FLASH REPORT (GROSS)

Boston Retirement System

August 31, 2019

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BOSTON | ATLANTA | CHARLOTTE | CHICAGO | DETROIT | LAS VEGAS | PORTLAND | SAN FRANCISCO

CALENDAR YEAR INDEX PERFORMANCE

	2010	2011	2012	2013	2014	2015	2016	2017	2018	Aug	YTD
S&P 500	15.1%	2.1%	16.0%	32.4%	13.7%	1.4%	12.0%	21.8%	-4.4%	-1.6%	18.3%
Russell 1000	16.1%	1.5%	16.4%	33.1%	13.2%	0.9%	12.1%	21.7%	-4.8%	-1.8%	18.5%
Russell 2000	26.9%	-4.2%	16.3%	38.8%	4.9%	-4.4%	21.3%	14.6%	-11.0%	-4.9%	11.8%
Russell 2500	26.7%	-2.5%	17.9%	36.8%	7.1%	-2.9%	17.6%	16.8%	-10.0%	-4.0%	15.7%
MSCI EAFE	7.8%	-12.1%	17.3%	22.8%	-4.9%	-0.8%	1.0%	25.0%	-13.8%	-2.6%	9.7%
MSCI EM	18.9%	-18.4%	18.2%	-2.6%	-2.2%	-14.9%	11.2%	37.3%	-14.6%	-4.9%	3.9%
MSCI ACWI	12.7%	-7.3%	16.1%	22.8%	4.2%	-2.4%	7.9%	24.0%	-9.4%	-2.4%	13.8%
Private Equity	19.8%	9.5%	12.6%	22.3%	14.6%	10.4%	10.3%	21.0%	13.1%	-	4.9%
BC TIPS	6.3%	13.6%	7.0%	-8.6%	3.6%	-1.4%	4.7%	3.0%	-1.3%	2.4%	9.1%
BC Municipal	2.4%	10.7%	6.8%	-2.6%	9.1%	3.3%	0.2%	5.4%	1.3%	1.6%	7.6%
BC Muni High Yield	7.8%	9.2%	18.1%	-5.5%	13.8%	1.8%	3.0%	9.7%	4.8%	2.4%	9.9%
BC US Corporate HY	15.1%	5.0%	15.8%	7.4%	2.5%	-4.5%	17.1%	7.5%	-2.1%	0.4%	11.0%
BC US Agg Bond	6.5%	7.8%	4.2%	-2.0%	6.0%	0.5%	2.6%	3.5%	0.0%	2.6%	9.1%
BC Global Agg	5.5%	5.6%	4.3%	-2.6%	0.6%	-3.2%	2.1%	7.4%	-1.2%	2.0%	7.4%
BC Long Treasuries	9.4%	29.9%	3.6%	-12.7%	25.1%	-1.2%	1.3%	8.5%	-1.8%	10.5%	22.8%
BC US Long Credit	10.7%	17.1%	12.7%	-6.6%	16.4%	-4.6%	10.2%	12.2%	-6.8%	6.0%	23.7%
BC US STRIPS 20+ Yr	10.9%	58.5%	3.0%	-21.0%	46.4%	-3.7%	1.4%	13.7%	-4.1%	15.9%	33.2%
JPM GBI-EM Global Div	15.7%	-1.8%	16.8%	-9.0%	-5.7%	-14.9%	9.9%	15.2%	-6.2%	-2.6%	6.8%
JPM EMBI Glob Div	12.2%	7.3%	17.4%	-5.3%	7.4%	1.2%	10.2%	10.3%	-4.3%	0.7%	13.5%
CS Hedge Fund	10.9%	-2.5%	7.7%	9.7%	4.1%	-0.7%	1.2%	7.1%	-3.2%	-	7.2%
BBG Commodity	16.8%	-13.3%	-1.1%	-9.5%	-17.0%	-24.7%	11.8%	1.7%	-11.2%	-2.3%	1.9%
Alerian MLP	35.9%	13.9%	4.8%	27.6%	4.8%	-32.6%	18.3%	-6.5%	-12.4%	-5.5%	10.3%
FTSE NAREIT Equity REITs	28.0%	8.3%	18.1%	2.5%	30.1%	3.2%	8.5%	5.2%	-4.6%	3.4%	23.3%

Source: FactSet, Barclays, Thomson One

*Private Equity return represents calendar year pooled IRR and is subject to a one quarter lag

Boston Retirement System

TOTAL FUND PERFORMANCE DETAIL (GROSS)

	Market Value ($)	% of Portfolio	Policy %	1 Mo (%)	3 Mo (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total Fund	**5,017,616,437**	**100.0**	**100.0**	**-1.3**	**2.9**	**9.1**	**0.9**	**7.4**	**5.2**	**7.9**	**7.7**	**Aug-94**
Allocation Index				*-1.0*	*3.2*	*9.5*	*1.8*	*7.4*	*5.2*	*7.4*	*--*	*Aug-94*
Policy Index				*-1.1*	*3.3*	*9.2*	*3.2*	*8.0*	*5.7*	*8.0*	*--*	*Aug-94*
PRIT Core Fund/Teachers*	1,644,969,306	32.8		-0.3	4.0	10.0	4.4	8.7	6.9	--	9.4	Jul-10
Total Equity	**2,416,655,276**	**48.2**	**48.0**	**-3.1**	**3.4**	**12.1**	**-3.7**	**8.8**	**5.3**	**--**	**--**	**Dec-04**
Large Cap Comp	**916,258,641**	**18.3**	**17.0**	**-1.7**	**6.8**	**18.9**	**1.3**	**13.8**	**10.5**	**14.3**	**9.4**	**Dec-04**
Rhumbline Advisors	216,794,671	4.3		-1.6	6.8	18.3	2.9	12.7	10.1	13.4	9.8	Aug-94
DE Shaw Core Enhanced	89,609,493	1.8		-1.1	7.6	18.6	3.1	13.5	10.6	--	13.9	Oct-09
DE Shaw 130/30	228,932,185	4.6		-1.1	6.7	16.8	0.3	13.1	11.0	--	14.7	Oct-09
Russell 1000				*-1.8*	*6.7*	*18.5*	*2.5*	*12.6*	*9.8*	*13.5*	*13.2*	*Oct-09*
Columbia Threadneedle	108,087,820	2.2		-3.8	5.6	12.2	-3.8	10.4	7.4	13.0	9.4	Jan-97
Russell 1000 Value				*-2.9*	*4.9*	*13.8*	*0.6*	*8.1*	*6.6*	*11.5*	*8.1*	*Jan-97*
Zevenbergen Capital	58,682,671	1.2		-4.7	4.6	34.3	2.4	22.4	12.7	17.1	12.2	Aug-94
Russell 1000 Growth				*-0.8*	*8.4*	*23.3*	*4.3*	*17.0*	*13.1*	*15.4*	*9.9*	*Aug-94*
Small Cap Comp	**311,760,885**	**6.2**	**6.0**	**-5.1**	**2.6**	**13.8**	**-9.6**	**11.6**	**7.5**	**13.4**	**9.4**	**Dec-04**
Westfield Capital Management	101,537,768	2.0		-3.0	5.1	19.6	-4.1	13.9	8.3	14.9	10.9	Sep-03
Russell 2000 Growth				*-4.3*	*4.1*	*16.3*	*-11.0*	*10.6*	*8.1*	*13.1*	*9.1*	*Sep-03*
Bernzott	109,188,207	2.2		-7.5	0.7	10.0	-11.2	11.8	--	--	10.7	Nov-15
Russell 2000 Value				*-5.6*	*0.6*	*7.3*	*-14.9*	*5.0*	*4.6*	*10.0*	*7.0*	*Nov-15*
Aristotle Small Cap	101,034,210	2.0		-4.5	2.2	12.7	-12.4	9.5	--	--	9.2	Nov-15
Russell 2000				*-4.9*	*2.4*	*11.8*	*-12.9*	*7.9*	*6.4*	*11.6*	*8.3*	*Nov-15*

- J&W Seligman is now named Columbia Threadneedle.

Note: Returns are gross of manager fees except for hedge funds and private equity which are net of fees.

Boston Retirement System

TOTAL FUND PERFORMANCE DETAIL (GROSS)

	Market Value ($)	% of Portfolio	Policy %	1 Mo (%)	3 Mo (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total Non-US Equity	**1,188,635,750**	**23.7**	**25.0**	**-3.7**	**1.2**	**7.4**	**-5.8**	**4.8**	**1.2**	**4.7**	**5.9**	**Aug-94**
International Equity	**807,148,812**	**16.1**	**17.0**	**-3.1**	**2.0**	**8.9**	**-6.3**	**5.1**	**1.4**	**--**	**4.9**	**Dec-10**
Todd	227,337,036	4.5		-2.9	4.5	12.7	-4.3	5.8	--	--	5.3	Apr-16
MSCI ACWI ex USA				*-3.1*	*1.5*	*8.8*	*-3.3*	*5.9*	*1.4*	*4.7*	*6.6*	*Apr-16*
Panagora Asset Management	226,485,851	4.5		-3.0	0.2	5.4	-6.9	4.5	2.2	6.4	5.6	Aug-94
Fisher	241,892,578	4.8		-3.4	2.9	12.3	-3.3	6.9	3.3	6.7	4.4	Feb-06
MSCI EAFE				*-2.6*	*1.9*	*9.7*	*-3.3*	*5.9*	*1.9*	*5.0*	*3.1*	*Feb-06*
Segall Bryant Hamill	111,051,035	2.2		-3.1	-0.8	2.0	-15.8	--	--	--	-10.8	Nov-17
MSCI EAFE Small Cap				*-2.5*	*0.9*	*9.0*	*-9.2*	*6.0*	*4.3*	*7.7*	*-3.7*	*Nov-17*
Emerging Markets	**381,486,938**	**7.6**	**8.0**	**-4.8**	**-0.6**	**4.3**	**-4.6**	**4.2**	**0.9**	**--**	**2.0**	**Dec-10**
Vontobel	102,216,555	2.0		-3.2	2.0	11.4	5.0	5.8	2.6	8.8	9.9	Oct-05
Polunin	102,777,701	2.0		-5.4	-0.9	2.6	-5.3	7.0	3.3	--	5.5	Oct-13
SSgA Emerging Markets	87,460,564	1.7		-5.4	-1.7	0.0	-9.4	4.5	-0.9	--	0.6	Oct-13
MSCI Emerging Markets				*-4.9*	*-0.2*	*3.9*	*-4.4*	*5.8*	*0.4*	*4.1*	*2.4*	*Oct-13*
Lazard	89,032,118	1.8		-5.4	-1.8	3.8	-7.7	-0.8	-1.1	--	0.6	Oct-13
MSCI Emerging Markets Small Cap				*-5.0*	*-2.7*	*-0.1*	*-10.4*	*1.1*	*-1.4*	*3.8*	*1.0*	*Oct-13*
Total Fixed Income	**1,486,826,450**	**29.6**	**26.0**									
Core Fixed Income	**955,443,756**	**19.0**	**16.0**	**1.6**	**3.3**	**7.8**	**8.0**	**3.6**	**3.6**	**4.5**	**4.9**	**Dec-04**
Wells Asset Management	319,268,175	6.4		2.5	4.2	9.2	10.3	3.3	3.7	4.8	5.3	May-05
BlackRock SIO	318,253,765	6.3		0.4	2.6	6.4	6.1	4.6	--	--	3.7	Aug-15
BBgBarc US Aggregate TR				*2.6*	*4.1*	*9.1*	*10.2*	*3.1*	*3.3*	*3.9*	*3.7*	*Aug-15*
IR&M	317,921,816	6.3		1.8	3.1	7.9	7.7	2.8	--	--	3.8	Jul-15
IR&M Custom Benchmark				*2.5*	*3.8*	*9.1*	*8.5*	*2.7*	*3.1*	*3.8*	*3.5*	*Jul-15*

- IR&M Custom Benchmark reflects BC Agg since inception through 04/30/2017, as of 05/01/2017 forward it reflects 40% BC Agg/60% BC US TIPS.

Note: Returns are gross of manager fees except for hedge funds and private equity which are net of fees.

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TOTAL FUND PERFORMANCE DETAIL (GROSS)

	Market Value ($)	% of Portfolio	Policy %	1 Mo (%)	3 Mo (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Value Added Fixed Income	**531,382,694**	**10.6**	**10.0**	**-0.4**	**2.5**	**9.0**	**7.2**	**5.9**	**3.3**	**--**	**--**	
High Yield Income	**318,943,465**	**6.4**	**6.0**	**-0.6**	**1.0**	**6.8**	**3.7**	**6.2**	**5.0**	**8.0**	**7.0**	**Jan-06**
Crescent Capital	106,977,474	2.1		0.5	2.9	8.5	5.5	5.4	--	--	5.5	May-15
50/50 S&P/LSTA Leveraged Loan/BBgBarc High Yield				*0.1*	*2.0*	*8.6*	*4.9*	*5.4*	*4.3*	*7.0*	*4.7*	*May-15*
DDJ	101,676,461	2.0		-1.9	-0.9	4.5	1.8	7.5	--	--	6.0	May-15
75% BC HY 25% S&P Leverage Loan				*0.2*	*2.6*	*9.8*	*5.8*	*5.8*	*--*	*--*	*5.1*	*May-15*
GoldenTree Multi Sector Opp Credit	109,151,595	2.2		-0.4	1.1	7.4	3.7	--	--	--	5.6	Dec-16
Blended Index				*0.0*	*1.7*	*7.6*	*4.8*	*5.0*	*--*	*--*	*5.0*	*Dec-16*
S&P/LSTA Leveraged Loan TR				*-0.3*	*0.8*	*6.3*	*3.3*	*4.7*	*3.8*	*5.5*	*4.4*	*Dec-16*
Emerging Market Debt	**187,958,124**	**3.7**	**4.0**	**-0.3**	**5.1**	**13.1**	**13.6**	**5.7**	**-0.2**	**--**	**0.6**	**Nov-11**
Aberdeen EMD Plus	187,957,810	3.7		-0.3	5.1	13.1	--	--	--	--	14.2	Dec-18
JP Morgan EMBI Global Diversified				*0.7*	*5.4*	*13.5*	*13.8*	*4.9*	*5.5*	*7.4*	*15.0*	*Dec-18*
Global Fixed Income	**24,481,105**	**0.5**	**0.0**	**1.8**	**3.8**	**7.7**	**7.5**	**2.6**	**2.1**	**3.6**	**5.2**	**Jul-95**
Loomis Sayles	24,481,105	0.5		1.8	3.8	7.7	7.5	2.6	2.1	3.6	5.8	Nov-99
FTSE WGBI TR				*2.7*	*4.6*	*7.7*	*8.4*	*1.9*	*1.4*	*2.1*	*4.3*	*Nov-99*
Total Alternative Assets	**1,063,209,226**	**21.2**	**26.0**									
Hedge Fund Composite	**237,347,784**	**4.7**	**5.0**	**-0.4**	**1.3**	**3.8**	**0.0**	**2.0**	**0.2**	**3.1**	**3.1**	**Nov-04**
EnTrust Peruvian Bonds	4,899,416	0.1		-1.8	-2.1	-2.8	-5.6	--	--	--	-4.4	Jan-18
Blackstone	115,030,308	2.3		0.0	2.1	5.9	5.6	--	--	--	5.0	Feb-18
Grosvenor	115,112,695	2.3		-0.6	0.7	3.2	-1.7	3.5	2.1	--	3.5	Jul-13
HFRI Fund of Funds Composite Index				*-0.8*	*1.0*	*5.6*	*0.2*	*3.4*	*2.0*	*2.9*	*2.9*	*Jul-13*
Hedge Fund Transition Account	2,305,365	0.0										
Real Estate Composite	**483,800,001**	**9.6**	**10.0**	**0.0**	**1.9**	**3.5**	**7.8**	**8.6**	**10.4**	**9.2**	**--**	
Private Equity & Debt	**342,061,441**	**6.8**	**11.0**	**0.0**	**2.2**	**0.8**	**7.9**	**9.7**	**8.5**	**8.6**	**--**	
Cash	**50,925,485**	**1.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**1.1**	**Oct-04**

- Real Estate and Private Equity & Debt report on a quarterly basis, valuations are as of 3/31/2019.
- The Hedge Fund Transition Account is an estimation of the total values redeemed from the hedge fund portfolio and is subject to change.
- The Blended Index Benchmark consists of 30% ML HY II/ 30% S&P LSTA / 25% HFRI RV FI/ 15% BAML ABS.

Note: Returns are gross of manager fees except for hedge funds and private equity which are net of fees.

Boston Retirement System

TOTAL FUND PERFORMANCE DETAIL

PE/RE Summary

Quarter Ending March 31, 2019

	Committed Capital	Cumulative Distribution	Contributed Capital	QTR	Last Year	Valuation
Private Equity & Debt IRR	**$971,371,856**	**$567,080,348**	**$674,193,868**	**2.2%**	**7.9%**	**$342,061,441**
Private Equity	$604,393,355	$443,863,187	$477,289,111			$193,210,897
Private Debt	$366,978,504	$123,271,161	$196,904,757			$148,850,544
Real Estate IRR	**$886,763,453**	**$736,469,772**	**$805,413,879**	**1.9%**	**7.8%**	**$483,800,001**

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- For managers funded in the middle of a month, the "since inception" return will start with the first full month, although actual inception dates and cash flows are taken into account in all Composite calculations.
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