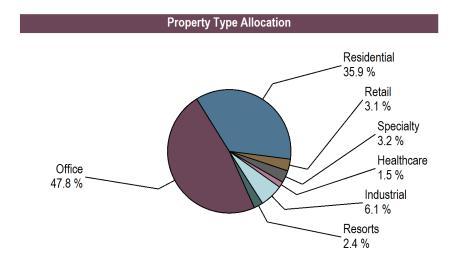
As of March 31, 2018

Accou	Account Information						
Account Name	Intercontinental U.S. REIF						
Account Structure	Other						
Investment Style	Active						
Inception Date	10/01/14						
Account Type	Real Estate						
Benchmark	NCREIF ODCE (net)						
Universe							

Portfolio Performance Summary							
	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	Inception (%)	Inception Date	
Intercontinental U.S. REIF	2.6	8.7	12.3		12.2	Oct-14	
NCREIF ODCE (net)	2.0	7.1	9.0	10.4	9.6	Oct-14	



North represents Midwest.



Note: Number of investments is 117.

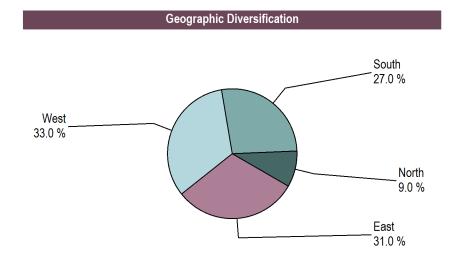


#### AEW Core Property Trust

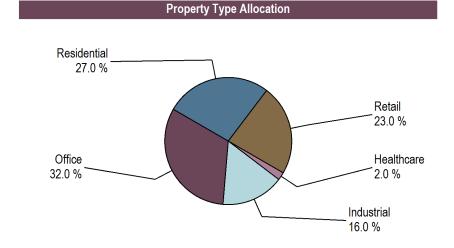
As of March 31, 2018

Account Information					
Account Name	AEW Core Property Trust				
Account Structure	Commingled Fund				
Investment Style	Active				
Inception Date	10/01/14				
Account Type	Real Estate				
Benchmark	NCREIF ODCE (net)				
Universe					

Portfolio Performance Summary						
	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	Inception (%)	Inception Date
AEW Core Property Trust	1.5	6.5	9.5		9.7	Oct-14
NCREIF ODCE (net)	2.0	7.1	9.0	10.4	9.6	Oct-14



North represents Midwest.



Note: As of December 31 2017, the number of investments is 69 and Net IRR is 8.33%.



#### TA Associates Realty Fund IX

As of March 31, 2018

Account Information					
Account Name	TA Associates Realty Fund IX				
Account Structure	Other				
Investment Style	Active				
Inception Date	5/01/10				
Account Type	Real Estate				
Benchmark	NCREIF ODCE (net)				
Universe					

Non-Marketable Securities Overview As of March 31, 2018								
Account Type	Account	Vintage Year	Commitment	Cumulative Takedown	Cumulative Distributions	Value (RV)	Total Value (RV + Dist)	Unfunded Commitment
Real Estate	TA Associates Realty Fund IX  Total Account	2010	\$3,000,000 <b>\$3,000,000</b>	\$2,880,000 <b>\$2,880,000</b>	\$4,710,686 <b>\$4,710,686</b>	\$19,452 <b>\$19,452</b>	\$4,730,138 <b>\$4,730,138</b>	\$120,000 <b>\$120,000</b>

#### Investment Strategy:

TA Associates Realty Fund IX uses a value-added strategy to create a diversified portfolio of direct real estate investments. Fund IX expects to invest in office, industrial, retail, and multifamily properties located primarily in major U.S. markets. Historically, TA Realty commingled funds have received about two-thirds of return from income and maintained moderate leverage of approximately 50% to 55% of the aggregate value of the Fund's real estate investments. Most value-added improvements include re-development, re-positioning, re-tenanting or recapitalization. TA Realty expects to proactively manage tenant and industry exposure with no significant concentration towards either.

Note: As of December 31 2017, the number of investments is 1 and Net IRR is 10.45%.

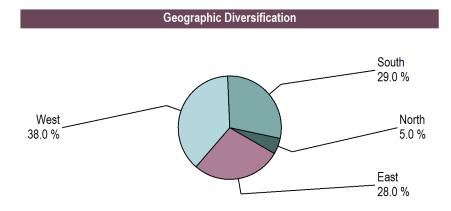


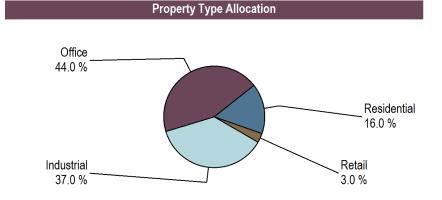
#### TA Associates Realty Fund X

As of March 31, 2018

Account Information					
Account Name	TA Associates Realty Fund X				
Account Structure	Other				
Investment Style	Active				
Inception Date	4/01/13				
Account Type	Real Estate				
Benchmark	NCREIF ODCE (net)				
Universe					

Non-Marketable Securities Overview								
	As of March 31, 2018							
Account Type	Account	Vintage Year	Commitment	Cumulative Takedown	Cumulative Distributions	Value (RV)	Total Value (RV + Dist)	Unfunded Commitment
Real Estate	TA Associates Realty Fund X  Total Account	2013	\$3,000,000 <b>\$3,000,000</b>	\$3,005,227 <b>\$3,005,227</b>	\$2,428,005 <b>\$2,428,005</b>	\$1,952,299 <b>\$1,952,299</b>	\$4,380,304 <b>\$4,380,304</b>	-\$5,227 <b>-\$5,227</b>





#### Investment Strategy:

TA Associates Realty Fund X uses a value-added strategy to create a diversified portfolio of direct real estate investments. The strategy is anticipated to target under-leased office, industrial, multifamily, and retail assets that are expected to be well-located, functional buildings with strong net operating income (NOI) growth potential. Geographically, the fund will target over 35 U.S. markets with broad regional diversification targets of 25% to 40% in the west, 20% to 35% in the east, 20% to 30% in the south, and 10% to 20% in the Midwest. The fund will target 35% leverage, with a maximum of 50%. Most value-added improvements include redevelopment, repositioning, retenanting, or recapitalization.

Note: As of December 31 2017, the number of investments is 69 and Net IRR is 12.59%.



### AG Realty Fund IV

As of March 31, 2018

Account Information				
Account Name	AG Realty Fund IV			
Account Structure	Commingled Fund			
Investment Style	Active			
Inception Date	6/01/01			
Account Type	Real Estate			
Benchmark	NCREIF ODCE (net)			
Universe				

Non-Marketable Securities Overview								
	As of March 31, 2018							
Account Type	Account	Vintage Year	Commitment	Cumulative Takedown	Cumulative Distributions	Value (RV)	Total Value (RV + Dist)	Unfunded Commitment
Real Estate	AG Realty Fund IV	2004	\$1,000,000	\$950,000	\$1,332,500	\$0	\$1,332,500	\$50,000
	Total Account		\$1,000,000	\$950,000	\$1,332,500	\$0	\$1,332,500	\$50,000

#### Investment Strategy:

Funded in 1999, Angelo Gordon's Fund IV is an opportunistic real estate portfolio. Leverage on the portfolio is about 50%. About 75% of return is expected to result from capital appreciation, with the remaining 25% coming from income. The portfolio's emphasis is on purchasing sub-performing and non-performing commercial properties in the \$30 million range. The firm then enhances these properties through redevelopment or other measures. Angelo Gordon seeks to limit downside risk in the portfolio through diversification.

Note: Number of investments is 0.



### Ascent Venture Partners - Fund II

As of March 31, 2018

Account Information					
Account Name	Ascent Venture Partners - Fund II				
Account Structure	Other				
Investment Style	Active				
Inception Date	9/01/01				
Account Type	Private Equity				
Benchmark	Cambridge Associates US All PE (1 Qtr Lag)				
Universe					

Non-Marketable Securities Overview by Account Type								
Account Type	Account	Vintage Year	Commitment	Cumulative Takedown	Cumulative Distributions	Value (RV)	Total Value (RV + Dist)	Unfunded Commitment
Private Equity	Ascent Venture Partners - Fund II Total Account	1995	\$500,000 <b>\$500,000</b>	\$484,254 <b>\$484,254</b>	\$1,607,392 <b>\$1,607,392</b>	\$6,031 <b>\$6,031</b>	\$1,613,423 <b>\$1,613,423</b>	\$15,746 <b>\$15,746</b>

#### Investment Strategy:

Ascent Venture Partners seeks to build private equity portfolios that are balanced with respect to industry (high and low technology ventures), and diverse with respect to company growth stage (from seed through buyout and re capitalization). Ascent favors proven management teams and reasonable valuations. Ascent has shifted their focus to liquidating the remaining investments in the partnership.

Note: As of December 31, 2017, the Net IRR is 27.02%.



### Ascent Venture Partners - Fund III

As of March 31, 2018

Account Information						
Account Name	Ascent Venture Partners - Fund III					
Account Structure	Other					
Investment Style	Active					
Inception Date	6/01/01					
Account Type	Private Equity					
Benchmark	Cambridge Associates US All PE (1 Qtr Lag)					
Universe						

Non-Marketable Securities Overview by Account Type								
Account Type	Account	Vintage Year	Commitment	Cumulative Takedown	Cumulative Distributions	Value (RV)	Total Value (RV + Dist)	Unfunded Commitment
Private Equity	Ascent Venture Partners - Fund III Total Account	1999	\$1,500,000 <b>\$1,500,000</b>	\$1,395,000 <b>\$1,395,000</b>	\$1,697,063 <b>\$1,697,063</b>	\$79,887 <b>\$79,887</b>	\$1,776,950 <b>\$1,776,950</b>	\$105,000 <b>\$105,000</b>

#### Investment Strategy:

Ascent Venture Partners seeks to build private equity portfolios that are balanced with respect to industry (high and low technology ventures), and diverse with respects to company growth stage (from seed through buyout and re-capitalization). Ascent favors proven management teams and reasonable valuations. Ascent has shifted their focus to liquidating the remaining investments in the partnership.

Note: As of December 31, 2017 the Net IRR is 3.88%.



# Ascent Venture Partners - Fund IV

As of March 31, 2018

Account Information						
Account Name	Ascent Venture Partners - Fund IV					
Account Structure	Other					
Investment Style	Active					
Inception Date	3/19/04					
Account Type	Private Equity					
Benchmark	Cambridge Associates US All PE (1 Qtr Lag)					
Universe						

	Non-Marketable Securities Overview by Account Type							
Account Type	Account	Vintage Year	Commitment	Cumulative Takedown	Cumulative Distributions	Value (RV)	Total Value (RV + Dist)	Unfunded Commitment
Private Equity	Ascent Venture Partners - Fund IV  Total Account	2003	\$1,000,000 <b>\$1,000,000</b>	\$1,000,000 <b>\$1,000,000</b>	\$155,588 <b>\$155,588</b>	\$145,097 <b>\$145,097</b>	\$300,685 <b>\$300,685</b>	\$0 <b>\$0</b>

#### Investment Strategy:

Located in Boston, Ascent Venture Partners (formerly known as Pioneer Capital) was formed in 1999, after Landmark Partners purchased Pioneer's interest. Ascent focuses primarily on high growth companies in the information technology sector. Ascent is an active investor, typically taking a board seat in portfolio companies. As a result, Ascent has focused its investments in the Eastern United States.

Note: As of December 31, 2017 the Net IRR is -15,94%.



### Ascent Venture Partners - Fund V

As of March 31, 2018

Account Information					
Account Name	Ascent Venture Partners - Fund V				
Account Structure	Other				
Investment Style	Active				
Inception Date	9/22/08				
Account Type	Private Equity				
Benchmark	Cambridge Associates US All PE (1 Qtr Lag)				
Universe	· · · · · ·				

	Non-Marketable Securities Overview by Account Type							
Account Type	Account	Vintage Year	Commitment	Cumulative Takedown	Cumulative Distributions	Value (RV)	Total Value (RV + Dist)	Unfunded Commitment
Private Equity	Ascent Venture Partners - Fund V Total Account	2010	\$1,000,000 <b>\$1,000,000</b>	\$880,000 <b>\$880,000</b>	\$649,106 <b>\$649,106</b>	\$943,470 <b>\$943,470</b>	\$1,592,576 <b>\$1,592,576</b>	\$120,000 <b>\$120,000</b>

#### Investment Strategy:

Ascent Venture Partners V is an early stage venture capital fund focused on making investments within the technology products and services industry. Specific areas of interest include next generation software (open source and Software-as-a-Service), data management and analysis, automated computing, security and compliance, financial services, and applications associated with the convergence of remote devices. The GP is located in Boston and will invest in the eastern United States and Canada. The Fund will target companies that have pre-money valuations of \$3 to \$15 million and have the potential for a \$100 million exit value.

Note: As of December 31, 2017 the Net IRR is 10.60%.



# Ascent Venture Partners - Fund VI

As of March 31, 2018

Account Information						
Account Name	Ascent Venture Partners - Fund VI					
Account Structure	Other					
Investment Style	Active					
Inception Date	6/30/15					
Account Type	Private Equity					
Benchmark	Cambridge Associates US All PE (1 Qtr Lag)					
Universe						

Non-Marketable Securities Overview by Account Type								
Account Type	Account	Vintage Year	Commitment	Cumulative Takedown	Cumulative Distributions	Value (RV)	Total Value (RV + Dist)	Unfunded Commitment
Private Equity	Ascent Venture Partners - Fund VI Total Account	2015	\$1,500,000 <b>\$1,500,000</b>	\$765,000 <b>\$765,000</b>	\$0 <b>\$0</b>	\$880,285 <b>\$880,285</b>	\$880,285 <b>\$880,285</b>	\$735,000 <b>\$735,000</b>

Note: As of December 31, 2017 the Net IRR is 10.30%.



### Goldman Sachs PEP 2005

As of March 31, 2018

Account Information						
Account Name	Goldman Sachs PEP 2005					
Account Structure	Other					
Investment Style	Active					
Inception Date	8/01/06					
Account Type	Private Equity					
Benchmark	Cambridge Associates US All PE (1 Qtr Lag)					
Universe						

Non-Marketable Securities Overview by Account Type								
Account Type	Account	Vintage Year	Commitment	Cumulative Takedown	Cumulative Distributions	Value (RV)	Total Value (RV + Dist)	Unfunded Commitment
Private Equity	Goldman Sachs PEP 2005 Total Account	2006	\$3,000,000 <b>\$3,000,000</b>	\$2,926,669 <b>\$2,926,669</b>	\$2,921,653 <b>\$2,921,653</b>	\$781,493 <b>\$781,493</b>	\$3,703,146 <b>\$3,703,146</b>	\$73,331 <b>\$73,331</b>

#### Investment Strategy:

Goldman Sachs Private Equity Partners 2005 is a fund of funds formed to create a diversified portfolio of 18 to 25 partnerships. The Fund will invest opportunistically in order to commit to the "very best managers." The Fund expects to commit approximately \$40 million to each partnership. Previous funds have invested approximately 30% outside the U.S.

As of 9/30/2017 the IRR is 4.56%



### HarbourVest Partners VIII

As of March 31, 2018

Account Information					
Account Name	HarbourVest Partners VIII				
Account Structure	Other				
Investment Style	Active				
Inception Date	12/20/07				
Account Type	Private Equity				
Benchmark	Cambridge Associates US All PE (1 Qtr Lag)				
Universe					

Non-Marketable Securities Overview by Account Type								
Account Type	Account	Vintage Year	Commitment	Cumulative Takedown	Cumulative Distributions	Value (RV)	Total Value (RV + Dist)	Unfunded Commitment
Private Equity	HarbourVest Partners VIII  Total Account	2006	\$2,500,000 <b>\$2,500,000</b>	\$2,350,000 <b>\$2,350,000</b>	\$2,913,792 <b>\$2,913,792</b>	\$1,039,583 <b>\$1,039,583</b>	\$3,953,375 <b>\$3,953,375</b>	\$150,000 <b>\$150,000</b>

#### Investment Strategy:

HarbourVest Partners, known as Hancock Venture Partners until 1997, was founded in 1982 to invest in private equity partnerships. The HarbourVest Partners VIII Investment Program consists of three separate fund of funds, each dedicated to distinct private equity strategies: buyout, venture capital and mezzanine debt partnerships. Each vehicle will invest primarily in newly raised funds, but will also invest a portion of assets in secondary interest.

Note: As of September 30, 2017, the Net IRR is 10.5%.



#### HarbourVest Partners IX

As of March 31, 2018

Account Information					
Account Name	HarbourVest Partners IX				
Account Structure	Other				
Investment Style	Active				
Inception Date	10/22/13				
Account Type	Private Equity				
Benchmark	Cambridge Associates US All PE (1 Qtr Lag)				
Universe					

Non-Marketable Securities Overview  As of March 31, 2018  As of March 31, 2018								
Account Type	Account	Vintage Year	Commitment	Cumulative Takedown	Cumulative Distributions	Value (RV)	Total Value (RV + Dist)	Unfunded Commitment
Private Equity	HarbourVest Partners IX  Total Account	2010	\$5,000,000 <b>\$5,000,000</b>	\$3,341,204 <b>\$3,341,204</b>	\$1,563,232 <b>\$1,563,232</b>	\$3,353,016 <b>\$3,353,016</b>	\$4,916,248 <b>\$4,916,248</b>	\$1,658,796 <b>\$1,658,796</b>

#### Investment Strategy:

HarbourVest Partners, known as Hancock Venture Partners until 1997, was founded in 1982 to invest in private equity partnerships. The HarbourVest Partners IX Fund consists of three separate fund of funds, each dedicated to distinct private equity strategies: buyout, venture capital, and mezzanine debt partnerships. Each vehicle will invest primarily in newly-raised funds, but will also invest a portion of assets in secondary interests.

Note: As of September 30, 2017 the Net IRR is 16.8%.



### HarbourVest X Buyout Fund

As of March 31, 2018

Account Information				
Account Name	HarbourVest X Buyout Fund			
Account Structure	Other			
Investment Style	Active			
Inception Date	4/06/16			
Account Type	Private Equity			
Benchmark	Cambridge Associates US All PE (1 Qtr Lag)			
Universe				

	As of March 31, 2018								
Account Type	Account	Vintage Year	Commitment	Cumulative Takedown	Cumulative Distributions	Value (RV)	Total Value (RV + Dist)	Unfunded Commitment	
Private Equity	HarbourVest X Buyout Fund Total Account	2016	\$6,500,000 <b>\$6,500,000</b>	\$1,031,327 <b>\$1,031,327</b>	\$56,544 <b>\$56,544</b>	\$1,329,469 <b>\$1,329,469</b>	\$1,386,013 <b>\$1,386,013</b>	\$5,468,673 <b>\$5,468,673</b>	

#### Investment Strategy:

HarbourVest Partners, known as Hancock Venture Partners until 1997, was founded in 1982 to invest in private equity partnerships. The HarbourVest Partners IX Fund consists of three separate fund of funds, each dedicated to distinct private equity strategies: buyout, venture capital, and mezzanine debt partnerships. Each vehicle will invest primarily in newly-raised funds, but will also invest a portion of assets in secondary interests.

Note: As of September 30, 2016, the Net IRR is 14.9%.



#### Constitution Capital Partners Ironsides III

As of March 31, 2018

Account Information				
Account Name	Constitution Capital Partners Ironsides III			
Account Structure	Limited Partnership			
Investment Style	Active			
Inception Date	1/29/14			
Account Type	Private Equity			
Benchmark	Cambridge Associates US All PE (1 Qtr Lag)			
Universe				

	Non-Marketable Securities Overview								
	As of March 31, 2018								
Account Type	Account	Vintage Year	Commitment	Cumulative Takedown	Cumulative Distributions	Value (RV)	Total Value (RV + Dist)	Unfunded Commitment	
Private Equity	Constitution Capital Partners Ironsides III	2014	\$5,000,000	\$2,384,497	\$119,753	\$2,435,094	\$2,554,847	\$2,615,503	
	Total Account		\$5,000,000	\$2,384,497	\$119,753	\$2,435,094	\$2,554,847	\$2,615,503	

#### Investment Strategy:

Constitution Capital seeks investments in underlying private equity funds ranging in size from \$200 million to approximately \$1.0 billion, with a few larger potentially. Constitution has noted their preference to invest the majority of capital to funds of less than \$1 billion. Constitution has noted their preference to invest the majority of capital to funds of less than \$1 billion. Constitution targets a variety of fund types (domestic middle-market buyout, special situations, growth equity, distressed, and sector-specific) and will allocate amongst them opportunistically. The group will not invest in early-stage venture capital funds or mega buyout funds. The portfolio will have 12 to 15 underlying fund investments of approximately \$10 million to \$20 million to \$20 million. The enterprise values of the underlying companies are expected to range from \$100 million to \$1.5 billion.

Note: As of September 30, 2017, the Gross IRR is 10.8%.



#### Constitution Capital Partners Ironsides IV

As of March 31, 2018

Account Information					
Account Name	Constitution Capital Partners Ironsides IV				
Account Structure	Limited Partnership				
Investment Style	Active				
Inception Date	6/01/16				
Account Type	Private Equity				
Benchmark	Cambridge Associates US All PE (1 Qtr Lag)				

Non-Marketable Securities Overview									
Account Type	Account	Vintage Year	Commitment	Cumulative Takedown	Cumulative Distributions	Value (RV)	Total Value (RV + Dist)	Unfunded Commitment	
Private Equity	Constitution Capital Partners Ironsides IV	2016	\$3,250,000	\$488,311	\$0	\$536,987	\$536,987	\$2,761,689	
	Total Account		\$3,250,000	\$488,311	\$0	\$536,987	\$536,987	\$2,761,689	

#### Investment Strategy:

Constitution Capital seeks investments in underlying private equity funds ranging in size from \$200 million to approximately \$1.0 billion, with a few larger potentially. Constitution has noted their preference to invest the majority of capital to funds of less than \$1 billion. Constitution has noted their preference to invest the majority of capital to funds of less than \$1 billion. Constitution targets a variety of fund types (domestic middle-market buyout, special situations, growth equity, distressed, and sector-specific) and will allocate amongst them opportunistically. The group will not invest in early-stage venture capital funds or mega buyout funds. The portfolio will have 12 to 15 underlying fund investments of approximately \$10 million to \$20 million to \$20 million. The enterprise values of the underlying companies are expected to range from \$100 million to \$1.5 billion.

Note: As of September 30, 2017, the Gross IRR is 11.8%.



# Constitution Capital Direct IV

Account Information				
Account Name	Constitution Capital Direct IV			
Account Structure	Limited Partnership			
Investment Style	Active			
Inception Date	6/30/16			
Account Type	Private Equity			
Benchmark	Cambridge Associates US All PE (1 Qtr Lag)			
Universe				

Non-Marketable Securities Overview								
Account Type	Account	Vintage Year	Commitment	Cumulative Takedown	Cumulative Distributions	Value (RV)	Total Value (RV + Dist)	Unfunded Commitment
Private Equity	Constitution Capital Direct IV	2016	\$3,250,000	\$2,347,717	\$0	\$2,407,022	\$2,407,022	\$902,283
	Total Account		\$3,250,000	\$2,347,717	\$0	\$2,407,022	\$2,407,022	\$902,283



# SSgA S&P Global LargeMidCap Natural Resources Index

Account Information				
Account Name	SSgA S&P Global LargeMidCap Natural Resources Index			
Account Structure	Commingled Fund			
Investment Style	Passive			
Inception Date	2/01/18			
Account Type	Real Assets			
Benchmark	S&P Global Large MidCap Commodity and Resources NET			
Universe	- · · · · ·			

Portfolio Performance Summary						
	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	Inception (%)	Inception Date
SSgA S&P Global LargeMidCap Natural Resources Index			-	-	-7.4	Feb-18
S&P Global Large MidCap Commodity and Resource NET	-3.1	12.1	4.1	-0.5	-7.5	Feb-18

Top 10 Holdings			
MONSANTO	7.8%		
EXXON MOBIL	5.2%		
NUTRIEN (NYS)	4.6%		
BHP BILLITON	3.8%		
ARCHER-DANLSMIDL.	3.7%		
CHEVRON	3.6%		
GLENCORE	3.3%		
RIO TINTO	3.3%		
ROYAL DUTCH SHELL A	2.4%		
TOTAL	2.3%		
Total	40.1%		

SSgA S&P Global LargeMidCap Natural Resources Index Characteristics		
	Portfoli	
	Q1-1	
Market Value		
Market Value (\$M)	3.8	
Number Of Holdings	187	
Characteristics		
Weighted Avg. Market Cap. (\$B)	62.5	
Median Market Cap (\$B)	9.7	
P/E Ratio	20.7	
Yield	3.2	
EPS Growth - 5 Yrs.	-3.4	
Price to Book	1.9	
Beta (holdings; domestic)	1.2	
Sector Distribution		
Energy	34.7	
Materials	54.6	
Industrials	0.0	
Consumer Discretionary	0.0	
Consumer Staples	10.4	
Health Care	0.0	
Financials	0.0	
Information Technology	0.0	
Telecommunication Services	0.0	
Utilities	0.0	
Real Estate	0.0	



# Total Retirement System

Investment Expense Analysis As Of March 31, 2018				
Total Equity		\$71,469,695		
Domestic Equity Assets		\$38,390,698		
SSgA Russell 1000 Value Index-NL	0.08% of First 50.0 Mil, 0.06% of Next 50.0 Mil, 0.04% Thereafter	\$16,864,116	\$13,491	0.08%
SSgA Russell 1000 Growth-NL	0.08% of First 50.0 Mil, 0.06% of Next 50.0 Mil, 0.04% Thereafter	\$18,087,438	\$14,470	0.08%
SSgA Russell 2000 Index-NL	0.08% of Assets	\$3,439,144	\$2,751	0.08%
International Equity Assets		\$33,078,997		
Total International Developed Market Equity		\$17,644,115		
SSgA MSCI EAFE Index-NL	0.10% of First 50.0 Mil, 0.08% of Next 50.0 Mil, 0.05% Thereafter	\$13,064,903	\$13,065	0.10%
SSgA MSCI EAFE Small Cap Index-NL	0.23% of Assets	\$4,579,212	\$10,532	0.23%
International Emerging Market Equity Assets		\$15,434,882		
DFA Emerging Markets Value	0.61% of Assets	\$2,859,029	\$17,440	0.61%
LMCG Emerging Markets	0.85% of Assets	\$6,410,134	\$54,486	0.85%
KB Investors Emerging Markets Equity	0.89% of Assets	\$6,165,719	\$54,875	0.89%
Fixed Income Assets		\$43,172,342		
Investment Grade Bond Assets		\$19,146,729		
Longfellow Investment Grade Bond	0.33% of First 50.0 Mil, 0.25% of Next 50.0 Mil, 0.20% of Next 25.0 Mil, 0.15% Thereafter	\$19,146,729	\$62,227	0.33%
High Yield Bond Assets		\$8,831,425		
Columbia Insitutional High Yield	0.45% of Assets	\$8,831,425	\$39,741	0.45%
TIPS Assets		\$8,049,050		
SSgA TIPS-NL	0.06% of First 50.0 Mil, 0.05% of Next 50.0 Mil, 0.04% Thereafter	\$8,049,050	\$4,829	0.06%



# Total Retirement System

Name	Fee Schedule	Market Value	Estimated Fee Value	Estimated Fee
Emerging Market Debt Assets		\$7,145,137		
Logan Circle Emerging Markets Debt	0.65% of Assets	\$3,477,047	\$22,601	0.65%
Aberdeen Emerging Markets Bond Fund	0.45% of Assets	\$3,668,090	\$16,506	0.45%
Real Estate Assets		\$15,098,893		
Total Non-Core Real Estate		\$1,975,854		
AG Realty Fund IV	1.25% of Assets	\$4,103	\$51	1.25%
TA Associates Realty Fund IX	0.5% in year 1, 0.8% in year 2, 1.1% in year 3, all based upon total committed capital; then 1.2% in year 4, 1.2% in year 5, 1.125% in year 6, 1.0% in year 7 and 0.60%	\$19,452		
TA Associates Realty Fund X	0.5% in year 1, 0.8% in year 2, 1.1% in year 3, all based upon total committed capital; then 1.2% in year 4, 1.25% in year 5, 1.2% in year 6, 1.0% in year 7, and 0.60% thereafter, all based upon gross investment cost.	\$1,952,299		
Total Core Real Estate	·	\$13,123,039		
Intercontinental U.S. REIF	1.10% of First \$25.0 Mil, 1.00% of Next \$25.0 Mil, 20.00% performance fee after, 8.00% Preferred Return	\$5,662,051		
AEW Core Property Trust	1.10% of First 10.0 Mil, 1.00% of Next 15.0 Mil	\$7,460,988	\$82,071	1.10%
Private Equity Assets		\$13,937,435		
Ascent Venture Partners - Fund II	Management Fee: 2.50% of commitment; Carried Interest: 20%	\$6,031		
Ascent Venture Partners - Fund III	Management Fee: 2.25% of commitment; Carried Interest: 20%	\$79,887		
Ascent Venture Partners - Fund IV	Management Fee: 2.50% of Commitment; Carried Interest: 20%	\$145,097		
Ascent Venture Partners - Fund V	Management Fee: 2.50% of commitment; Carried Interest: 20%	\$943,470		



# Massachusetts Housing Finance Agency Retirement System

Name	Fee Schedule	Market Value	Estimated Fee Value	Estimated Fee
Ascent Venture Partners - Fund VI		\$880,285		
Constitution Capital Partners Ironsides III	0.75% per annum management fee on commitments during the investment period and on outstanding commitments thereafter. 5.0% carried interest with an 8% preferred return. Organizational expenses are capped at \$1.0 million.	\$2,435,094		
Constitution Capital Partners Ironsides IV		\$536,987		
Constitution Capital Direct IV	0.50% per annum management fee on commitments during the investment period and on outstanding commitments (average across Direct and Partnership Funds) thereafter. 15.0% carried interest with an 8% preferred return.	\$2,407,022		
Goldman Sachs PEP 2005	Management Fee: 1.0% of commitment through the 5th anniversary, 75% of the fee charged in previous year thereafter: Carried Interest: 5%; Preferred Return: 8%	\$781,493		
HarbourVest Partners VIII	0.50% of committed capital in year one, 0.75% in year two, 1.00% in years three through nine, declining 10% each year thereafter. 10% carried interest on cumulative net secondary investment profits; 15% carried interest on net direct investment profits	\$1,039,583		
HarbourVest Partners IX	0.50% of committed capital in year one, 0.75% in year two, 1.00% in years three through nine, declining 10% each year thereafter.	\$3,353,016		
HarbourVest X Buyout Fund	0.75% of capital commitments average over life of fund.	\$1,329,469		
Natural Resources & Commodities Assets		\$3,800,989		
SSgA S&P Global LargeMidCap Natural Resources Index	0.14% of First 50.0 Mil, 0.12% of Next 50.0 Mil, 0.11% Thereafter	\$3,800,989	\$5,321	0.14%
Cash		\$144,922		
Cash STIF		\$144,922		



# **Appendices**

# Meketa Investment Group Corporate Update

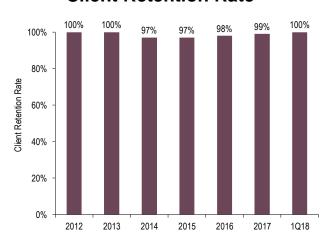
- Staff of 148, including 98 investment professionals and 32 CFA Charterholders
- 169 clients, with over 290 funds throughout the United States
- Significant investment in staff and resources
- Offices in Boston, Chicago, Miami, Portland (OR), San Diego, and London
- We advise on over \$600 billion in client assets
  - Over \$90 billion in assets committed to alternative investments
    - Private Equity
- Infrastructure
- Natural Resources

- Real Estate
- Hedge Funds
- Commodities

#### **Client to Consultant Ratio**



#### Client Retention Rate<sup>1</sup>



Meketa Investment Group is proud to work for over 5 million American families everyday.

Client Retention Rate is one minus the number of clients lost divided by the number of clients at prior year-end.



#### **Asset Classes Followed Intensively by Meketa Investment Group**

Domestic	International	Private	Real	Fixed	Hedge
Equities	Equities	Equity	Assets	Income	Funds
<ul> <li>Passive</li> <li>Enhanced Index</li> <li>Large Cap</li> <li>Midcap</li> <li>Small Cap</li> <li>Microcap</li> <li>130/30</li> </ul>	<ul> <li>Large Cap         Developed</li> <li>Small Cap         Developed</li> <li>Emerging         Markets</li> <li>Frontier Markets</li> </ul>	<ul> <li>Buyouts</li> <li>Venture Capital</li> <li>Private Debt</li> <li>Special Situations</li> <li>Secondaries</li> <li>Fund of Funds</li> </ul>	<ul> <li>Public REITs</li> <li>Core Real Estate</li> <li>Value Added Real Estate</li> <li>Opportunistic Real Estate</li> <li>Infrastructure</li> <li>Timber</li> <li>Natural Resources</li> <li>Commodities</li> </ul>	<ul> <li>Short-Term</li> <li>Core</li> <li>Core Plus</li> <li>TIPS</li> <li>High Yield</li> <li>Bank Loans</li> <li>Distressed</li> <li>Global</li> <li>Emerging Markets</li> </ul>	<ul> <li>Long/Short Equity</li> <li>Event Driven</li> <li>Relative Value</li> <li>Fixed Income Arbitrage</li> <li>Multi Strategy</li> <li>Market Neutral</li> <li>Global Macro</li> <li>Fund of Funds</li> <li>Portable Alpha</li> </ul>



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Meketa Investment Group has prepared this report on the basis of sources believed to be reliable. The data are based on matters as they are known as of the date of preparation of the report, and not as of any future date, and will not be updated or otherwise revised to reflect information that subsequently becomes available.

In general, the valuation numbers presented in this report are prepared by the custodian bank for listed securities, and by the fund manager or appropriate General Partner in the case of unlisted securities. The data used in the market comparison sections of this report are sourced from various databases. These data are continuously updated and are subject to change.

This report does not contain all the information necessary to fully evaluate the potential risks of any of the investments described herein. Because of inherent uncertainties involved in the valuations of investments that are not publicly traded, any estimated fair values shown in this report may differ significantly from the values that would have been used had a ready market for the underlying securities existed, and the differences could be material. Note that for unlisted securities the valuations may be lagged by one or more calendar quarters, or may reflect original cost.

This document may contain certain forward-looking statements, forecasts, estimates, projections, and opinions ("Forward Statements"). No representation is made or will be made that any Forward Statements will be achieved or will prove to be correct. A number of factors, in addition to any risk factors stated in this material, could cause actual future results to vary materially from the Forward Statements. No representation is given that the assumptions disclosed in this document upon which Forward Statements may be based are reasonable. There can be no assurance that the investment strategy or objective of any fund or investment will be achieved, or that the Retirement System will receive a return of the amount invested.

In some cases, Meketa Investment Group assists the Board Members in handling capital calls or asset transfers among investment managers. In these cases, we do not make any representations as to the managers' use of the funds, but do confirm that the capital called or transferred is within the amounts authorized by the Retirement Board.

**Credit Risk:** Refers to the risk that the issuer of a fixed income security may default (i.e., the issuer will be unable to make timely principal and/or interest payments on the security.)

**Duration:** Measure of the sensitivity of the price of a bond to a change in its yield to maturity. Duration summarizes, in a single number, the characteristics that cause bond prices to change in response to a change in interest rates. For example, the price of a bond with a duration of three years will rise by approximately 3% for each 1% decrease in its yield to maturity. Conversely, the price will decrease 3% for each 1% increase in the bond's yield. Price changes for two different bonds can be compared using duration. A bond with a duration of six years will exhibit twice the percentage price change of a bond with a three-year duration. The actual calculation of a bond's duration is somewhat complicated, but the idea behind the calculation is straightforward. The first step is to measure the time interval until receipt for each cash flow (coupon and principal payments) from a bond. The second step is to compute a weighted average of these time intervals. Each time interval is measured by the present value of that cash flow. This weighted average is the duration of the bond measured in years.

**Information Ratio:** This statistic is a measure of the consistency of a portfolio's performance relative to a benchmark. It is calculated by subtracting the benchmark return from the portfolio return (excess return), and dividing the resulting excess return by the standard deviation (volatility) of this excess return. A positive information ratio indicates outperformance versus the benchmark, and the higher the information ratio, the more consistent the outperformance.

**Jensen's Alpha:** A measure of the average return of a portfolio or investment in excess of what is predicted by its beta or "market" risk. Portfolio Return- [Risk Free Rate+Beta\*(market return-Risk Free Rate)].

**Market Capitalization:** For a firm, market capitalization is the total market value of outstanding common stock. For a portfolio, market capitalization is the sum of the capitalization of each company weighted by the ratio of holdings in that company to total portfolio holdings; thus it is a weighted-average capitalization. Meketa Investment Group considers the largest 65% of the broad domestic equity market as large capitalization, the next 25% of the market as medium capitalization, and the smallest 10% of stocks as small capitalization.

**Market Weighted:** Stocks in many indices are weighted based on the total market capitalization of the issue. Thus, the individual returns of higher market-capitalization issues will more heavily influence an index's return than the returns of the smaller market-capitalization issues in the index.

Maturity: The date on which a loan, bond, mortgage, or other debt/security becomes due and is to be paid off.



**Prepayment Risk:** The risk that prepayments will increase (homeowners will prepay all or part of their mortgage) when mortgage interest rates decline; hence, investors' monies will be returned to them in a lower interest rate environment. Also, the risk that prepayments will slow down when mortgage interest rates rise; hence, investors will not have as much money as previously anticipated in a higher interest rate environment. A prepayment is any payment in excess of the scheduled mortgage payment.

**Price-Book Value (P/B) Ratio:** The current market price of a stock divided by its book value per share. Meketa Investment Group calculates P/B as the current price divided by Compustat's quarterly common equity. Common equity includes common stock, capital surplus, retained earnings, and treasury stock adjusted for both common and nonredeemable preferred stock. Similar to high P/E stocks, stocks with high P/B's tend to be riskier investments.

**Price-Earnings (P/E) Ratio:** A stock's market price divided by its current or estimated future earnings. Lower P/E ratios often characterize stocks in low growth or mature industries, stocks in groups that have fallen out of favor, or stocks of established blue chip companies with long records of stable earnings and regular dividends. Sometimes a company that has good fundamentals may be viewed unfavorably by the market if it is an industry that is temporarily out of favor. Or a business may have experienced financial problems causing investors to be skeptical about is future. Either of these situations would result in lower relative P/E ratios. Some stocks exhibit above-average sales and earnings growth or expectations for above average growth. Consequently, investors are willing to pay more for these companies' earnings, which results in elevated P/E ratios. In other words, investors will pay more for shares of companies whose profits, in their opinion, are expected to increase faster than average. Because future events are in no way assured, high P/E stocks tend to be riskier and more volatile investments. Meketa Investment Group calculates P/E as the current price divided by the I/B/E/S consensus of twelve-month forecast earnings per share.

**Quality Rating:** The rank assigned a security by such rating services as Fitch, Moody's, and Standard & Poor's. The rating may be determined by such factors as (1) the likelihood of fulfillment of dividend, income, and principal payment of obligations; (2) the nature and provisions of the issue; and (3) the security's relative position in the event of liquidation of the company. Bonds assigned the top four grades (AAA, AA, A, BBB) are considered investment grade because they are eligible bank investments as determined by the controller of the currency.

**Sharpe Ratio:** A commonly used measure of risk-adjusted return. It is calculated by subtracting the risk free return (usually three-month Treasury bill) from the portfolio return and dividing the resulting excess return by the portfolio's total risk level (standard deviation). The result is a measure of return per unit of total risk taken. The higher the Sharpe ratio, the better the fund's historical risk adjusted performance.



**Standard Deviation:** A measure of the total risk of an asset or a portfolio. Standard deviation measures the dispersion of a set of numbers around a central point (e.g., the average return). If the standard deviation is small, the distribution is concentrated within a narrow range of values. For a normal distribution, about two thirds of the observations will fall within one standard deviation of the mean, and 95% of the observations will fall within two standard deviations of the mean.

**STIF Account:** Short-term investment fund at a custodian bank that invests in cash-equivalent instruments. It is generally used to safely invest the excess cash held by portfolio managers.

**Style:** The description of the type of approach and strategy utilized by an investment manager to manage funds. For example, the style for equities is determined by portfolio characteristics such as price-to-book value, price-to-earnings ratio, and dividend yield. Equity styles include growth, value, and core.

**Yield to Maturity:** The yield, or return, provided by a bond to its maturity date; determined by a mathematical process, usually requiring the use of a "basis book." For example, a 5% bond pays \$5 a year interest on each \$100 par value. To figure its current yield, divide \$5 by \$95—the market price of the bond—and you get 5.26%. Assume that the same bond is due to mature in five years. On the maturity date, the issuer is pledged to pay \$100 for the bond that can be bought now for \$95. In other words, the bond is selling at a discount of 5% below par value. To figure yield to maturity, a simple and approximate method is to divide 5% by the five years to maturity, which equals 1% pro rata yearly. Add that 1% to the 5.26% current yield, and the yield to maturity is roughly 6.26%.

Sources: Investment Terminology, International Foundation of Employee Benefit Plans, 1999.

The Handbook of Fixed Income Securities, Fabozzi, Frank J., 1991.

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Throughout this report, numbers may not sum due to rounding.

Returns for periods greater than one year are annualized throughout this report.

Values shown are in millions of dollars, unless noted otherwise.

