System Detail As of September 30, 2016

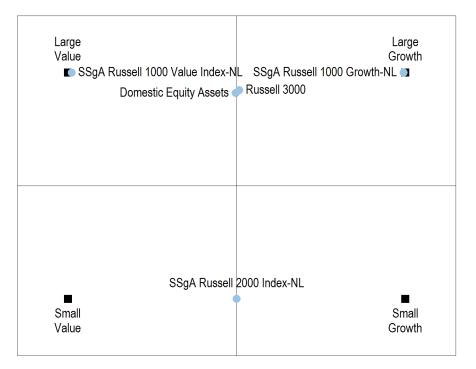
Domestic Equity Assets

Domestic Equity Assets

As of September 30, 2016

Asset Allocation on September 30, 2016			
	Actual (\$)	Actual %	
SSgA Russell 1000 Growth-NL	\$13,755,508	44.9%	
SSgA Russell 1000 Value Index-NL	\$14,098,048	46.1%	
SSgA Russell 2000 Index-NL	\$2,755,804	9.0%	
Total	\$30,609,361	100.0%	

Domestic Equity Assets Style Map 3 Years Ending September 30, 2016



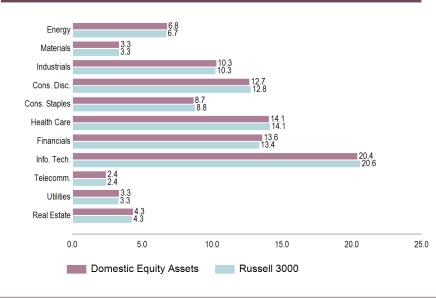
Massachusetts Housing Finance Agency Retirement System

Domestic Equity Assets

As of September 30, 2016

	Domestic Equity Assets Charact	eristics	
	Portfolio	Index	Portfolio
	Q3-16	Q3-16	Q2-16
Market Value			
Market Value (Mil)	30.6		29.8
Number Of Holdings	2930	2955	2962
Characteristics			
Wtg. Avg. Market Cap. (Bil)	110.3	112.3	105.1
Median Market Cap (Bil)	1.9	1.4	1.6
P/E Ratio	23.3	22.9	23.8
Yield	2.0	2.0	2.1
EPS Growth - 5 Yrs.	9.5	9.3	8.5
Price to Book	4.4	3.8	4.2
Beta (holdings; domestic)	1.0	1.0	1.0

Sector Allocation (%) vs Russell 3000

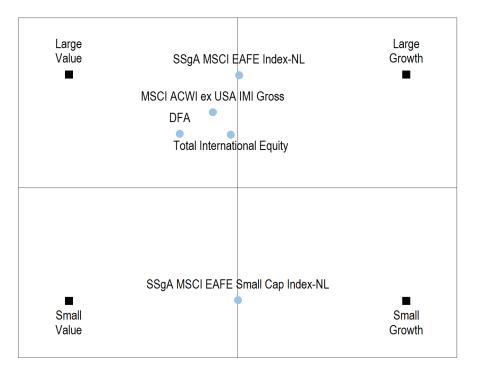


Top 10 Holdings	
APPLE	2.7%
MICROSOFT	1.9%
EXXON MOBIL	1.6%
JOHNSON & JOHNSON	1.4%
AMAZON.COM	1.4%
FACEBOOK CLASS A	1.2%
BERKSHIRE HATHAWAY 'B'	1.2%
GENERAL ELECTRIC	1.2%
AT&T	1.1%
JP MORGAN CHASE & CO.	1.1%
Total	14.7%

As of September 30, 2016

Asset Allocation on September 30, 2016			
	Actual (\$)	Actual %	
DFA	\$2,110,897	8.7%	
KB Investors Emerging Markets Equity	\$4,719,749	19.4%	
LMCG Emerging Markets	\$4,188,491	17.2%	
SSgA MSCI EAFE Index-NL	\$9,762,581	40.2%	
SSgA MSCI EAFE Small Cap Index-NL	\$3,525,524	14.5%	
Total	\$24,307,241	100.0%	

Total International Equity Style Map 3 Years Ending September 30, 2016



Massachusetts Housing Finance Agency Retirement System

Total International Equity

As of September 30, 2016

Т	otal International Equity Cha	aracteristics	
	Portfolio	Index	Portfolio
	Q3-16	Q3-16	Q2-16
Market Value			
Market Value (Mil)	24.3		22.6
Number Of Holdings	5468	1853	5476
Characteristics			
Wtg. Avg. Market Cap. (Bil)	37.5	51.2	35.3
Median Market Cap (Bil)	1.1	6.8	1.0
P/E Ratio	18.4	19.9	17.7
Yield	3.2	3.0	3.4
EPS Growth - 5 Yrs.	7.4	6.8	7.2
Price to Book	2.8	2.6	2.7
Beta (holdings; domestic)	1.0	1.0	1.0

Sector Allocation (%) vs MSCI ACWI ex USA Gross



Top 10 Holdings	
TAIWAN SEMICON.MNFG.	1.4%
CHINA CON.BANK 'H'	1.2%
INDL.& COML.BK.OF CHINA 'H'	1.0%
NESTLE 'R'	0.8%
SAMSUNG ELECTRONICS	0.8%
TENCENT HOLDINGS	0.7%
CHINA MOBILE	0.7%
NOVARTIS 'R'	0.6%
ROCHE HOLDING	0.6%
BANCO BRADESCO PN	0.6%
Total	8.4%

Total International Equity Region Allocation vs MSCI ACWI ex USA Gross			
North America ex U.S.	0.0%	6.7%	-6.7%
United States	0.7%	0.0%	0.7%
Europe Ex U.K.	23.6%	30.9%	-7.3%
United Kingdom	9.8%	13.2%	-3.4%
Pacific Basin Ex Japan	10.6%	8.6%	2.0%
Japan	14.1%	16.8%	-2.7%
Emerging Markets	40.5%	23.0%	17.5%
Other	0.7%	0.7%	0.0%
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	3.9%	5.1%	-1.2%	
AUSTRIA	0.2%	0.1%	0.1%	
BAHRAIN	0.0%	0.0%	0.0%	
BANGLADESH	0.0%	0.0%	0.0%	
BELGIUM	0.8%	1.0%	-0.1%	
BRAZIL	4.0%	1.7%	2.3%	
BULGARIA	0.0%	0.0%	0.0%	
CANADA	0.0%	6.7%	-6.7%	
CHILE	0.3%	0.3%	0.0%	
CHINA	7.2%	6.3%	0.9%	
COLOMBIA	0.2%	0.1%	0.1%	
CROATIA	0.0%	0.0%	0.0%	
CZECH REPUBLIC	0.0%	0.0%	0.0%	
DENMARK	0.9%	1.2%	-0.3%	
EGYPT	0.0%	0.0%	0.0%	
ESTONIA	0.0%	0.0%	0.0%	
FINLAND	0.6%	0.7%	0.0%	
FRANCE	4.5%	6.8%	-2.3%	
GERMANY	4.5%	6.2%	-1.7%	
GREECE	0.0%	0.1%	-0.1%	
HONG KONG	5.6%	2.5%	3.1%	
HUNGARY	0.4%	0.1%	0.4%	
INDIA	3.7%	1.9%	1.8%	

Country	% of Total	% of Bench	% Diff
INDONESIA	0.9%	0.6%	0.3%
IRELAND	0.3%	0.3%	-0.1%
ISRAEL	0.4%	0.5%	-0.1%
ITALY	1.2%	1.3%	-0.1%
JAPAN	14.1%	16.8%	-2.7%
JORDAN	0.0%	0.0%	0.0%
KAZAKHSTAN	0.0%	0.0%	0.0%
KENYA	0.0%	0.0%	0.0%
KOREA	6.3%	3.5%	2.9%
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	0.9%	0.6%	0.3%
MAURITIUS	0.0%	0.0%	0.0%
MEXICO	1.3%	0.9%	0.5%
MOROCCO	0.0%	0.0%	0.0%
NETHERLANDS	1.9%	2.3%	-0.4%
NEW ZEALAND	0.3%	0.1%	0.1%
NIGERIA	0.0%	0.0%	0.0%
NORWAY	0.5%	0.4%	0.0%
OMAN	0.0%	0.0%	0.0%
OTHER	0.2%	0.0%	0.2%
PAKISTAN	0.0%	0.0%	0.0%
PERU	0.0%	0.1%	-0.1%
PHILIPPINES	0.1%	0.3%	-0.2%
POLAND	0.3%	0.2%	0.0%

Country	% of Total	% of Bench	% Diff
PORTUGAL	0.1%	0.1%	0.0%
QATAR	0.1%	0.2%	-0.1%
ROMANIA	0.0%	0.0%	0.0%
RUSSIA	1.2%	0.9%	0.3%
SERBIA	0.0%	0.0%	0.0%
SINGAPORE	0.9%	0.9%	0.0%
SLOVENIA	0.0%	0.0%	0.0%
SOUTH AFRICA	3.5%	1.7%	1.8%
SPAIN	1.6%	2.1%	-0.5%
SRI LANKA	0.0%	0.0%	0.0%
SWEDEN	1.9%	2.0%	-0.1%
SWITZERLAND	4.4%	6.3%	-1.9%
TAIWAN	7.4%	2.8%	4.5%
THAILAND	1.8%	0.5%	1.3%
TUNISIA	0.0%	0.0%	0.0%
TURKEY	0.7%	0.3%	0.4%
UKRAINE	0.0%	0.0%	0.0%
UNITED ARAB EMIRATES	0.3%	0.2%	0.1%
UNITED KINGDOM	9.8%	13.2%	-3.4%
UNITED STATES	0.7%	0.0%	0.7%
VIETNAM	0.0%	0.0%	0.0%
Total	100.0%	100.0%	0.0%

Total Fixed Income

Total Fixed Income

Asset Allocation on September 30, 2016			
	Actual (\$)	Actual %	
Columbia Insitutional High Yield	\$8,842,894	21.4%	
McDonnell Core Bond	\$18,400,644	44.5%	
SSgA TIPS-NL	\$8,073,298	19.5%	
Stone Harbor Emerging Markets Local Currency Debt	\$5,993,179	14.5%	
Total	\$41,310,015	100.0%	

Total Fixed Income Characteristics vs. Barclays U.S. Universal			
	Portfolio	Index	Portfolio
	Q3-16	Q3-16	Q2-16
Fixed Income Characteristics			
Yield to Maturity	3.2	2.4	3.2
Average Duration	5.3	5.4	5.1
Average Quality	А	AA	A
Weighted Average Maturity	7.3	12.0	7.3

