

Meeting Material May 12, 2020

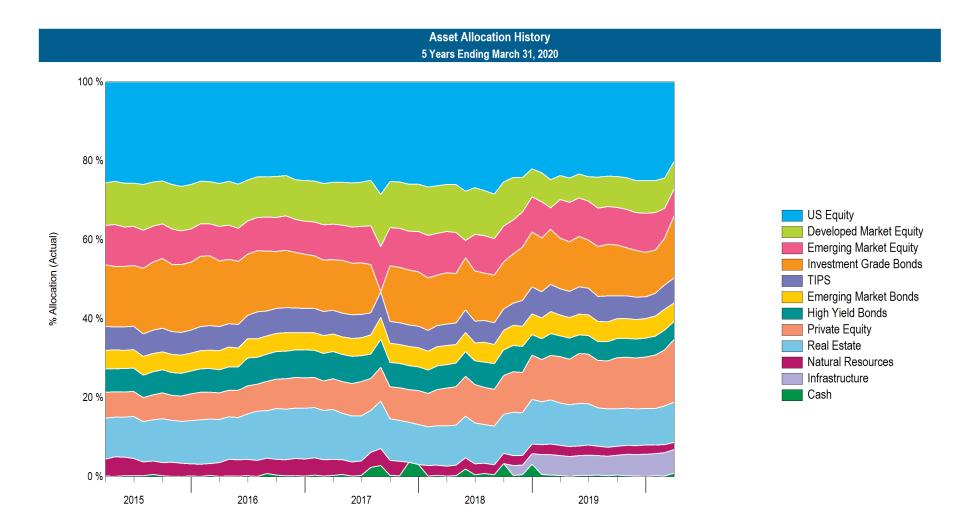
## Fund Evaluation Report

MEKETA.COM

First Quarter 2020 Performance Review

Allocation vs. Targets and Policy										
	Current Balance	Policy		Policy Range	Within IPS Range?					
US Equity	\$31,818,500	20%	25%	20% - 30%	Yes					
Developed Market Equity	\$10,980,463	7%	10%	6% - 14%	Yes					
Emerging Market Equity	\$10,663,562	7%	10%	6% - 14%	Yes					
Investment Grade Bonds	\$24,779,360	16%	10%	6% - 14%	Νο					
TIPS	\$10,016,396	6%	6%	4% - 8%	Yes					
Emerging Market Bonds	\$7,376,624	5%	5%	3% - 7%	Yes					
High Yield Bonds	\$7,148,897	5%	6%	3% - 9%	Yes					
Private Equity	\$25,064,299	16%	10%	6% - 14%	Νο					
Real Estate	\$16,139,467	10%	10%	7% - 13%	Yes					
Natural Resources	\$2,808,618	2%	3%	1% - 5%	Yes					
Infrastructure	\$9,462,011	6%	5%	0% - 8%	Yes					
Cash	\$1,335,415	1%	0%	0% - 5%	Yes					
Total	\$157,593,612	100%	100%							







Asset Class Performance Summary												
	Market Value (\$)	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date			
Total Retirement System	157,593,612	100.0	-10.2	-1.0	4.0	4.3	6.1	5.1	Jul-01			
60% MSCI ACWI / 40% Barclays Global Aggregate			-13.3	-4.9	2.6	3.0	4.7	5.1	Jul-01			
InvMetrics Public DB \$50mm-\$250mm Gross Median			-12.8	-4.7	2.8	3.6	6.1	5.5	Jul-01			
Domestic Equity Assets	31,818,500	20.2	-20.6	-9.0	4.0	5.8	10.2	6.1	Jul-01			
Russell 3000	1		-20.9	-9.1	4.0	5.8	10.1	6.3	Jul-01			
eV US Large Cap Equity Gross Median			-20.4	-8.8	3.7	5.5	10.1	6.9	Jul-01			
Total International Developed Market Equity	10,980,463	7.0	-24.5	-15.6	-2.0	0.0	3.4	4.7	Jul-01			
MSCI EAFE			-22.8	-14.4	-1.8	-0.6	2.7	3.8	Jul-01			
eV EAFE Core Equity Gross Median	1		-24.0	-15.2	-1.6	0.2	4.4	5.3	Jul-01			
International Emerging Market Equity Assets	10,663,562	6.8	-21.8	-15.3	-3.6	-1.7	-1.3	-0.7	Jul-07			
MSCI Emerging Markets	1		-23.6	-17.7	-1.6	-0.4	0.7	0.6	Jul-07			
eV Emg Mkts Equity Gross Median			-24.8	-18.5	-2.0	0.1	2.1	1.7	Jul-07			
Investment Grade Bond Assets	24,779,360	15.7	2.1	8.0	4.5	3.2	3.8	4.7	Jul-01			
BBgBarc US Aggregate TR	1		3.1	8.9	4.8	3.4	3.9	4.7	Jul-01			
eV US Core Fixed Inc Gross Median			1.9	7.8	4.7	3.5	4.2	5.1	Jul-01			
High Yield Bond Assets	7,148,897	4.5	-15.1	-8.9	0.0	2.0	5.1	5.3	Feb-05			
CSFB High Yield Index	1		-13.9	-8.4	0.1	2.4	5.3	5.8	Feb-05			
eV US High Yield Fixed Inc Gross Median	1		-12.0	-6.0	1.2	2.8	5.7	6.2	Feb-05			
TIPS Assets	10,016,396	6.4	1.7	6.8	3.5	2.6	3.4	4.2	Jul-07			
BBgBarc US TIPS TR			1.7	6.9	3.5	2.7	3.5	4.2	Jul-07			
eV US TIPS / Inflation Fixed Inc Gross Median			0.7	5.9	3.4	2.7	3.5	4.3	Jul-07			
Emerging Market Debt Assets	7,376,624	4.7	-15.9	-9.2	-1.0	-0.3		-3.8	Mar-13			
50% JPM EMBI GD / 50% JPM GBI-EM	1		-14.3	-6.6	-0.1	1.6	2.7	0.1	Mar-13			
Real Estate Assets	16,139,467	10.2	-0.4	6.4	7.7	9.2	11.1	6.1	Apr-05			
NCREIF ODCE (net)	1		0.8	3.9	5.9	7.5	10.4	6.5	Apr-05			



	Market Value (\$)	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
	(♀)		(70)	(70)	(70)	(70)	(70)	(70)	Date
Private Equity Assets	25,064,299	15.9	7.1	22.9	14.3	10.9	10.7	6.6	Oct-03
Cambridge Associates US All PE (1 Qtr Lag)			3.8	14.0	14.8	12.6	14.1	14.5	Oct-03
Natural Resources & Commodities Assets	2,808,618	1.8	-32.0	-29.7	-11.8	-7.7		-8.2	Jul-11
S&P Global LargeMidCap Commodity and Resources NR USD			-32.3	-30.1	-6.3	<i>-3</i> .7	-2.7	-5.2	Jul-11
Infrastructure Assets	9,462,011	6.0	-3.9	7.3				8.6	Oct-18
CPI+5%			1.0	6.5	6.9	6.8	6.7	6.6	Oct-18
Cash	1,335,415	0.8							



Retirement System Summary	As of March 31, 2020
---------------------------	----------------------

Trailing Gross Performance													
	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date			
Total Retirement System	157,593,612	100.0		-10.2	-1.0	4.0	4.3	6.1	5.1	Jul-01			
60% MSCI ACWI / 40% Barclays Global Aggregate				-13.3	-4.9	2.6	3.0	4.7	5.1	Jul-01			
InvMetrics Public DB \$50mm-\$250mm Gross Median				-12.8	-4.7	2.8	3.6	6.1	5.5	Jul-01			
Domestic Equity Assets	31,818,500	20.2	20.2	-20.6	-9.0	4.0	5.8	10.2	6.1	Jul-01			
Russell 3000				-20.9	-9.1	4.0	5.8	10.1	6.3	Jul-01			
eV US Large Cap Equity Gross Median				-20.4	-8.8	<i>3</i> .7	5.5	10.1	6.9	Jul-01			
SSgA Russell 1000 Value Index-NL	13,045,258	8.3	41.0	-26.7	-17.2	-2.1	1.9	7.7	5.4	Jan-05			
Russell 1000 Value				-26.7	-17.2	-2.2	1.9	7.7	5.3	Jan-05			
eV US Large Cap Value Equity Gross Median				-26.2	-16.2	-1.1	2.4	8.1	6.1	Jan-05			
SSgA Russell 1000 Growth-NL	16,107,242	10.2	50.6	-14.1	0.9	11.3	10.3	13.0	9.3	Jul-07			
Russell 1000 Growth				-14.1	0.9	11.3	10.4	13.0	9.3	Jul-07			
eV US Large Cap Growth Equity Gross Median				-14.4	-1.0	10.5	9.1	12.4	9.0	Jul-07			
SSgA Russell 2000 Index-NL	2,666,001	1.7	8.4	-30.6	-24.0	-4.6	-0.2		7.6	Aug-10			
Russell 2000				-30.6	-24.0	-4.6	-0.2	6.9	7.6	Aug-10			
eV US Small Cap Core Equity Gross Median				-31.1	-24.5	-4.4	0.6	8.0	8.6	Aug-10			

	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total International Developed Market Equity	10,980,463	7.0	7.0	-24.5	-15.6	-2.0	0.0	3.4	4.7	Jul-01
MSCI EAFE				-22.8	-14.4	-1.8	-0.6	2.7	3.8	Jul-01
eV EAFE Core Equity Gross Median				-24.0	-15.2	-1.6	0.2	4.4	5.3	Jul-01
SSgA MSCI EAFE Index-NL	6,618,066	4.2	60.3	-22.7	-14.0	-1.4	-0.2		3.8	Aug-10
MSCI EAFE				-22.8	-14.4	-1.8	-0.6	2.7	3.4	Aug-10
eV EAFE Core Equity Gross Median				-24.0	-15.2	-1.6	0.2	4.4	5.0	Aug-10
SSgA MSCI EAFE Small Cap Index-NL	4,362,397	2.8	39.7	-27.2	-17.7	-2.6	1.3		5.7	Aug-10
MSCI EAFE Small Cap				-27.5	-18.1	-2.9	1.0	4.8	5.4	Aug-10
eV EAFE Small Cap Core Gross Median				-27.9	-17.7	-2.8	1.1	6.4	7.0	Aug-10
International Emerging Market Equity Assets	10,663,562	6.8	6.8	-21.8	-15.3	-3.6	-1.7	-1.3	-0.7	Jul-07
MSCI Emerging Markets				-23.6	-17.7	-1.6	-0.4	0.7	0.6	Jul-07
eV Emg Mkts Equity Gross Median				-24.8	-18.5	-2.0	0.1	2.1	1.7	Jul-07
LMCG Emerging Markets (Net)	4,184,095	2.7	39.2	-25.3	-20.9	-5.6			-2.2	Aug-15
MSCI Emerging Markets				-23.6	-17.7	-1.6	-0.4	0.7	1.0	Aug-15
eV Emg Mkts Equity Net Median				-25.0	-19.0	-2.7	-0.9	1.3	0.2	Aug-15
GQG Partners Emerging Markets	6,479,467	4.1	60.8	-19.4	-11.2				-11.2	Mar-19
MSCI Emerging Markets				-23.6	-17.7	-1.6	-0.4	0.7	-17.7	Mar-19
eV Emg Mkts Equity Gross Median				-24.8	-18.5	-2.0	0.1	2.1	-18.5	Mar-19



	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Investment Grade Bond Assets	24,779,360	15.7	15.7	2.1	8.0	4.5	3.2	3.8	4.7	Jul-01
BBgBarc US Aggregate TR				3.1	8.9	4.8	3.4	3.9	4.7	Jul-01
eV US Core Fixed Inc Gross Median				1.9	7.8	4.7	3.5	4.2	5.1	Jul-01
Longfellow Investment Grade Bond	24,779,360	15.7	100.0	2.1	8.0				4.1	Sep-17
BBgBarc US Aggregate TR				3.1	8.9	4.8	3.4	3.9	4.5	Sep-17
eV US Core Fixed Inc Gross Median				1.9	7.8	4.7	3.5	4.2	4.3	Sep-17
High Yield Bond Assets	7,148,897	4.5	4.5	-15.1	-8.9	0.0	2.0	5.1	5.3	Feb-05
CSFB High Yield Index				-13.9	-8.4	0.1	2.4	5.3	5.8	Feb-05
eV US High Yield Fixed Inc Gross Median				-12.0	-6.0	1.2	2.8	5.7	6.2	Feb-05
Lord Abbett High Yield Core	7,148,897	4.5	100.0	-15.1					-11.8	Jul-19
BBgBarc US High Yield TR				-12.7	-6.9	0.8	2.8	5.6	-9.2	Jul-19
eV US High Yield Fixed Inc Gross Median				-12.0	-6.0	1.2	2.8	5.7	-8.4	Jul-19
TIPS Assets	10,016,396	6.4	6.4	1.7	6.8	3.5	2.6	3.4	4.2	Jul-07
BBgBarc US TIPS TR				1.7	6.9	3.5	2.7	3.5	4.2	Jul-07
eV US TIPS / Inflation Fixed Inc Gross Median				0.7	5.9	3.4	2.7	3.5	4.3	Jul-07
SSgA TIPS-NL	10,016,396	6.4	100.0	1.7	6.8	3.5	2.6	3.4	4.2	Jul-07
BBgBarc US TIPS TR				1.7	6.9	3.5	2.7	3.5	4.2	Jul-07
eV US TIPS / Inflation Fixed Inc Gross Median				0.7	5.9	3.4	2.7	3.5	4.3	Jul-07



	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Emerging Market Debt Assets	7,376,624	4.7	4.7	-15.9	-9.2	-1.0	-0.3		-3.8	Mar-13
50% JPM EMBI GD / 50% JPM GBI-EM				-14.3	-6.6	-0.1	1.6	2.7	0.1	Mar-13
Metlife Emerging Markets Debt (Net)	3,575,764	2.3	48.5	-16.2	-9.2	-1.2			0.1	Nov-16
MetLife Custom Benchmark				-12.2	-4.9	0.5	2.3	3.5	0.8	Nov-16
Aberdeen Emerging Markets Bond Fund	3,800,860	2.4	51.5	-15.7	-9.2	-0.9			0.8	Dec-16
JP Morgan EMBI Global Diversified				-13.4	-6.8	0.4	2.8	4.9	1.9	Dec-16
JP Morgan GBI EM Global Diversified TR USD				-15.2	-6.5	-0.8	0.3	0.4	1.7	Dec-16
Real Estate Assets	16,139,467	10.2	10.2	-0.4	6.4	7.7	9.2	11.1	6.1	Apr-05
NCREIF ODCE (net)				0.8	3.9	5.9	7.5	10.4	6.5	Apr-05
TA Associates Realty Fund X	361,792	0.2	2.2					_		
Intercontinental U.S. REIF (Net)	7,625,449	4.8	47.2	0.1	6.8	8.4	9.8		9.7	Oct-14
NCREIF ODCE (net)				0.8	3.9	5.9	7.5	10.4	8.0	Oct-14
AEW Core Property Trust (Net)	8,152,226	5.2	50.5	-1.1	2.4	5.1	7.0		7.3	Oct-14
NCREIF ODCE (net)				0.8	3.9	5.9	7.5	10.4	8.0	Oct-14

#### Retirement System Summary | As of March 31, 2020

TA Associates Realty Fund X is based on December 31, 2019 fair market value, adjusted for subsequent cash flows.

Metlife Custom Benchmark consists of 35% JP Morgan EMBI Global Diversified, 35% JP Morgan CEMBI Broad Diversified, and 30% JP Morgan GBI EM Global Diversified.

	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Private Equity Assets	25,064,299	15.9	15.9	7.1	22.9	14.3	10.9	10.7	6.6	Oct-03
Cambridge Associates US All PE (1 Qtr Lag)				3.8	14.0	14.8	12.6	14.1	14.5	Oct-03
Ascent Venture Partners - Fund III	52,300	0.0	0.2							
Ascent Venture Partners - Fund IV	15,718	0.0	0.1							
Ascent Venture Partners - Fund V	885,275	0.6	3.5							
Ascent Venture Partners - Fund VI	1,334,753	0.8	5.3							
Constitution Capital Partners Ironsides III	5,492,884	3.5	21.9							
Constitution Capital Partners Ironsides IV	2,573,569	1.6	10.3							
Constitution Capital Partners Ironsides V	122,978	0.1	0.5							
Constitution Capital Direct IV	3,336,642	2.1	13.3							
Constitution Capital Direct V	2,391,240	1.5	9.5							
Goldman Sachs PEP 2005	417,579	0.3	1.7							
HarbourVest Partners VIII	587,819	0.4	2.3							
HarbourVest Partners IX	3,830,154	2.4	15.3							
HarbourVest X Buyout Fund	3,136,988	2.0	12.5							
HarbourVest Partners XI	886,400	0.6	3.5							

#### Retirement System Summary | As of March 31, 2020

Private Equity Assets are based on December 31, 2019 fair market value, adjusted for subsequent cash flows

Goldman Sachs PEP 2005 and Harborvest Partners XI are based on September 30, 2019 fair market value, adjusted for subsequent cash flows.

#### Market Value % of % of QTD 1Yr 3 Yrs 5 Yrs 10 Yrs Inception Inception (\$) Portfolio Sector (%) (%) (%) (%) (%) (%) Date Natural Resources & Commodities Assets 2,808,618 -32.0 -7.7 -8.2 1.8 -29.7 -11.8 Jul-11 1.8 ---S&P Global LargeMidCap Commodity and Resources NR -32.3 -30.1 -6.3 -3.7 -2.7 -5.2 Jul-11 USD SSgA S&P Global LargeMidCap Natural Resources 2,808,618 1.8 100.0 -32.0 -29.7 -16.0 Feb-18 ---------Index S&P Global LargeMidCap Commodity and Resources -32.3 -3.7 -2.7 -16.4 Feb-18 -30.1 -6.3 NR USD Infrastructure Assets 9.462.011 6.0 6.0 -3.9 7.3 8.6 Oct-18 --\_\_\_ ---CPI+5% 1.0 6.5 6.9 6.8 6.7 Oct-18 6.6 IFM Global Infrastructure (U.S.), L.P. 9,462,011 6.0 100.0 -3.9 7.3 8.6 Oct-18 ---\_\_\_ ---CPI+5% 6.5 6.9 6.8 6.7 1.0 6.6 Oct-18 Cash 1,335,415 0.8 0.8 Cash STIF 1,335,415 0.8 100.0



Calendar Year Performance											
	2019 (%)	2018 (%)	2017 (%)	2016 (%)	2015 (%)	2014 (%)	2013 (%)	2012 (%)	2011 (%)	2010 (%)	
Total Retirement System	17.6	-3.0	14.5	9.6	-2.7	4.3	10.9	12.2	2.2	12.5	
60% MSCI ACWI / 40% Barclays Global Aggregate	18.6	-6.0	17.1	5.7	-2.5	2.8	12.1	11.5	-2.1	10.2	
Domestic Equity Assets	30.9	-5.5	21.0	13.1	0.4	12.4	33.5	16.3	1.0	17.5	
Russell 3000	31.0	-5.2	21.1	12.7	0.5	12.6	33.6	16.4	1.0	16.9	
SSgA Russell 1000 Value Index-NL	26.5	-8.3	13.8	17.3	-3.7	13.4	32.5	17.4	0.4	15.6	
Russell 1000 Value	26.5	-8.3	13.7	17.3	-3.8	13.5	32.5	17.5	0.4	15.5	
SSgA Russell 1000 Growth-NL	36.4	-1.7	30.2	7.2	5.6	13.1	33.5	15.4	2.6	16.7	
Russell 1000 Growth	36.4	-1.5	30.2	7.1	5.7	13.0	33.5	15.3	2.6	16.7	
SSgA Russell 2000 Index-NL	25.6	-11.0	14.7	21.5	-4.4	5.0	38.9	16.4	-4.1		
Russell 2000	25.5	-11.0	14.6	21.3	-4.4	4.9	38.8	16.3	-4.2	26.9	
Total International Developed Market Equity	23.3	-14.7	27.5	1.6	2.0	-4.7	24.4	18.1	-12.6	11.4	
MSCI EAFE	22.0	-13.8	25.0	1.0	-0.8	-4.9	22.8	17.3	-12.1	7.8	
SSgA MSCI EAFE Index-NL	22.5	-13.5	25.5	1.4	-0.5	-4.6	23.1	17.7	-11.9		
MSCI EAFE	22.0	-13.8	25.0	1.0	-0.8	-4.9	22.8	17.3	-12.1	7.8	
SSgA MSCI EAFE Small Cap Index-NL	25.0	-17.6	33.3	2.4	9.7	-4.7	29.5	20.1	-15.0		
MSCI EAFE Small Cap	25.0	-17.9	33.0	2.2	9.6	-4.9	29.3	20.0	-15.9	22.0	



#### 2010 2017 2012 2011 2019 2018 2016 2015 2014 2013 (%) (%) (%) (%) (%) (%) (%) (%) (%) (%) **International Emerging Market Equity Assets** -17.3 32.5 11.7 -18.1 -4.4 -3.8 18.8 -25.6 22.1 16.6 MSCI Emerging Markets 18.4 -14.6 37.3 11.2 -14.9 -2.2 -2.6 18.2 -18.4 18.9 LMCG Emerging Markets (Net) 13.9 -18.7 35.1 7.0 ------\_\_\_ ---------MSCI Emerging Markets 18.4 -14.6 37.3 11.2 -14.9 -2.2 -2.6 18.2 -18.4 18.9 **GQG** Partners Emerging Markets \_\_\_ \_\_\_ \_\_\_ \_\_\_ ---\_\_\_ \_\_\_ \_\_\_ ---\_\_\_ -2.2 MSCI Emerging Markets 18.4 37.3 11.2 -14.9 -2.6 18.2 -18.4 18.9 -14.6 **Investment Grade Bond Assets** 8.9 -0.1 3.5 2.7 0.8 6.1 -3.1 4.6 8.5 6.7 BBgBarc US Aggregate TR 8.7 0.0 3.5 2.6 0.5 6.0 -2.0 7.8 6.5 4.2 Longfellow Investment Grade Bond 8.9 -0.1 ---------\_\_\_ \_\_\_ ---------BBgBarc US Aggregate TR 8.7 0.0 3.5 2.6 0.5 6.0 -2.0 4.2 7.8 6.5 **High Yield Bond Assets** 15.9 -3.2 7.2 11.5 -0.2 4.1 6.0 13.6 6.2 12.9 CSFB High Yield Index -2.4 7.0 18.3 -4.9 7.5 14.0 1.9 14.7 5.5 14.4 Lord Abbett High Yield Core ------------\_\_\_ ---------\_\_\_ ---2.5 BBgBarc US High Yield TR 14.3 -2.1 7.5 17.1 -4.5 7.4 15.8 5.0 15.1 **TIPS Assets** 8.4 -1.3 3.0 4.5 -1.4 3.6 -8.6 6.9 13.5 6.3 BBgBarc US TIPS TR 8.4 -1.3 3.0 4.7 -1.4 3.6 -8.6 7.0 13.6 6.3 SSgA TIPS-NL 8.4 -1.3 3.0 4.5 -1.4 3.6 -8.6 6.9 13.5 6.3 BBgBarc US TIPS TR -1.3 4.7 -1.4 3.6 7.0 6.3 8.4 3.0 -8.6 13.6



	2019 (%)	2018 (%)	2017 (%)	2016 (%)	2015 (%)	2014 (%)	2013 (%)	2012 (%)	2011 (%)	2010 (%)
Emerging Market Debt Assets	15.1	-6.9	13.3	10.0	-15.2	-8.5				
50% JPM EMBI GD / 50% JPM GBI-EM	14.3	-5.2	12.7	10.2	-7.1	0.7	-7.1	17.2	2.8	13.8
Metlife Emerging Markets Debt (Net)	14.5	-6.6	13.4							
MetLife Custom Benchmark	13.7	-4.0	10.6	10.0	-3.8	1.9	-4.4	17.9	2.0	12.6
Aberdeen Emerging Markets Bond Fund	15.7	-7.1	13.3							
JP Morgan EMBI Global Diversified	15.0	-4.3	10.3	10.2	1.2	7.4	-5.3	17.4	7.3	12.2
JP Morgan GBI EM Global Diversified TR USD	13.5	-6.2	15.2	9.9	-14.9	-5.7	-9.0	16.8	-1.8	15.1
Real Estate Assets	8.7	8.8	8.5	9.0	13.8	12.8	10.1	12.5	16.7	12.7
NCREIF ODCE (net)	4.4	7.4	6.7	7.8	14.0	11.5	12.9	9.8	15.0	15.3
TA Associates Realty Fund X										
Intercontinental U.S. REIF (Net)	8.9	10.5	7.5	10.9	12.5					
NCREIF ODCE (net)	4.4	7.4	6.7	7.8	14.0	11.5	12.9	9.8	15.0	15.3
AEW Core Property Trust (Net)	5.1	6.6	6.6	7.6	12.8					
NCREIF ODCE (net)	4.4	7.4	6.7	7.8	14.0	11.5	12.9	9.8	15.0	15.3
Private Equity Assets	15.7	14.0	11.8	6.3	0.8	13.5	9.5	9.2	7.9	19.9
Cambridge Associates US All PE (1 Qtr Lag)	9.5	19.2	16.8	8.7	6.0	17.9	17.5	15.2	15.1	18.3
Ascent Venture Partners - Fund III										
Ascent Venture Partners - Fund IV										
Ascent Venture Partners - Fund V										
Ascent Venture Partners - Fund VI										

#### Retirement System Summary | As of March 31, 2020

Metlife Custom Benchmark consists of 35% JP Morgan EMBI Global Diversified, 35% JP Morgan CEMBI Broad Diversified, and 30% JP Morgan GBI EM Global Diversified.

**Constitution Capital Partners Ironsides III** 



	2019 (%)	2018 (%)	2017 (%)	2016 (%)	2015 (%)	2014 (%)	2013 (%)	2012 (%)	2011 (%)	2010 (%)
Constitution Capital Partners Ironsides IV										
Constitution Capital Partners Ironsides V										
Constitution Capital Direct IV										
Constitution Capital Direct V										
Goldman Sachs PEP 2005										
HarbourVest Partners VIII										
HarbourVest Partners IX										
HarbourVest X Buyout Fund										
HarbourVest Partners XI										
Natural Resources & Commodities Assets	16.2	-13.0	-0.9	53.7	-38.0	-22.6	-0.3	6.5		
S&P Global LargeMidCap Commodity and Resources NR USD	15.9	-9.4	18.1	30.8	-27.5	-9.9	-2.9	7.0	-14.1	19.5
SSgA S&P Global LargeMidCap Natural Resources Index	16.2									
S&P Global LargeMidCap Commodity and Resources NR USD	15.9	-9.4	18.1	30.8	-27.5	-9.9	-2.9	7.0	-14.1	19.5
Infrastructure Assets	14.6									
CPI+5%	7.3	6.9	7.1	7.1	5.7	5.7	6.5	6.8	8.1	6.4
IFM Global Infrastructure (U.S.), L.P.	14.6									
CPI+5%	7.3	6.9	7.1	7.1	5.7	5.7	6.5	6.8	8.1	6.4
Cash										
Cash STIF										

Statistics Summary							
	5 Years Ending March 31, 2020						
	Anlzd Return	Anlzd Standard Deviation	Information Ratio	Beta	Sharpe Ratio	Tracking Error	
Total Retirement System	4.2%	7.2%	0.5	0.8	0.4	2.4%	
60% MSCI ACWI / 40% Barclays Global Aggregate	3.0%	8.8%		1.0	0.2	0.0%	
Total Equity	2.8%	13.8%	-0.8	0.9	0.1	3.8%	
Russell 3000	5.8%	14.2%		1.0	0.3	0.0%	
Domestic Equity Assets	5.7%	14.2%	-0.2	1.0	0.3	0.2%	
Russell 3000	5.8%	14.2%		1.0	0.3	0.0%	
SSgA Russell 1000 Value Index-NL	1.9%	14.8%	-0.6	1.0	0.0	O.1%	
Russell 1000 Value	1.9%	14.8%		1.0	0.1	0.0%	
SSgA Russell 1000 Growth-NL	10.2%	14.0%	-2.0	1.0	0.7	O.1%	
Russell 1000 Growth	10.4%	14.0%		1.0	0.7	0.0%	
SSgA Russell 2000 Index-NL	-0.3%	19.1%	-0.4	1.0	-0.1	0.1%	
Russell 2000	-0.2%	19.2%		1.0	-0.1	0.0%	
International Equity Assets	-1.1%	14.8%	-0.3	1.0	-0.2	2.7%	
MSCI ACWI ex USA IMI Gross	-0.2%	14.6%		1.0	-0.1	0.0%	
Total International Developed Market Equity	-0.2%	14.5%	0.3	1.0	-0.1	1.3%	
MSCI EAFE	-0.6%	14.1%		1.0	-0.1	0.0%	
SSgA MSCI EAFE Index-NL	-0.3%	14.1%	2.1	1.0	-0.1	0.1%	
MSCI EAFE	-0.6%	14.1%		1.0	-0.1	0.0%	

## Massachusetts Housing Finance Agency Retirement System

	Anlzd Return	Anlzd Standard Deviation	Information Ratio	Beta	Sharpe Ratio	Tracking Error
SSgA MSCI EAFE Small Cap Index-NL	1.0%	15.4%	0.3	1.0	0.0	0.2%
MSCI EAFE Small Cap	1.0%	15.5%		1.0	0.0	0.0%
International Emerging Market Equity Assets	-2.1%	16.9%	-0.5	0.9	-0.2	3.2%
MSCI Emerging Markets	-0.4%	17.6%		1.0	-0.1	0.0%
LMCG Emerging Markets						
MSCI Emerging Markets	-0.4%	17.6%		1.0	-0.1	0.0%
GQG Partners Emerging Markets						
MSCI Emerging Markets	-0.4%	17.6%		1.0	-0.1	0.0%
Fixed Income Assets	2.3%	4.3%	-0.4	1.2	0.3	2.6%
BBgBarc US Universal TR	3.4%	3.0%		1.0	0.7	0.0%
Investment Grade Bond Assets	3.2%	3.1%	-0.3	1.0	0.7	0.6%
BBgBarc US Aggregate TR	3.4%	3.1%		1.0	0.7	0.0%
Longfellow Investment Grade Bond						
BBgBarc US Aggregate TR	3.4%	3.1%		1.0	0.7	0.0%
High Yield Bond Assets	1.7%	8.2%	-0.3	1.0	0.1	2.2%
CSFB High Yield Index	2.4%	7.8%		1.0	0.2	0.0%
Lord Abbett High Yield Core						
BBgBarc US High Yield TR	2.8%	7.5%		1.0	0.2	0.0%
TIPS Assets	2.6%	3.4%	-1.5	1.0	0.4	0.0%
BBgBarc US TIPS TR	2.7%	3.4%		1.0	0.5	0.0%

## Massachusetts Housing Finance Agency Retirement System

	Anlzd Return	Anlzd Standard Deviation	Information Ratio	Beta	Sharpe Ratio	Tracking Error
SSgA TIPS-NL	2.6%	3.4%	-1.5	1.0	0.4	0.1%
BBgBarc US TIPS TR	2.7%	3.4%		1.0	0.5	0.0%
Emerging Market Debt Assets	-0.4%	12.0%	-0.5	1.2	-0.1	3.8%
50% JPM EMBI GD / 50% JPM GBI-EM	1.6%	9.6%		1.0	0.0	0.0%
Metlife Emerging Markets Debt						
MetLife Custom Benchmark	2.3%	8.1%		1.0	0.1	0.0%
Aberdeen Emerging Markets Bond Fund						
JP Morgan EMBI Global Diversified	2.8%	8.4%		1.0	0.2	0.0%
Real Estate Assets	9.1%	4.1%	1.1	1.1	2.0	1.4%
NCREIF ODCE (net)	7.5%	3.4%		1.0	1.9	0.0%
TA Associates Realty Fund X	17.7%	12.7%	0.9	1.6	1.3	11.7%
NCREIF ODCE (net)	7.5%	3.4%		1.0	1.9	0.0%
Intercontinental U.S. REIF	9.8%	4.5%	1.2	1.2	1.9	2.0%
NCREIF ODCE (net)	7.5%	3.4%		1.0	1.9	0.0%
AEW Core Property Trust	7.0%	3.4%	-0.4	1.0	1.7	1.0%
NCREIF ODCE (net)	7.5%	3.4%		1.0	1.9	0.0%
Private Equity Assets	10.9%	6.4%	-0.3	0.8	1.5	4.2%
Cambridge Associates US All PE (1 Qtr Lag)	12.0%	6.3%		1.0	1.7	0.0%
Ascent Venture Partners - Fund III	-14.6%	14.3%	-1.6	-0.6	-1.1	17.1%
Cambridge Associates US All PE (1 Qtr Lag)	12.0%	6.3%		1.0	1.7	0.0%

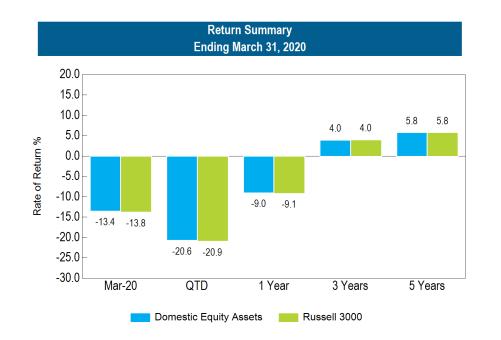
	Anlzd Return	Anlzd Standard Deviation	Information Ratio	Beta	Sharpe Ratio	Tracking Error
Ascent Venture Partners - Fund IV	-54.0%	52.0%	-1.2	-0.9	-1.1	53.0%
Cambridge Associates US All PE (1 Qtr Lag)	12.0%	6.3%		1.0	1.7	0.0%
Ascent Venture Partners - Fund V	2.2%	7.2%	-1.0	0.0	0.1	9.4%
Cambridge Associates US All PE (1 Qtr Lag)	12.0%	6.3%		1.0	1.7	0.0%
Ascent Venture Partners - Fund VI						
Cambridge Associates US All PE (1 Qtr Lag)	12.0%	6.3%		1.0	1.7	0.0%
Constitution Capital Partners Ironsides III	14.7%	13.6%	0.2	1.0	1.0	12.2%
Cambridge Associates US All PE (1 Qtr Lag)	12.0%	6.3%		1.0	1.7	0.0%
Constitution Capital Partners Ironsides IV						
Cambridge Associates US All PE (1 Qtr Lag)	12.0%	6.3%		1.0	1.7	0.0%
Constitution Capital Partners Ironsides V						
Cambridge Associates US All PE (1 Qtr Lag)	12.0%	6.3%		1.0	1.7	0.0%
Constitution Capital Direct IV						
Cambridge Associates US All PE (1 Qtr Lag)	12.0%	6.3%		1.0	1.7	0.0%
Constitution Capital Direct V						
Cambridge Associates US All PE (1 Qtr Lag)	12.0%	6.3%		1.0	1.7	0.0%
Goldman Sachs PEP 2005	4.5%	12.5%	-0.6	0.7	0.3	11.8%
Cambridge Associates US All PE (1 Qtr Lag)	12.0%	6.3%		1.0	1.7	0.0%
HarbourVest Partners VIII	13.4%	7.2%	0.4	1.0	1.7	3.5%
Cambridge Associates US All PE (1 Qtr Lag)	12.0%	6.3%		1.0	1.7	0.0%

	Anlzd Return	Anlzd Standard Deviation	Information Ratio	Beta	Sharpe Ratio	Tracking Error
HarbourVest Partners IX	17.0%	8.3%	1.0	1.1	1.9	4.7%
Cambridge Associates US All PE (1 Qtr Lag)	12.0%	6.3%		1.0	1.7	0.0%
HarbourVest X Buyout Fund						
Cambridge Associates US All PE (1 Qtr Lag)	12.0%	6.3%		1.0	1.7	0.0%
HarbourVest Partners XI						
Cambridge Associates US All PE (1 Qtr Lag)	12.0%	6.3%		1.0	1.7	0.0%
Natural Resources & Commodities Assets	-7.8%	26.1%	-0.3	1.2	-0.3	12.2%
S&P Global LargeMidCap Commodity and Resources NR USD	-3.7%	19.9%		1.0	-0.2	0.0%
SSgA S&P Global LargeMidCap Natural Resources Index						
S&P Global LargeMidCap Commodity and Resources NR USD	-3.7%	19.9%		1.0	-0.2	0.0%
Infrastructure Assets						
CPI+5%	6.8%	0.6%		1.0	10.0	0.0%
IFM Global Infrastructure (U.S.), L.P.						
CPI+5%	6.8%	0.6%		1.0	10.0	0.0%



#### Domestic Equity Assets | As of March 31, 2020

Asset Allocation on March 31, 2020					
	Actual	Actual			
SSgA Russell 1000 Growth-NL	\$16,107,242	50.6%			
SSgA Russell 1000 Value Index-NL	\$13,045,258	41.0%			
SSgA Russell 2000 Index-NL	\$2,666,001	8.4%			
Total	\$31,818,500	100.0%			



#### Domestic Equity Assets Style Map 3 Years Ending March 31, 2020

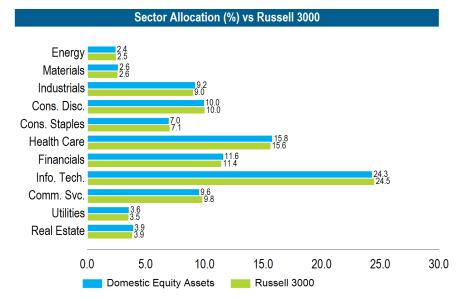


### Massachusetts Housing Finance Agency Retirement System

#### Domestic Equity Assets | As of March 31, 2020

Domestic Equity Assets Characteristics					
	Portfolio	Index	Portfolio		
	Q1-20	Q1-20	Q4-19		
Market Value					
Market Value (\$M)	31.8		44.3		
Number Of Holdings	2975	2976	2987		
Characteristics					
Weighted Avg. Market Cap. (\$B)	222.0	227.2	227.1		
Median Market Cap (\$B)	1.4	1.1	2.1		
P/E Ratio	16.8	16.8	22.9		
Yield	2.3	2.3	1.8		
EPS Growth - 5 Yrs.	12.8	12.9	13.0		
Price to Book	3.5	3.6	3.6		
Beta (holdings; domestic)	1.0	1.0	1.0		

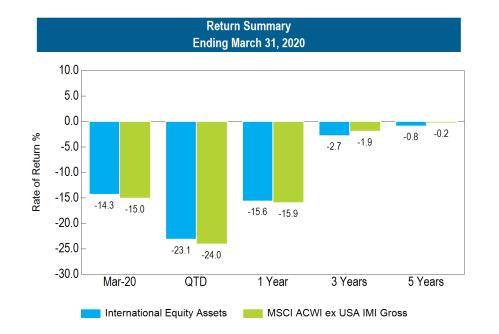
Top 10 Holdings	
MICROSOFT	4.7%
APPLE	4.1%
AMAZON.COM	3.2%
FACEBOOK CLASS A	1.6%
BERKSHIRE HATHAWAY 'B'	1.4%
ALPHABET 'C'	1.4%
JOHNSON & JOHNSON	1.4%
ALPHABET A	1.4%
JP MORGAN CHASE & CO.	1.1%
VISA 'A'	1.1%
Total	21.1%



	Portfolio	Index
	Q1-20	Q1-20
Sector Performance		
Energy	-51.73	-51.93
Materials	-27.21	-28.03
Industrials	-27.46	-27.78
Consumer Discretionary	-19.67	-21.51
Consumer Staples	-13.43	-13.17
Health Care	-12.44	-12.99
Financials	-32.73	-32.74
Information Technology	-12.71	-12.82
Communication Services	-17.32	-17.52
Utilities	-14.50	-13.11
Real Estate	-22.69	-24.24



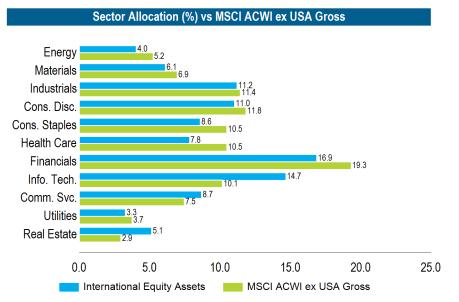
Asset Allocation on March 31, 2020						
	Actual	Actual				
GQG Partners Emerging Markets	\$6,479,467	29.9%				
LMCG Emerging Markets	\$4,184,095	19.3%				
SSgA MSCI EAFE Index-NL	\$6,618,066	30.6%				
SSgA MSCI EAFE Small Cap Index-NL	\$4,362,397	20.2%				
Total	\$21,644,025	100.0%				





Total International Equity Characteristics					
	Portfolio	Index	Portfolio		
	Q1-20	Q1-20	Q4-19		
Market Value					
Market Value (\$M)	21.6		32.1		
Number Of Holdings	3452	2404	3463		
Characteristics					
Weighted Avg. Market Cap. (\$B)	66.8	69.2	61.5		
Median Market Cap (\$B)	1.4	5.9	2.0		
P/E Ratio	13.0	13.1	15.6		
Yield	3.7	3.8	2.9		
EPS Growth - 5 Yrs.	10.6	8.2	11.2		
Price to Book	2.6	2.5	2.5		
Beta (holdings; domestic)	1.0	1.0	1.0		

Top 10 Holdings			
TENCENT HOLDINGS	3.0%		
TAIWAN SEMICON.MNFG.	2.1%		
ALIBABA GROUP HOLDING ADR 1:8	1.9%		
SAMSUNG ELECTRONICS	1.8%		
HOUSING DEVELOPMENT FINANCE CORPORATION	1.4%		
CHINA TOWER 'H'	1.2%		
CASH - USD	1.2%		
ASML HOLDING	1.1%		
ISHARES MSCI EMERGING MARKETS ETF	1.1%		
NVIDIA	1.1%		
Total	16.1%		



	Portfolio	Index
	Q1-20	Q1-20
Sector Performance		
Energy	-35.32	-37.23
Materials	-26.00	-27.33
Industrials	-27.07	-26.25
Consumer Discretionary	-27.20	-24.22
Consumer Staples	-14.68	-14.70
Health Care	-8.18	-8.88
Financials	-34.79	-30.98
Information Technology	-16.57	-17.69
Communication Services	-10.39	-14.21
Utilities	-9.95	-15.80
Real Estate	-19.69	-26.48



Total International Equity Region Allocation					
vs MSCI ACWI ex USA Gross					
Region	% of Total	% of Bench	% Diff		
North America ex U.S.	0.0%	6.3%	-6.3%		
United States	5.6%	0.0%	5.6%		
Europe Ex U.K.	23.9%	31.1%	-7.1%		
United Kingdom	7.8%	10.0%	-2.2%		
Pacific Basin Ex Japan	14.0%	7.4%	6.6%		
Japan	15.2%	17.4%	-2.2%		
Emerging Markets	32.7%	26.4%	6.3%		
Other	0.8%	1.4%	-0.6%		
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	3.2%	3.9%	-0.7%		
AUSTRIA	0.2%	0.1%	0.1%		
BAHRAIN	0.0%	0.0%	0.0%		
BANGLADESH	0.0%	0.0%	0.0%		
BELGIUM	0.8%	0.6%	0.2%		
BRAZIL	1.2%	1.4%	-0.2%		
CANADA	0.0%	6.3%	-6.3%		
CHILE	0.0%	0.2%	-0.2%		
CHINA	8.7%	11.0%	-2.3%		
COLOMBIA	0.0%	0.1%	-0.1%		
CROATIA	0.0%	0.0%	0.0%		
CZECH REPUBLIC	0.1%	0.0%	0.0%		
DENMARK	1.1%	1.4%	-0.4%		
EGYPT	0.0%	0.0%	0.0%		
ESTONIA	0.0%	0.0%	0.0%		
FINLAND	0.5%	0.7%	-0.1%		
FRANCE	3.9%	7.1%	-3.2%		
GERMANY	3.8%	5.4%	-1.7%		
GREECE	0.2%	0.1%	O.1%		



Country	% of Total	% of Bench	% Diff
HONG KONG	9.2%	2.5%	6.8%
HUNGARY	0.2%	0.1%	0.1%
INDIA	7.0%	2.2%	4.9%
INDONESIA	1.7%	0.4%	1.3%
IRELAND	0.2%	0.4%	-0.2%
ISRAEL	0.5%	0.4%	O.1%
ITALY	1.4%	1.4%	-0.1%
JAPAN	15.2%	17.4%	-2.2%
JORDAN	0.0%	0.0%	0.0%
KAZAKHSTAN	0.0%	0.0%	0.0%
KENYA	0.0%	0.0%	0.0%
KOREA	4.3%	3.3%	1.0%
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%	O.1%
MALAYSIA	0.3%	0.5%	-0.2%
MAURITIUS	0.0%	0.0%	0.0%
MEXICO	0.3%	0.5%	-0.3%
MOROCCO	0.0%	0.0%	0.0%
NETHERLANDS	3.2%	2.8%	0.4%
NEW ZEALAND	0.3%	0.2%	O.1%
NIGERIA	0.0%	0.0%	0.0%



Country	% of	% of	
	Total	Bench	% Diff
NORWAY	0.5%	0.4%	0.2%
OMAN	0.0%	0.0%	0.0%
OTHER	0.3%	0.0%	0.3%
PAKISTAN	0.0%	0.0%	0.0%
PERU	0.0%	0.1%	-0.1%
PHILIPPINES	0.1%	0.2%	-0.1%
POLAND	0.3%	0.2%	0.1%
PORTUGAL	0.1%	0.1%	0.0%
QATAR	0.0%	0.3%	-0.3%
ROMANIA	0.0%	0.0%	0.0%
RUSSIA	2.8%	0.9%	1.9%
SAUDI ARABIA	0.0%	0.7%	-0.7%
SERBIA	0.0%	0.0%	0.0%
SINGAPORE	1.3%	0.8%	0.5%
SLOVENIA	0.0%	0.0%	0.0%
SOUTH AFRICA	0.7%	1.0%	-0.3%
SPAIN	1.2%	1.7%	-0.5%
SRI LANKA	0.0%	0.0%	0.0%
SWEDEN	2.2%	1.8%	0.3%
SWITZERLAND	4.5%	7.1%	-2.6%
TAIWAN	3.8%	3.4%	0.3%
THAILAND	0.9%	0.6%	0.3%
TUNISIA	0.0%	0.0%	0.0%



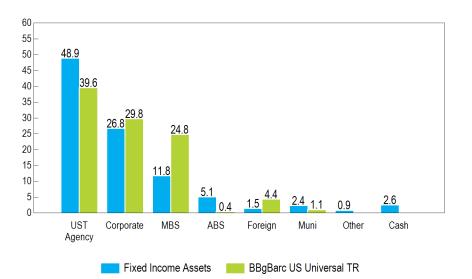
Country	% of Total	% of Bench	% Diff
TURKEY	0.3%	0.1%	0.2%
UNITED ARAB EMIRATES	0.0%	0.2%	-0.2%
UNITED KINGDOM	7.8%	10.0%	-2.2%
UNITED STATES	5.6%	0.0%	5.6%
VIETNAM	0.0%	0.0%	0.0%
Total	100.0%	100.0%	0.0%

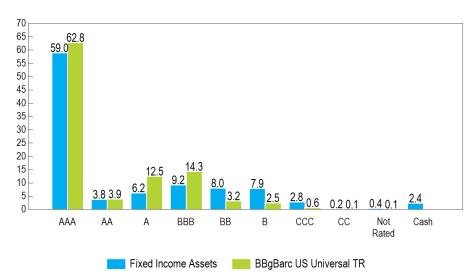
### Massachusetts Housing Finance Agency Retirement System

Asset Allocation on March 31, 2020				
	Actual	Actual		
Aberdeen Emerging Markets Bond Fund	\$3,800,860	7.7%		
Longfellow Investment Grade Bond	\$24,779,360	50.2%		
Lord Abbett High Yield Core	\$7,148,897	14.5%		
Metlife Emerging Markets Debt	\$3,575,764	7.2%		
SSgA TIPS-NL	\$10,016,396	20.3%		
Total	\$49,321,277	100.0%		

Total Fixed Income Fixed Income Characteristics							
vs. BBgBarc US Universal TR							
Portfolio Index Portfolio							
Q1-20 Q1-20							
Fixed Income Characteristics							
Yield to Maturity         3.65         2.51         3.3							
Average Duration	5.92	6.20	5.42				
Average Quality	А	AA	А				
Weighted Average Maturity 7.93 12.39 7.85							

#### Sector Allocation





Credit Quality Allocation

#### SSgA Russell 1000 Value Index-NL | As of March 31, 2020

Account 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	-26.7	-17.2	-2.1	1.9	5.4	Jan-05
Russell 1000 Value	-26.7	-17.2	-2.2	1.9	5.3	Jan-05
eV US Large Cap Value Equity Gross Median	-26.2	-16.2	-1.1	2.4	6.1	Jan-05
eV US Large Cap Value Equity Gross Rank	57	59	65	62	81	Jan-05

Top 10 Holdings	
BERKSHIRE HATHAWAY 'B'	3.4%
JOHNSON & JOHNSON	2.8%
JP MORGAN CHASE & CO.	2.7%
PROCTER & GAMBLE	2.4%
INTEL	2.2%
VERIZON COMMUNICATIONS	2.1%
AT&T	2.0%
PFIZER	1.7%
BANK OF AMERICA	1.6%
WALT DISNEY	1.6%
Total	22.7%

SSgA Russell 1000 Value Index-NL Characteristics				
	Portfolio	Index	Portfolio	
	Q1-20	Q1-20	Q4-19	
Market Value				
Market Value (\$M)	13.0		19.4	
Number Of Holdings	761	765	757	
Characteristics				
Weighted Avg. Market Cap. (\$B)	99.2	98.9	124.1	
Median Market Cap (\$B)	6.3	6.3	9.7	
P/E Ratio	12.6	12.6	18.6	
Yield	3.5	3.5	2.5	
EPS Growth - 5 Yrs.	8.7	8.6	6.7	
Price to Book	2.2	2.2	2.3	
Beta (holdings; domestic)	1.0	1.0	1.0	
Sector Distribution				
Energy	5.4	5.4	8.2	
Materials	4.2	4.2	4.3	
Industrials	9.5	9.5	9.7	
Consumer Discretionary	5.1	5.2	5.8	
Consumer Staples	10.6	10.6	8.9	
Health Care	15.5	15.5	12.9	
Financials	21.4	21.3	24.0	
Information Technology	6.8	6.8	6.3	
Communication Services	8.6	8.6	8.1	
Utilities	7.8	7.8	6.6	
Real Estate	5.0	5.1	5.0	

#### SSgA Russell 1000 Growth-NL | As of March 31, 2020

Ace	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	-14.1	0.9	11.3	10.3	9.3	Jul-07
Russell 1000 Growth	-14.1	0.9	11.3	10.4	9.3	Jul-07
eV US Large Cap Growth Equity Gross Median	-14.4	-1.0	10.5	9.1	9.0	Jul-07
eV US Large Cap Growth Equity Gross Rank	46	33	42	34	41	Jul-07

Top 10 Holding	S
MICROSOFT	9.2%
APPLE	8.1%
AMAZON.COM	6.3%
FACEBOOK CLASS A	3.1%
ALPHABET 'C'	2.7%
ALPHABET A	2.7%
VISA 'A'	2.1%
UNITEDHEALTH GROUP	1.8%
MASTERCARD	1.6%
MERCK & COMPANY	1.4%
Total	39.0%

SSgA Russell 1000 Growth-NL Characteristics					
	Portfolio	Index	Portfolio		
	Q1-20	Q1-20	Q4-19		
Market Value					
Market Value (\$M)	16.1		21.1		
Number Of Holdings	533	532	530		
Characteristics					
Weighted Avg. Market Cap. (\$B)	357.5	355.2	363.1		
Median Market Cap (\$B)	9.8	9.8	13.2		
P/E Ratio	23.8	23.8	29.8		
Yield	1.3	1.3	1.2		
EPS Growth - 5 Yrs.	16.9	17.0	21.7		
Price to Book	6.8	6.7	8.8		
Beta (holdings; domestic)	1.0	1.0	1.0		
Sector Distribution					
Energy	0.1	0.1	0.3		
Materials	1.2	1.2	1.3		
Industrials	8.0	8.0	9.3		
Consumer Discretionary	14.1	14.1	13.8		
Consumer Staples	4.6	4.6	4.6		
Health Care	15.1	15.1	14.7		
Financials	2.9	2.9	3.1		
Information Technology	39.9	39.8	38.9		
Communication Services	11.5	11.7	11.6		
Utilities	0.0	0.0	0.0		
Real Estate	2.5	2.5	2.4		

#### SSgA Russell 2000 Index-NL | As of March 31, 2020

SSgA Russell 2000 Index-NL Characteristics

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	-30.6	-24.0	-4.6	-0.2	7.6	Aug-10
Russell 2000	-30.6	-24.0	-4.6	-0.2	7.6	Aug-10
eV US Small Cap Core Equity Gross Median	-31.1	-24.5	-4.4	0.6	8.6	Aug-10
eV US Small Cap Core Equity Gross Rank	48	47	52	61	77	Aug-10

Top 10 Holdings	
TELADOC HEALTH	0.8%
CASH - USD	0.5%
NOVOCURE	0.4%
AMEDISYS	0.4%
GENERAC HOLDINGS	0.4%
LUMENTUM HOLDINGS	0.4%
HAEMONETICS	0.3%
REPLIGEN	0.3%
ACADIA PHARMACEUTICALS	0.3%
TREX	0.3%
Total	4.2%

	Portfolio	Index	Portfolio
	Q1-20	Q1-20	Q4-19
Market Value			
Market Value (\$M)	2.7		3.8
Number Of Holdings	1978	1979	1984
Characteristics			
Weighted Avg. Market Cap. (\$B)	2.0	2.0	2.5
Median Market Cap (\$B)	0.5	0.5	0.8
P/E Ratio	13.4	13.3	19.9
Yield	2.0	2.0	1.4
EPS Growth - 5 Yrs.	9.5	9.5	9.3
Price to Book	2.5	2.5	2.5
Beta (holdings; domestic)	1.2	1.2	1.2
Sector Distribution			
Energy	1.7	1.7	3.2
Materials	3.4	3.4	3.9
Industrials	15.1	15.2	15.8
Consumer Discretionary	8.7	8.7	10.8
Consumer Staples	3.4	3.4	3.0
Health Care	21.2	21.3	18.
Financials	16.7	16.8	17.7
Information Technology	15.1	15.1	13.6
Communication Services	2.2	2.3	2.3
Utilities	4.4	4.5	3.7
Real Estate	7.6	7.6	7.8

## Massachusetts Housing Finance Agency Retirement System

#### SSgA MSCI EAFE Index-NL | As of March 31, 2020

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	-22.7	-14.0	-1.4	-0.2	3.8	Aug-10
MSCI EAFE	-22.8	-14.4	-1.8	-0.6	3.4	Aug-10
eV EAFE Core Equity Gross Median	-24.0	-15.2	-1.6	0.2	5.0	Aug-10
eV EAFE Core Equity Gross Rank	37	39	45	62	82	Aug-10

Top 10 Holdings	
NESTLE 'N'	2.6%
ROCHE HOLDING	2.0%
NOVARTIS 'R'	1.5%
TOYOTA MOTOR	1.2%
ASTRAZENECA	1.0%
ASML HOLDING	1.0%
HSBC HOLDINGS	1.0%
AIA GROUP	1.0%
SAP	0.9%
NOVO NORDISK 'B'	0.9%
Total	13.2%

SSgA MSCI EAFE Index-NL Characteristics			
	Portfolio	Index	Portfolic
	Q1-20	Q1-20	Q4-19
Market Value			
Market Value (\$M)	6.6		8.6
Number Of Holdings	946	918	95
Characteristics			
Weighted Avg. Market Cap. (\$B)	55.4	55.6	63.5
Median Market Cap (\$B)	8.1	8.2	10.0
P/E Ratio	13.9	13.9	17.
Yield	3.9	3.9	3.2
EPS Growth - 5 Yrs.	6.7	6.7	6.8
Price to Book	2.5	2.5	2.4
Beta (holdings; domestic)	1.0	1.0	1.0
Sector Distribution			
Energy	3.9	4.0	4.9
Materials	6.6	6.7	7.0
Industrials	14.1	14.2	15.0
Consumer Discretionary	11.0	11.1	11.
Consumer Staples	12.5	12.7	11.5
Health Care	14.1	14.3	11.6
Financials	16.3	16.5	18.5
Information Technology	7.6	7.6	6.
Communication Services	5.5	5.5	5.
Utilities	4.2	4.2	3.
Real Estate	3.3	3.2	3.6

#### SSgA MSCI EAFE Small Cap Index-NL | As of March 31, 2020

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 II (%)	nception Date
SSgA MSCI EAFE Small Cap Index-NL	-27.2	-17.7	-2.6	1.3	5.7	Aug-10
MSCI EAFE Small Cap	-27.5	-18.1	-2.9	1.0	5.4	Aug-10
eV EAFE Small Cap Core Gross Median	-27.9	-17.7	-2.8	1.1	7.0	Aug-10
eV EAFE Small Cap Core Gross Rank	39	51	48	47	74	Aug-10

Top 10 Holdings	
LEG IMMOBILIEN	0.4%
LOGITECH 'R'	0.4%
SCOUT24 (XET)	0.4%
SVENSKA CELLULOSA AKTIEBOLAGET SCA B	0.3%
GN STORE NORD	0.3%
PENNON GROUP	0.3%
ARGENX	0.3%
RIGHTMOVE	0.3%
PSP SWISS PROPERTY AG	0.3%
HELLOFRESH	0.3%
Total	3.3%

SSgA MSCI EAFE Small Cap Index-NL Characteristics			
	Portfolio	Index	Portfolio
	Q1-20	Q1-20	Q4-19
Market Value			
Market Value (\$M)	4.4		6.0
Number Of Holdings	2361	2323	2369
Characteristics			
Weighted Avg. Market Cap. (\$B)	2.2	2.2	2.8
Median Market Cap (\$B)	0.8	0.8	1.1
P/E Ratio	12.6	12.5	17.0
Yield	3.2	3.2	2.5
EPS Growth - 5 Yrs.	10.6	10.6	11.1
Price to Book	2.1	2.1	2.2
Beta (holdings; domestic)	1.0	1.0	0.9
Sector Distribution			
Energy	1.7	1.8	2.5
Materials	8.1	8.2	7.9
Industrials	20.5	20.5	21.5
Consumer Discretionary	11.0	11.1	12.5
Consumer Staples	7.5	7.4	6.1
Health Care	8.7	8.7	7.2
Financials	10.5	10.5	10.8
Information Technology	10.5	10.5	10.1
Communication Services	4.7	4.7	4.5
Utilities	2.8	2.8	2.4
Real Estate	13.7	13.8	13.3

# Massachusetts Housing Finance Agency Retirement System

## LMCG Emerging Markets | As of March 31, 2020

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	-25.1	-20.3	-4.9		-1.7	Aug-15
MSCI Emerging Markets	-23.6	-17.7	-1.6	-0.4	1.0	Aug-15
eV Emg Mkts Equity Net Median	-25.0	-19.0	<i>-2.</i> 7	-0.9	0.2	Aug-15
eV Emg Mkts Equity Net Rank	51	63	71		78	Aug-15

Top 10 Holdings	
TENCENT HOLDINGS	6.1%
ISHARES MSCI EMERGING MARKETS ETF	5.7%
TAIWAN SEMICON.MNFG.	4.4%
SAMSUNG ELECTRONICS	3.8%
IRB BRASIL RESSEGUROS ON	1.9%
CHINA CON.BANK 'H'	1.6%
CHINA OVERSEAS LAND INVEST-500	1.3%
BANK OF CHINA 'H'	1.3%
ADVANCED INFO SER.	1.3%
JD COM ADR 1:2	1.2%
Total	28.7%

LMCG Emerging Markets Characteristics			
	Portfolio	Index	Portfolio
	Q1-20	Q1-20	Q4-19
Market Value			
Market Value (\$M)	4.2		9.4
Number Of Holdings	125	1397	123
Characteristics			
Weighted Avg. Market Cap. (\$B)	63.1	109.8	62.
Median Market Cap (\$B)	4.0	4.4	7.0
P/E Ratio	8.5	12.2	11.4
Yield	6.2	3.4	3.4
EPS Growth - 5 Yrs.	11.9	11.2	12.3
Price to Book	2.3	2.6	2.4
Beta (holdings; domestic)	1.1	1.1	1.0
Sector Distribution			
Energy	6.5	5.9	7.5
Materials	7.4	6.6	8.3
Industrials	7.1	4.9	7.9
Consumer Discretionary	9.4	15.5	8.6
Consumer Staples	4.9	6.5	5.0
Health Care	5.1	3.4	3.8
Financials	20.8	21.9	23.5
nformation Technology	16.7	16.8	16.3
Communication Services	11.2	13.0	10.2
Utilities	0.7	2.5	0.6
Real Estate	4.3	2.9	4.2

## GQG Partners Emerging Markets | As of March 31, 2020

Account Information		
Account Name	GQG Partners Emerging Markets	
Account Structure	Commingled Fund	
Investment Style	Active	
Inception Date	3/31/19	
Account Type	Non-US Stock Emerging	
Benchmark	MSCI Emerging Markets	
Universe	eV Emg Mkts Equity Gross	

Portfolio	Perforn	nance	Summa	ary		
	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	Inception (%)	Inception Date
GQG Partners Emerging Markets	-19.4	-11.2			-11.2	Mar-19
MSCI Emerging Markets	-23.6	-17.7	-1.6	-0.4	-17.7	Mar-19
eV Emg Mkts Equity Gross Median	-24.8	-18.5	-2.0	0.1	-18.5	Mar-19
eV Emg Mkts Equity Gross Rank	5	9			9	Mar-19

Top 10 Holdings	
ALIBABA GROUP HOLDING ADR 1:8	6.6%
TENCENT HOLDINGS	6.2%
HOUSING DEVELOPMENT FINANCE CORPORATION	4.9%
CHINA TOWER 'H'	4.3%
TAIWAN SEMICON.MNFG.	4.3%
CASH - USD	3.9%
NVIDIA	3.8%
BANK CENTRAL ASIA	3.7%
SAMSUNG ELECTRONICS	3.7%
CHINA MOBILE	3.1%
Total	44.5%

GQG Partners Emerging Markets Characteristics				
	Portfolio	Index	Portfolio	
	Q1-20	Q1-20	Q4-19	
Market Value				
Market Value (\$M)	6.5		8.0	
Number Of Holdings	53	1397	5	
Characteristics				
Weighted Avg. Market Cap. (\$B)	130.0	109.8	106.4	
Median Market Cap (\$B)	37.4	4.4	46.0	
P/E Ratio	19.1	12.2	19	
Yield	2.2	3.4	2.	
EPS Growth - 5 Yrs.	14.3	11.2	15.	
Price to Book	3.6	2.6	3.	
Beta (holdings; domestic)	1.0	1.1	1.	
Sector Distribution				
Energy	4.2	5.9	8.4	
Materials	3.3	6.6	4.9	
Industrials	4.3	4.9	5.	
Consumer Discretionary	12.1	15.5	8.	
Consumer Staples	7.7	6.5	6.4	
Health Care	2.3	3.4	2.	
Financials	19.3	21.9	38.0	
Information Technology	23.8	16.8	14.	
Communication Services	13.2	13.0	2.	
Utilities	4.3	2.5	2.	
Real Estate	1.6	2.9	3.	

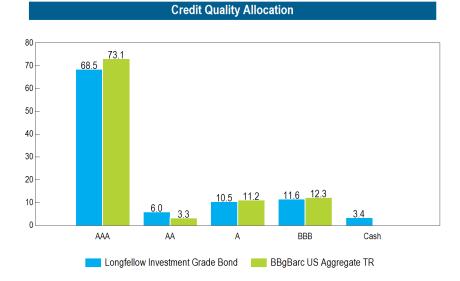
# MEKETA

## Longfellow Investment Grade Bond | As of March 31, 2020

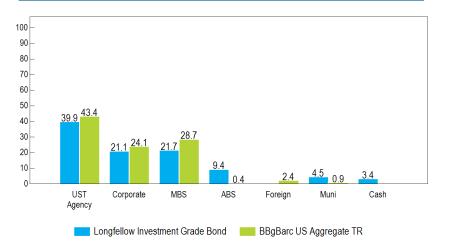
Account Information		
Account Name	Longfellow Investment Grade Bond	
Account Structure	Separate Account	
Investment Style	Active	
Inception Date	9/01/17	
Account Type	Fixed	
Benchmark	BBgBarc US Aggregate TR	
Universe	eV US Core Fixed Inc Gross	

Portfolio	Perforn	nance	Summa	ary		
	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	Inception (%)	Inception Date
Longfellow Investment Grade Bond	2.1	8.0			4.1	Sep-17
BBgBarc US Aggregate TR	3.1	8.9	4.8	3.4	4.5	Sep-17
eV US Core Fixed Inc Gross Median	1.9	7.8	4.7	3.5	4.3	Sep-17
eV US Core Fixed Inc Gross Rank	45	46			61	Sep-17

Longfellow Investment Grade Bond Characteristics vs. BBgBarc US Aggregate TR				
	Portfolio	Index	Portfolio	
	Q1-20	Q1-20	Q4-19	
Fixed Income Characteristics				
Yield to Maturity	2.3	1.7	2.5	
Average Duration	5.9	6.4	5.8	
Average Quality	AA	AA	AA	
Weighted Average Maturity7.713.37.6				



Sector Allocation



MEKETA INVESTMENT GROUP

# Massachusetts Housing Finance Agency Retirement System

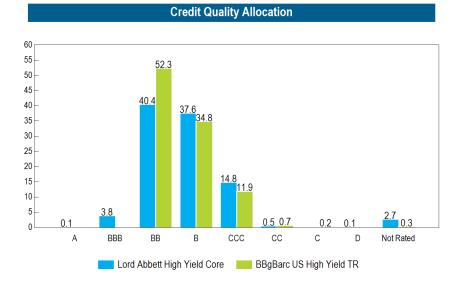
#### Lord Abbett High Yield Core | As of March 31, 2020

Account Information			
Account Name	Lord Abbett High Yield Core		
Account Structure	Commingled Fund		
Investment Style	Active		
Inception Date	7/01/19		
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		
Lord Abbett High Yield Core	-15.1				-11.8	Jul-19		
BBgBarc US High Yield TR	-12.7	-6.9	0.8	2.8	-9.2	Jul-19		
eV US High Yield Fixed Inc Gross Median	-12.0	-6.0	1.2	2.8	-8.4	Jul-19		
eV US High Yield Fixed Inc Gross Rank	85				87	Jul-19		

#### Lord Abbett High Yield Core Characteristics vs. BBgBarc US High Yield TR Portfolio Portfolio Index Q1-20 Q1-20 Q4-19

Fixed Income Characteristics			
Yield to Maturity	10.0	10.3	6.1
Average Duration	4.8	4.5	4.6
Average Quality	В	В	В
Weighted Average Maturity	6.8	6.2	6.6

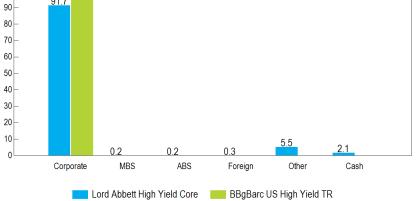


Sector Allocation

100.0

91.7

100



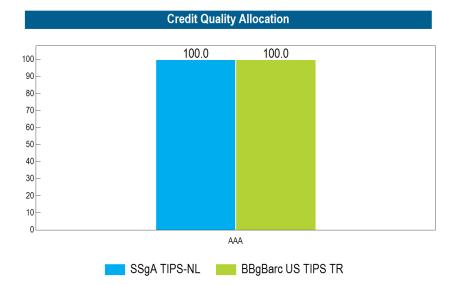
# Massachusetts Housing Finance Agency Retirement System

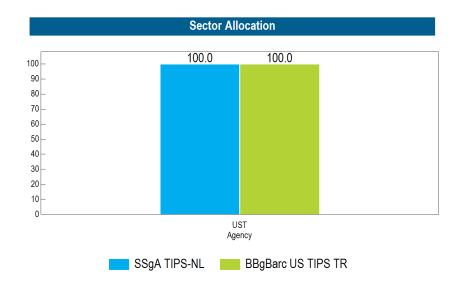
## SSgA TIPS-NL | As of March 31, 2020

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 I (%)	nception Date			
SSgA TIPS-NL	1.7	6.8	3.5	2.6	4.2	Jul-07			
BBgBarc US TIPS TR	1.7	6.9	3.5	2.7	4.2	Jul-07			
eV US TIPS / Inflation Fixed Inc Gross Median	0.7	5.9	3.4	2.7	4.3	Jul-07			
eV US TIPS / Inflation Fixed Inc Gross Rank	28	31	48	53	61	Jul-07			

SSgA TIPS-NL Characteristics									
vs. BBgBarc US TIPS TR									
	Portfolio Index								
	Q1-20	Q1-20	Q4-19						
Fixed Income Characteristics									
Yield to Maturity	0.9	0.2	2.0						
Average Duration	6.7	7.8	4.7						
Average Quality	AAA	AAA	AAA						
Weighted Average Maturity	8.4	8.4	8.0						





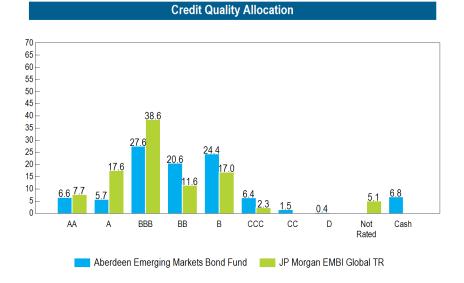
# Massachusetts Housing Finance Agency Retirement System

## Aberdeen Emerging Markets Bond Fund | As of March 31, 2020

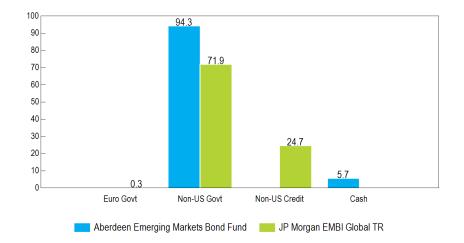
Account Information						
Account Name	Aberdeen Emerging Markets Bond Fund					
Account Structure	Commingled Fund					
Investment Style	Active					
Inception Date	12/01/16					
Account Type	Fixed					
Benchmark	JP Morgan EMBI Global Diversified					
Universe						

Portfolio Performance Summary									
	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	Inception (%)	Inception Date			
Aberdeen Emerging Markets Bond Fund	-15.7	-9.2	-0.9		0.8	Dec-16			
JP Morgan EMBI Global Diversified	-13.4	-6.8	0.4	2.8	1.9	Dec-16			
JP Morgan GBI EM Global Diversified TR USD	-15.2	-6.5	-0.8	0.3	1.7	Dec-16			

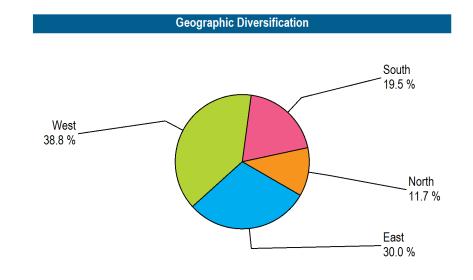
Aberdeen Emerging Markets Bond Fund Fixed Income Characteristics								
vs. JP Morgan EMBI Global TR								
	Portfolio Index P							
	Q1-20	Q1-20	Q4-19					
Fixed Income Characteristics								
Yield to Maturity	7.9	6.9	5.1					
Average Duration	6.3	7.3	6.9					
Average Quality	BB	BBB	BB					
Weighted Average Maturity	10.7	12.5	10.9					



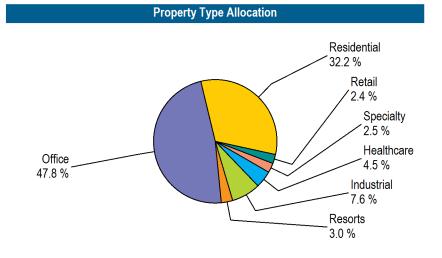
#### **Global Sector Allocation**



# Intercontinental U.S. REIF | As of March 31, 2020



North represents Midwest.



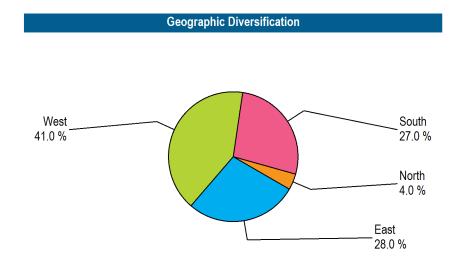
# Account InformationAccount NameIntercontinental U.S. REIFAccount StructureOtherInvestment StyleActiveInception Date10/01/14Account TypeReal EstateBenchmarkNCREIF ODCE (net)Universe

Portfolio Performance Summary								
QTD 1 Yr 3 Yrs 5 Yrs Inception Inc (%) (%) (%) (%) (%)								
Intercontinental U.S. REIF	0.3	7.6	8.7	10.9	10.9	Oct-14		
NCREIF ODCE (net)	0.8	3.9	5.9	7.5	8.0	Oct-14		

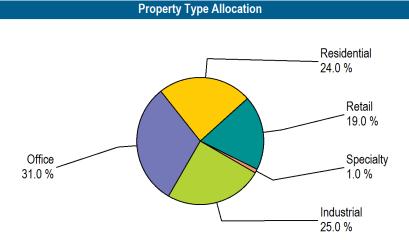
Note: As of December 31, 2019, the number of investments is 126.

MEKETA

#### AEW Core Property Trust | As of March 31, 2020



North represents Midwest.



Account InformationAccount NameAEW Core Property TrustAccount StructureCommingled FundInvestment StyleActiveInception Date10/01/14Account TypeReal EstateBenchmarkNCREIF ODCE (net)Universe

Portfolio Performance Summary									
	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	Inception (%)	Inception Date			
AEW Core Property Trust	-1.1	2.6	5.2	7.5	7.8	Oct-14			
NCREIF ODCE (net)	0.8	3.9	5.9	7.5	8.0	Oct-14			

Note: As of December 31, 2019, the number of investments is 84.

# MEKETA

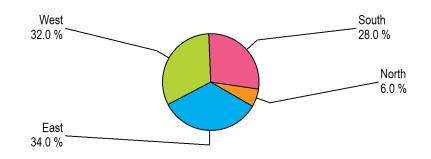
# Massachusetts Housing Finance Agency Retirement System

## TA Associates Realty Fund X | As of March 31, 2020

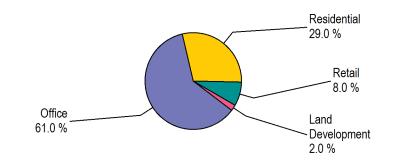
Account Information						
Account Name	TA Associates Realty Fund X					
Account Structure	Other					
Investment Style	Active					
Inception Date	4/01/13					
Account Type	Real Estate					
Benchmark	NCREIF ODCE (net)					
Universe						

	Non-Marketable Securities Overview									
	As of March 31, 2020									
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	2013	\$3,000,000	\$3,005,227	\$4,475,707	\$361,792	\$4,837,499	-\$5,227		
	Total Account		\$3,000,000	\$3,005,227	\$4,475,707	\$361,792	\$4,837,499	-\$5,227		





**Property Type Allocation** 



#### 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, 2019, the number of investments is 17 and Net IRR is 13.00%.



#### Ascent Venture Partners - Fund III | As of March 31, 2020

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	1999	\$1,500,000	\$1,395,000	\$1,697,063	\$52,300	\$1,749,363	\$105,000
	Total Account		\$1,500,000	\$1,395,000	\$1,697,063	\$52,300	\$1,749,363	\$105,000

#### 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, 2019, the Net IRR is 3.72%.



#### Ascent Venture Partners - Fund IV | As of March 31, 2020

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	2004	\$1,000,000	\$1,000,000	\$155,588	\$15,718	\$171,306	\$0	
	Total Account		\$1,000,000	\$1,000,000	\$155,588	\$15,718	\$171,306	\$0	

#### 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.



## Ascent Venture Partners - Fund V | As of March 31, 2020

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	2011	\$1,000,000	\$920,000	\$649,106	\$885,275	\$1,534,381	\$80,000
	Total Account		\$1,000,000	\$920,000	\$649,106	\$885,275	\$1,534,381	\$80,000

#### 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.



#### Ascent Venture Partners - Fund VI | As of March 31, 2020

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	2015	\$1,500,000	\$1,185,000	\$0	\$1,334,753	\$1,334,753	\$315,000
	Total Account		\$1,500,000	\$1,185,000	\$0	\$1,334,753	\$1,334,753	\$315,000

#### Investment Strategy:

Ascent Venture Partners VI is a limited partnership that was formed on November 25, 2013 under the Delaware Uniform Limited Partnership Act and commenced operations on November 16, 2015. The purpose of the Partnership is to provide early stage financing to emerging technology companies.



#### Goldman Sachs PEP 2005 | As of March 31, 2020

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	2006	\$3,000,000	\$2,926,669	\$3,349,845	\$417,579	\$3,767,424	\$73,331
	Total Account		\$3,000,000	\$2,926,669	\$3,349,845	\$417,579	\$3,767,424	\$73,331

#### 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.



#### HarbourVest Partners VIII | As of March 31, 2020

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	2006	\$2,500,000	\$2,286,178	\$3,483,931	\$587,819	\$4,071,750	\$213,822
	Total Account		\$2,500,000	\$2,286,178	\$3,483,931	\$587,819	\$4,071,750	\$213,822

#### 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 December 31, 2019, the Net IRR is 10.5%.



#### HarbourVest Partners IX | As of March 31, 2020

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 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 IX	2010	\$5,000,000	\$3,530,139	\$2,746,736	\$3,830,154	\$6,576,890	\$1,469,861
	Total Account		\$5,000,000	\$3,530,139	\$2,746,736	\$3,830,154	\$6,576,890	\$1,469,861

#### 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 December 31, 2019, the Net IRR is 18.3%.



#### HarbourVest X Buyout Fund | As of March 31, 2020

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						

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 X Buyout Fund	2016	\$6,500,000	\$2,297,866	\$260,971	\$3,136,988	\$3,397,959	\$4,202,134
	Total Account		\$6,500,000	\$2,297,866	\$260,971	\$3,136,988	\$3,397,959	\$4,202,134

#### Investment Strategy:

HarbourVest Partners, known as Hancock Venture Partners until 1997, was founded in 1982 to invest in private equity partnerships. The HarbourVest Partners X 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 December 31, 2019, the Net IRR is 25.7%.



#### HarbourVest Partners XI | As of March 31, 2020

Account Information						
Account Name	HarbourVest Partners XI					
Account Structure	Other					
Investment Style	Passive					
Inception Date	7/31/19					
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 XI	2019	\$5,000,000	\$875,000	\$15,932	\$886,400	\$902,332	\$4,125,000
	Total Account		\$5,000,000	\$875,000	\$15,932	\$886,400	\$902,332	\$4,125,000

#### Investment Strategy:

HarbourVest Partners, known as Hancock Venture Partners until 1997, was founded in 1982 to invest in private equity partnerships. The HarbourVest Partners XI 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.



#### Constitution Capital Partners Ironsides III | As of March 31, 2020

Account Information						
Account Name	Constitution Capital Partners Ironsides III					
Account Structure	Other					
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 by Account Type								
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	\$3,554,585	\$119,753	\$5,492,884	\$5,612,637	\$1,445,415
	Total Account		\$5,000,000	\$3,554,585	\$119,753	\$5,492,884	\$5,612,637	\$1,445,415

#### Investment Strategy:



#### Constitution Capital Partners Ironsides IV | As of March 31, 2020

Account Information						
Account Name	Constitution Capital Partners Ironsides IV					
Account Structure	Other					
Investment Style	Active					
Inception Date	6/01/16					
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	Constitution Capital Partners Ironsides IV	2016	\$3,250,000	\$1,746,719	\$0	\$2,573,569	\$2,573,569	\$1,503,281
	Total Account		\$3,250,000	\$1,746,719	\$0	\$2,573,569	\$2,573,569	\$1,503,281

#### Investment Strategy:



#### Constitution Capital Partners Ironsides V | As of March 31, 2020

Account Information						
Account Name	Constitution Capital Partners Ironsides V					
Account Structure	Other					
Investment Style	Passive					
Inception Date	3/09/20					
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	Constitution Capital Partners Ironsides V	2020	\$2,500,000	\$122,978	\$0	\$122,978	\$122,978	\$2,377,022
	Total Account		\$2,500,000	\$122,978	\$0	\$122,978	\$122,978	\$2,377,022

#### Investment Strategy:



## Constitution Capital Direct IV | As of March 31, 2020

Account Information			
Account Name	Constitution Capital Direct IV		
Account Structure	Other		
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 by Account Type								
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	\$3,146,050	\$855,812	\$3,336,642	\$4,192,454	\$103,950
	Total Account		\$3,250,000	\$3,146,050	\$855,812	\$3,336,642	\$4,192,454	\$103,950

#### Investment Strategy:



## Constitution Capital Direct V | As of March 31, 2020

Account Information			
Account Name	Constitution Capital Direct V		
Account Structure	Other		
Investment Style	Active		
Inception Date	3/27/19		
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	Constitution Capital Direct V	2019	\$2,500,000	\$2,785,319	\$634,859	\$2,391,240	\$3,026,099	-\$285,319
	Total Account		\$2,500,000	\$2,785,319	\$634,859	\$2,391,240	\$3,026,099	-\$285,319

#### Investment Strategy:

# Massachusetts Housing Finance Agency Retirement System

# SSgA S&P Global LargeMidCap Natural Resources Index | As of March 31, 2020

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 LargeMidCap Commodity and Resources NR USD			
Universe				

Portfolio Performance Summary						
	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	Inception (%)	Inception Date
SSgA S&P Global LargeMidCap Natural Resources Index	-32.0	-29.7			-16.0	Feb-18
S&P Global LargeMidCap Commodity and Resources NR USD	-32.3	-30.1	-6.3	-3.7	-16.4	Feb-18

Top 10 Holdings	
ARCHER DANIELS MIDLAND	5.6%
NUTRIEN	5.5%
CORTEVA	5.0%
EXXON MOBIL	4.1%
BHP GROUP	4.0%
RIO TINTO	3.5%
CHEVRON	3.5%
FMC	3.0%
NEWMONT	2.9%
BHP GROUP	2.5%
Total	39.6%

	&P Global LargeMidCap Natural Resources Index Characteristics			
	Portfolio	Portfolio		
	Q1-20	Q4-19		
Market Value				
Market Value (\$M)	2.8	4.1		
Number Of Holdings	229	204		
Characteristics				
Weighted Avg. Market Cap. (\$B)	38.1	62.4		
Median Market Cap (\$B)	5.0	8.2		
P/E Ratio	11.2	15.1		
Yield	4.9	3.6		
EPS Growth - 5 Yrs.	0.7	2.8		
Price to Book	1.7	1.8		
Beta (holdings; domestic)	1.0	1.1		
Sector Distribution				
Energy	27.5	33.2		
Materials	58.7	54.6		
Industrials	0.0	0.0		
Consumer Discretionary	0.0	0.0		
Consumer Staples	13.5	11.8		
Health Care	0.0	0.0		
Financials	0.0	0.0		
Information Technology	0.0	0.0		
Communication Services	0.0	0.0		
Utilities	0.0	0.0		
Real Estate	0.0	0.0		

# Appendices



Corporate Update

Meketa Investment Group Corporate Update

## **Corporate Update**

- Staff of 204, including 138 investment professionals and 43 CFA Charterholders
- 214 clients, with over 300 funds throughout the United States
- Significant investment in staff and resources
- Offices in Boston, Chicago, Miami, New York, Portland (OR), San Diego, and London

Infrastructure

250

200

150

Employee

ę

204

200

143

We advise on \$1.4 trillion in client assets 

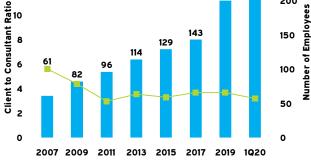
14 12

61

Over \$100 billion in assets committed to alternative investments \_

- Private Equity

  - **Real Estate** Hedge Funds
  - Client to Consultant Ratio<sup>1</sup> # Employees -Client/Consultant Ratio

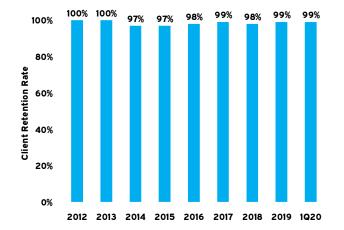


129

114

96

**Client Retention Rate<sup>2</sup>** 



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

Natural Resources

Commodities

# **MEKETA**

<sup>&</sup>lt;sup>1</sup> On March 15, 2019, 31 employees joined the firm as part of the merger of Meketa Investment Group and Pension Consulting Alliance.

<sup>&</sup>lt;sup>2</sup> Client Retention Rate is one minus the number of clients lost divided by the number of clients at prior year-end.



Domestic Internatio	Asset Classes Followed Intensively by Meketa Inv International Equities Private Equity Assets		Fixed Income	Hedge Funds	
Passive-Large Cap DevelopedEnhanced Index-Small Cap DevelopedMidcap-Emerging MarketsSmall Cap-Frontier MarketsMicrocap-Frontier Markets130/30	<ul> <li>Venture Capital</li> <li>Private Debt</li> <li>Special Situations</li> <li>Secondaries</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 Neutra</li> <li>Global Macro</li> <li>Fund of Funds</li> <li>Portable Alph</li> </ul>	



# **Disclaimer, Glossary, and Notes**



WE HAVE PREPARED THIS REPORT (THIS "REPORT") FOR THE SOLE BENEFIT OF THE INTENDED RECIPIENT (THE "RECIPIENT").

SIGNIFICANT EVENTS MAY OCCUR (OR HAVE OCCURRED) AFTER THE DATE OF THIS REPORT AND THAT IT IS NOT OUR FUNCTION OR RESPONSIBILITY TO UPDATE THIS REPORT. ANY OPINIONS OR RECOMMENDATIONS PRESENTED HEREIN REPRESENT OUR GOOD FAITH VIEWS AS OF THE DATE OF THIS REPORT AND ARE SUBJECT TO CHANGE AT ANY TIME. ALL INVESTMENTS INVOLVE RISK. THERE CAN BE NO GUARANTEE THAT THE STRATEGIES, TACTICS, AND METHODS DISCUSSED HERE WILL BE SUCCESSFUL.

INFORMATION USED TO PREPARE THIS REPORT WAS OBTAINED FROM INVESTMENT MANAGERS, CUSTODIANS, AND OTHER EXTERNAL SOURCES. WHILE WE HAVE EXERCISED REASONABLE CARE IN PREPARING THIS REPORT, WE CANNOT GUARANTEE THE ACCURACY OF ALL SOURCE INFORMATION CONTAINED HEREIN.

CERTAIN INFORMATION CONTAINED IN THIS REPORT MAY CONSTITUTE "FORWARD - LOOKING STATEMENTS," WHICH CAN BE IDENTIFIED BY THE USE OF TERMINOLOGY SUCH AS "MAY," "WILL," "SHOULD," "EXPECT," "AIM", "ANTICIPATE," "TARGET," "PROJECT," "ESTIMATE," "INTEND," "CONTINUE" OR "BELIEVE," OR THE NEGATIVES THEREOF OR OTHER VARIATIONS THEREON OR COMPARABLE TERMINOLOGY. ANY FORWARD-LOOKING STATEMENTS, FORECASTS, PROJECTIONS, VALUATIONS, OR RESULTS IN THIS PRESENTATION ARE BASED UPON CURRENT ASSUMPTIONS. CHANGES TO ANY ASSUMPTIONS MAY HAVE A MATERIAL IMPACT ON FORWARD - LOOKING STATEMENTS, FORECASTS, PROJECTIONS, VALUATIONS, VALUATIONS, OR RESULTS IN THIS PRESENTATION ARE BASED UPON CURRENT, PROJECTIONS, VALUATIONS, OR RESULTS. ACTUAL RESULTS MAY THEREFORE BE MATERIALLY DIFFERENT FROM ANY FORECASTS, PROJECTIONS, VALUATIONS, OR RESULTS IN THIS PRESENTATION.

PERFORMANCE DATA CONTAINED HEREIN REPRESENT PAST PERFORMANCE. PAST PERFORMANCE IS NO GUARANTEE OF FUTURE RESULTS.



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.

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.

**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.

**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.

Tracking Error: A divergence between the price behavior of a position or a portfolio and the price behavior of a benchmark, as defined by the difference in standard deviation.



**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%.

5% (discount) = 5 (yrs. to maturity)

1% pro rata, plus 5.26% (current yield)

6.26% (yield to maturity)

Yield to Worst: The lowest potential yield that can be received on a bond without the issuer actually defaulting. The yield to worst is calculated by making worst-case scenario assumptions on the issue by calculating the returns that would be received if provisions, including prepayment, call, or sinking fund, are used by the issuer.

=

**NCREIF Property Index (NPI):** Measures unleveraged investment performance of a very large pool of individual commercial real estate properties acquired in the private market by tax-exempt institutional investors for investment purposes only. The NPI index is capitalization-weighted for a quarterly time series composite total rate of return.

NCREIF Fund Index - Open End Diversified Core Equity (NFI-ODCE): Measures the investment performance of 28 open-end commingled funds pursuing a core investment strategy that reflects funds' leverage and cash positions. The NFI-ODCE index is equal-weighted and is reported gross and net of fees for a quarterly time series composite total rate of return.

Sources: Investment Terminology, International Foundation of Employee Benefit Plans, 1999. The Handbook of Fixed Income Securities, Fabozzi, Frank J., 1991

The Russell Indices<sup>®</sup>, TM, SM are trademarks/service marks of the Frank Russell Company.

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.