DRAFT

Massachusetts Bay Transportation Authority

MBTA Retirement Fund

FMCB Update

6/26/2017

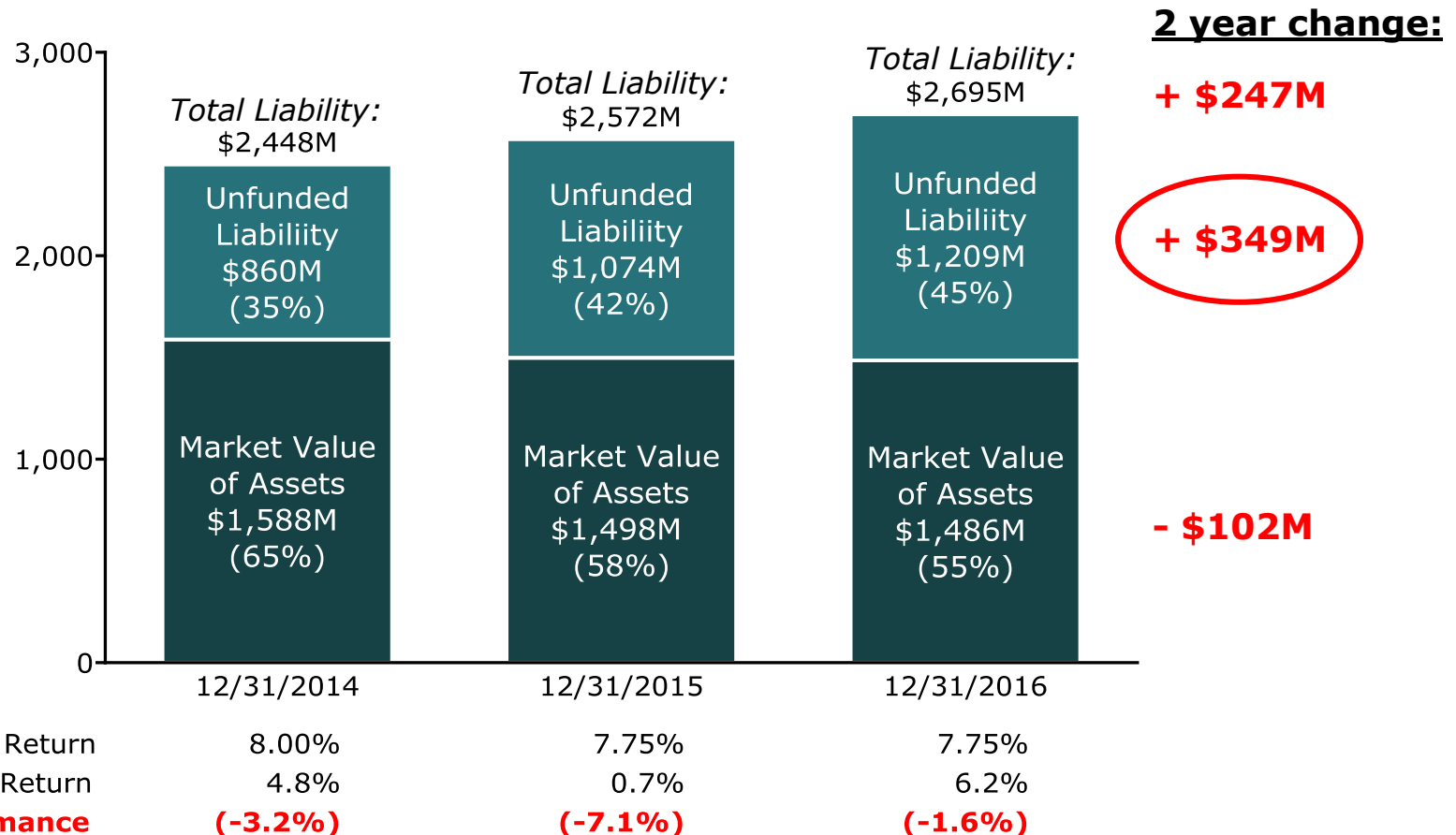## MBTA pension sustainability

Analyzing the impact of:

1. **Benefit equivalency with state (MBTA pension benefit schedule and age requirements changed to match state employee and teacher schedule, age and other eligibility requirements)**

2. **Integration of Social Security with MBTA pension benefits**

3. **Next steps**

Measured on a market-value basis, unfunded liability has increased by $349M since 12/31/2014

Assets and Liabilities of the MBTARF, 2014 - 2016

2 year change:

Total Liability: $2,448M

Unfunded Liabiliity $860M (35%)

Market Value of Assets $1,588M (65%)

Total Liability: $2,572M

Unfunded Liabiliity $1,074M (42%)

Market Value of Assets $1,498M (58%)

Total Liability: $2,695M

Unfunded Liabiliity $1,209M (45%)

Market Value of Assets $1,486M (55%)

+ $247M

+ $349M

- $102M

	12/31/2014	12/31/2015	12/31/2016
Target Market Return	8.00%	7.75%	7.75%
Actual Market Return	4.8%	0.7%	6.2%
Underperformance	**(-3.2%)**	**(-7.1%)**	**(-1.6%)**

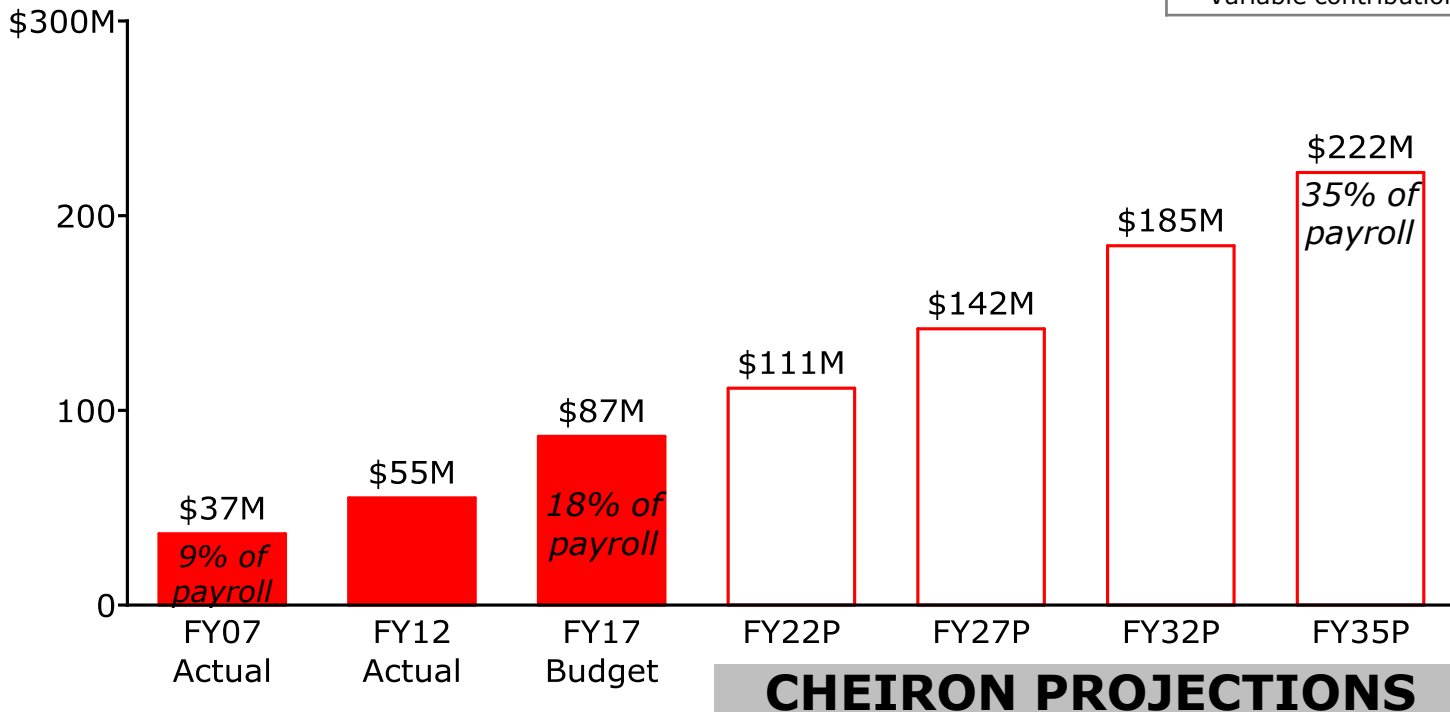Draft for Discussion & Policy Purposes Only

3

MBTA Required Contribution at 6% market returns 35% of payroll

FMCB Presentation 6/19/17

KEY ASSUMPTIONS:
- Target rate of return (discount rate) = 7.75%
- Current Plan Provisions
- Projected Average Annual Rate of Return = 6%
- Variable contribution rate

MBTARF contribution ($M)

	FY07 Actual	FY12 Actual	FY17 Budget	FY22P	FY27P	FY32P	FY35P
	$37M	$55M	$87M	$111M	$142M	$185M	$222M
	9% of payroll		18% of payroll				35% of payroll

CHEIRON PROJECTIONS

Note: $7.0M in contributions during FY07 were retroactive 'catch-up' payments for previous years in which not enough had been contributed compared with contractual obligations; these have been removed
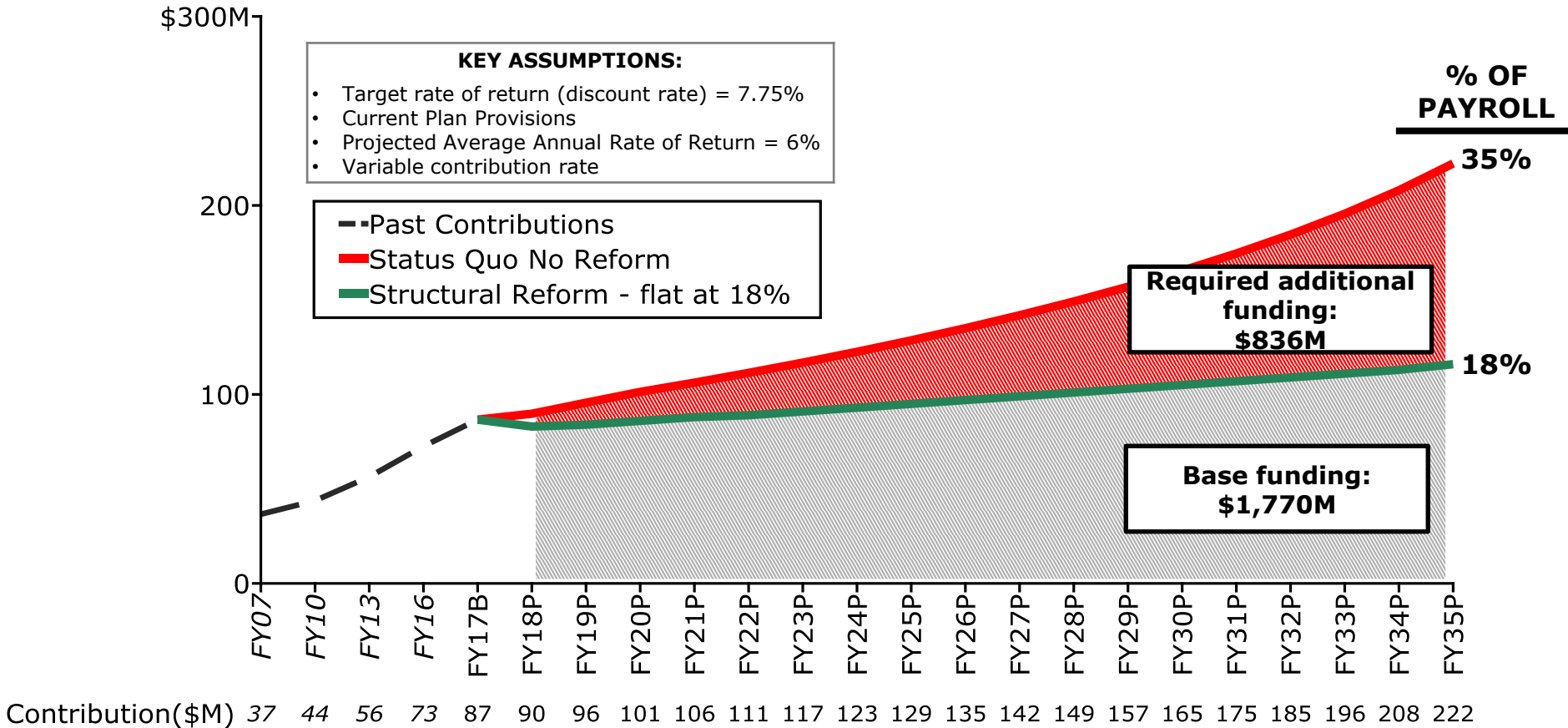Source: MBTA Financials; Cheiron Projections

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Required taxpayer funding at 6% market returns $2.6B

MBTARF Contribution Scenarios

KEY ASSUMPTIONS:
- Target rate of return (discount rate) = 7.75%
- Current Plan Provisions
- Projected Average Annual Rate of Return = 6%
- Variable contribution rate

- - Past Contributions
— Status Quo No Reform
— Structural Reform - flat at 18%

% OF PAYROLL

35%

Required additional funding: $836M

18%

Base funding: $1,770M

Contribution($M) 37 44 56 73 87 90 96 101 106 111 117 123 129 135 142 149 157 165 175 185 196 208 222

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5

State and Teachers' annual benefit accrual increases with employee retirement age

STATE EMPLOYEE RETIREMENT AGE	MIN YEARS OF SERVICE REQUIREMENT	AGE FACTOR
67 or older	10	2.50%
66	10	2.35%
65	10	2.20%
64	10	2.05%
63	10	1.90%
62	10	1.75%
61	10	1.60%
60	10	1.45%
59		
58		
57	*State minimum retirement age is 60*	
56		
55		

*Group 1 members entering service on or after April 2, 2012

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6

Other State and Teachers' pension benefit provisions

- 5 highest average years for final average earnings (FAE) calculation

- Pension based state salary FAE, subject to anti-spiking provisions

- Sick time paid out (20%) at retirement, not creditable to retirement

- 10 years service required for pension and minimum retirement age 60

- Beneficiary rules for spouses and other designees incorporate actuarial reductions

MBTA Retirement Fund multiplier does not adjust for changes in employee's retirement age

MBTA EMPLOYEE RETIREMENT AGE*	MIN YEARS OF SERVICE REQUIREMENT	AGE FACTOR
67 or older	ANY	2.46%
66	ANY	2.46%
65	ANY	2.46%
64	25	2.46%
63	25	2.46%
62	25	2.46%
61	25	2.46%
60	25	2.46%
59	25	2.46%
58	25	2.46%
57	25	2.46%
56	25	2.46%
55	25	2.46%

Impact of adopting State multipliers for MBTA is to be determined

*Members entering service on or after December 6, 2012

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MBTARF plan design provides added incentive to retire young

Years of service x Annual Multiplier = Pension % of Highest Wages

Years of service	Age at retirement	Employer	Annual multiplier*	Pension % of highest wages
25	55	MBTA	2.46%	**61.5%**
		State	*N/A—min age 60*	*N/A—min age 60*
25	60	MBTA	2.46%	**61.5%**
		State	1.45%	36.3%
25	65	MBTA	2.46%	**61.5%**
		State	2.20%	55.0%
32	67	MBTA	2.46%	75%^
		State	2.50%	**80%**

Because MBTA pension multiplier does not grow with age, benefits for early retirees are significantly higher than those for state employees

*Uses age rates for state employees hired after 4/2/2012
^Calculation produces result >75%, which is adjusted down to maximum benefit
Note: MBTARF benefits do not get automatic COLAs; retirees in State systems do (those covered by Chapter 32)

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9

Social Security: MA state employees and teachers do not receive

- **Massachusetts is one of a handful of non-Social Security states where members contribute to a state retirement system, but do not pay into Social Security**

    › MA State employees and teachers do not earn any Social Security "credits" or "quarters" for contributions or service

    › MA chose to be exempted from Social Security contributions after the Social Security Act of 1950

    » Employees of the Commonwealth are not subject to Social Security tax in accordance with a Section 218 agreement entered into by the Commonwealth and the U.S. Secretary of Health and Human Services in 1952

    » State employees are not covered by Social Security in AK, CA, CO, IL, LA, ME, NV, OH, and TX

- **Massachusetts State Pension recipients eligible for Social Security benefits from other employment may be subject to Social Security "double-dipping" laws:**

    1. **Windfall Elimination Provision** primarily affects employees that (1) earned a pension in any job where they did not pay Social Security taxes and (2) worked in other jobs long enough to qualify for a Social Security retirement or disability benefit

    » A modified formula is used to calculate the benefit amount, resulting in a lower Social Security benefit: benefits would be reduced by up to about ~50% for those people

    2. **Government Pension Offset** affects those who receive a retirement or disability pension from a federal, state, or local government based on work for which they did not pay Social Security taxes

    » As a result, Social Security spouse, widow, or widowers benefits can be reduced by two-thirds of a government pension

Social Security: MBTA employees receive social security

SECTION 210K OF THE 1950 SOCIAL SECURITY ACT INCLUDES SPECIAL COVERAGE RULES FOR PUBLIC TRANSIT EMPLOYEES:

- **Transportation systems made public between 1936 and 1951 are required to participate**

  › MTA—MBTA's predecessor—was created in 1947

    "If the transportation service was acquired from private ownership in whole or in part after 1936 and before 1951, or was operated at least in part by the State (or political subdivision) on December 31, 1950, with no general retirement system, all employees are compulsorily covered after 1950." –SOCIAL SECURITY PROGRAM OPERATIONS MANUAL, SL 30001.365

- The **MBTA Retirement Fund does not exempt MBTA from social security** because (1) it is only for transit employees and (2) it is not backstopped by the state

    "The term [general retirement system] does not include a fund or system which covers only services performed in connection with the operation of the transportation system. For this purpose, a general retirement system is guaranteed by the State if the State constitution contains a provision which states specifically that State and local retirement systems cannot diminish or impair their benefits." –SOCIAL SECURITY PROGRAM OPERATIONS MANUAL, SL 30001.365
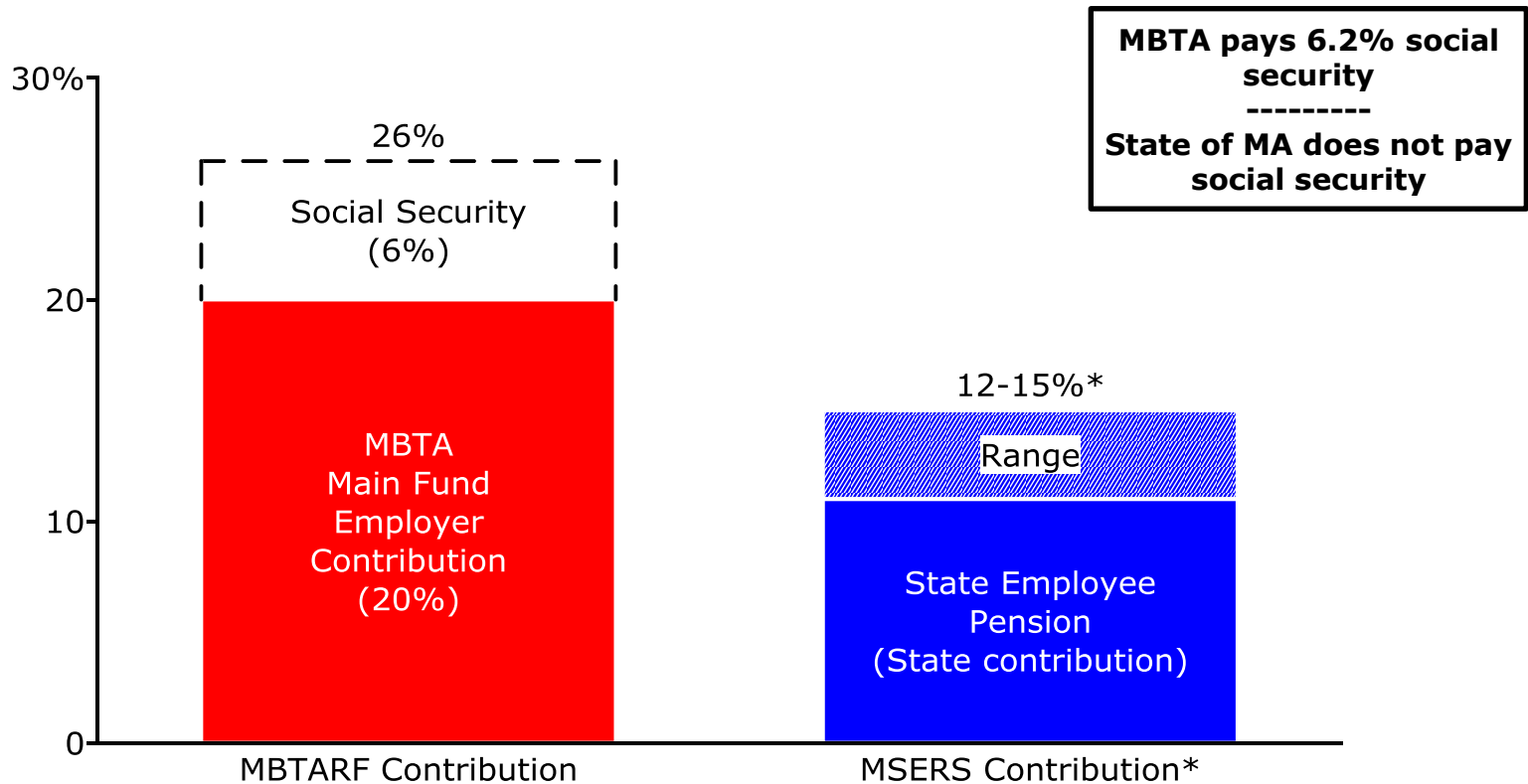
Exempting MBTA from Social Security would require an act of Congress and approval from the Social Security Administration

MBTA full contribution rate to employee retirement benefits is 2X that of state employees and teachers

FY18 contribution to retirement fund and social security

MBTA pays 6.2% social security

State of MA does not pay social security

30%

26%

Social Security
(6%)

20

MBTA
Main Fund
Employer
Contribution
(20%)

12-15%*

Range

10

State Employee
Pension
(State contribution)

0

MBTARF Contribution

MSERS Contribution*

*High range of state employer contribution calculated for MBTA by ANF, Low side of range from 12/15/16 Boston Globe article 'Report proposes major overhaul of retirement benefits for new MBTA Employees'; Estimated amount based on allocation of total lump sum pension payment by Commonwealth to PRIM for state employees varies based on calculation method

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Full MBTA retirement benefit is almost double the state benefit for a retiree at age 62 with 25 years of service

EXAMPLE: FINAL AVERAGE EARNINGS $80,000 | 25 YEARS OF SERVICE | 62 YEARS OLD AT RETIREMENT

Post-Retirement Benefits
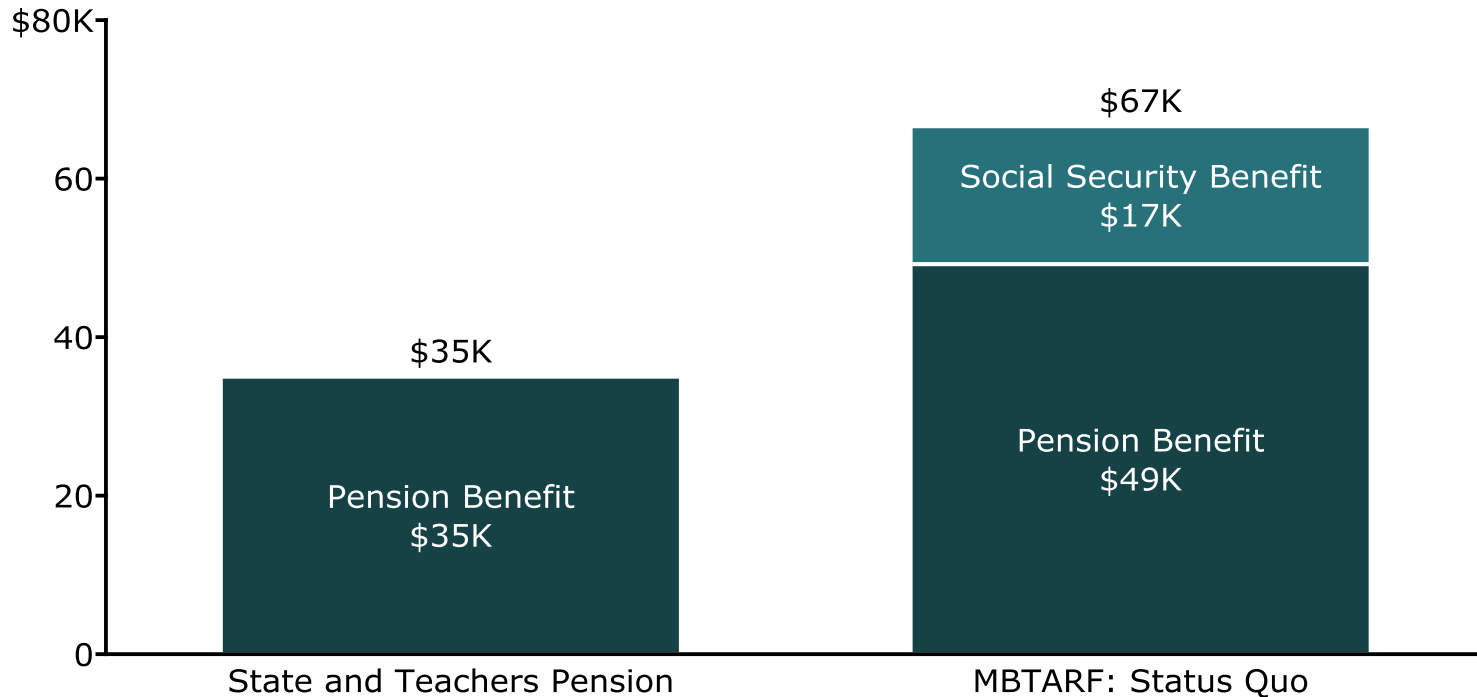
MBTA employees earn significantly more in post-retirement pension benefits than state employees and teachers at all ages

EXAMPLE: FINAL AVERAGE EARNINGS $80,000 | 25 YEARS OF SERVICE

COMPARISON OF MBTA PENSION BENEFIT WITH STATE AND TEACHERS BENEFIT

AGE AT RETIREMENT	TEACHERS AND STATE EMPLOYEES (HIRED SINCE 4/2012)	MBTARF MULTIPLIER (2.46%)	SOCIAL SECURITY	TOTAL RETIREMENT BENEFIT (SS+MBTARF)
60	$29,000	$49,200		$49,200 ($66,600 at Age 62)
61	$32,000	$49,200		$49,200 ($66,600 at Age 62)
62	$35,000	$49,200	+$17,400	$66,600
63	$38,000	$49,200	+$18,600	$67,800
64	$41,000	$49,200	+$19,800	$69,000
65	$44,000	$49,200	+$20,700	$69,900
66	$47,000	$49,200	+$22,300	$71,500
67	$50,000	$49,200	+$23,800	$73,000

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Social security "integration" is common in plans where public employees receive both a public pension and social security

- **"Integrated" plans take a comprehensive view of all benefits earned by employees**
  - › Integration creates an overall retirement package by combining an employer's pension with Social Security
- **A pension plan that is "integrated" takes into account Social Security benefits when determining the pension benefits**
  - › Integration offsets pension benefits to account for the Social Security benefit received from time served in public agency
  - › Integration can be structured to account for changes in Social Security, including rising retirement age

Integration is one approach that MBATRF could use to put pension on a more sustainable path

How does social security integration work:

› The most common offset is 50% of Social Security benefits, which equals the employer-funded proportion of Social Security

› This means that 50% of the social security benefit earned by the employee during their service at the public agency is used to offset against the pension benefit

  » A large percentage of employers adopting this approach concluded that it would be too difficult to take credit for more than one-half of the Social Security retirement benefit actually received by the employee*

› Employers (subject to ERISA) are allowed to go as high as 83.3% of Social Security Benefits, if they do not violate other aspects of pension law (like the multiplier analysis above)

› For ERISA plans using integration to reduce pensions, benefits can be offset to equal final pay minus half of the Social Security benefit when the benefit formula calculation exceeds that amount (401(a)(5))

*Source: EBRI's Fundamentals of Employee Benefit Programs – 6th Edition (2009)

Approaches to modifying the Pension Agreement:

A. **Negotiations with the Boston Carmen's Union, Local 589 ahead of the July 2018 expiration of current Pension Agreement (parties met in June 2017)**

B. **Binding arbitration, if negotiations fail to produce a sustainable pension design**

C. **Legislative actions to adjust pension design and future obligations**

Next Steps

- Independent actuaries are engaged to calculate effect on MBTA RF of changes to plan of (1) Matching the State and Teachers' multiplier / age requirements and (2) Social Security integration

  › Quantify the effects of these reforms on MBTA contributions, employee contributions, funded status, and total liability

  › Quantify impact of applying the reforms to employees of different ages and tenure

  › Test impact over a variety of actual market investment returns (keeping the MBTA RF target return at current 7.75%)

  › Measure total impact over a 20 year time horizon

  › Ensure that full benefit will be equivalent to or more generous than state employees

  › Model and analyze a variable defined (adjusted) benefit plan structure similar to UNITE HERE! Local 26)

- Provide a quantitative framework for all stakeholders (MBTA, Carmen's Union, employees, retirees, legislature, taxpayers) to provide feedback on concepts to putting the MBTA RF on a sustainable path
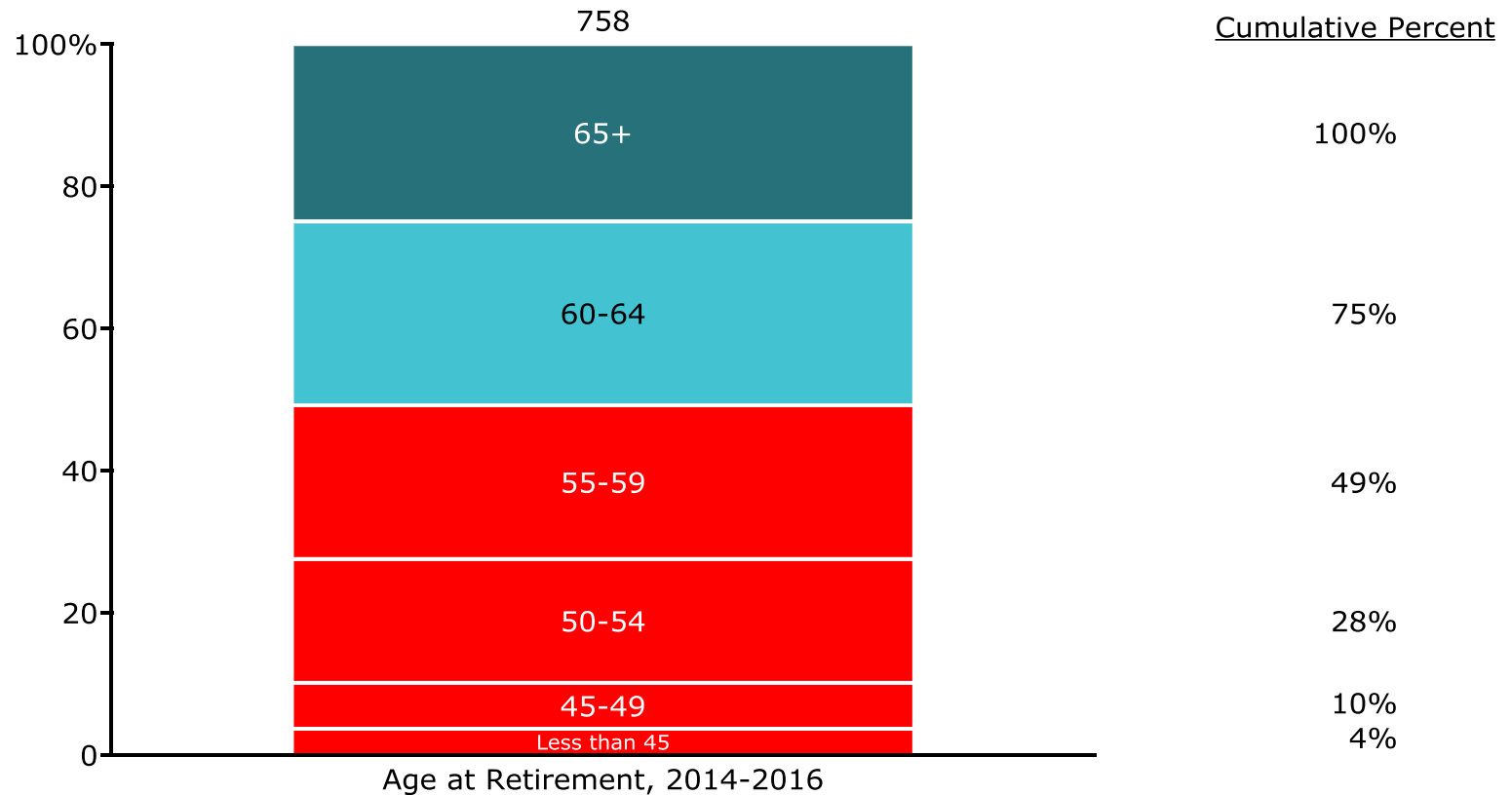
BACKUP

Unsustainable Plan Design: Half of MBTA employees retire and begin drawing pension benefits in their 50s
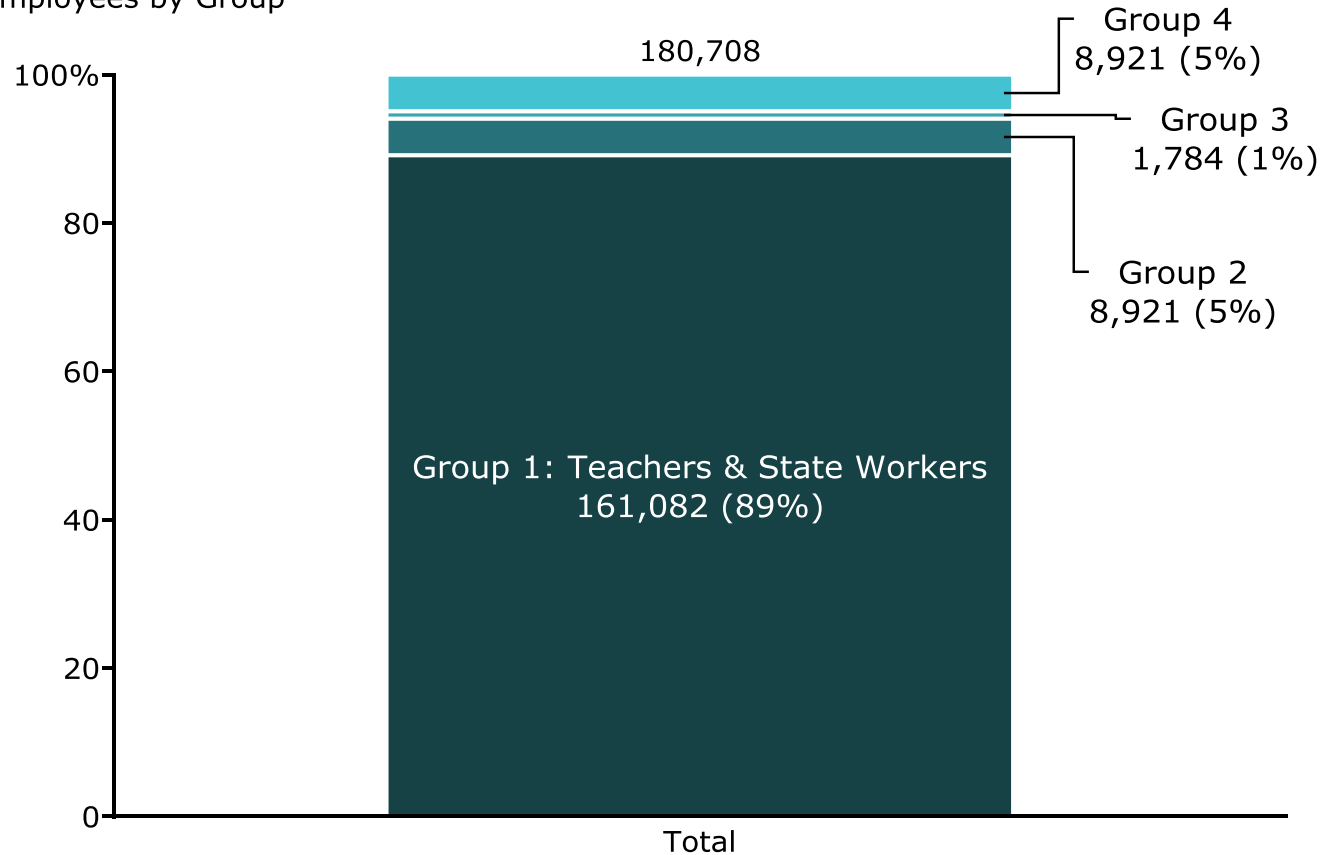
Retired MBTA employee count, 2014-2016

758

Cumulative Percent

65+	100%
60-64	75%
55-59	49%
50-54	28%
45-49	10%
Less than 45	4%

Age at Retirement, 2014-2016

Almost 90% of state and teachers pension participants (including MassDOT) receive Group 1 benefits table

Active Employees by Group

Group 4
8,921 (5%)

Group 3
1,784 (1%)

Group 2
8,921 (5%)

180,708

Group 1: Teachers & State Workers
161,082 (89%)

Total

State Group 2 annual benefit accrual increases with employee retirement age

GROUP 2: Employees with specified "hazardous duty" positions, such as those who provide direct care, custody, or supervision of parolees

GROUP 2 STATE EMPLOYEE RETIREMENT AGE	MIN YEARS OF SERVICE REQUIREMENT	AGE FACTOR
62 or older	10	2.50%
61	10	2.35%
60	10	2.20%
59	10	2.05%
58	10	1.90%
57	10	1.75%
56	10	1.60%
55	10	1.45%
54	*Minimum retirement age is 54*	

*Members entering service on or after April 2, 2012

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State Group 3 annual benefit calculated differently from other state employments groups

GROUP 3: State police officers and inspectors

- State police have a separate system, with a different payout formula

- Age factor for state police equal to 3%

- Retiring with 20 years of service receive 60% of annual salary average for previous 12 months

    o Additional 3% per year for each year over 20, for a maximum of 75 percent of final pay after 25 years of service

State Group 4 annual benefit accrual increases with employee retirement age

GROUP 4: Public safety officers and officials, such as corrections officers

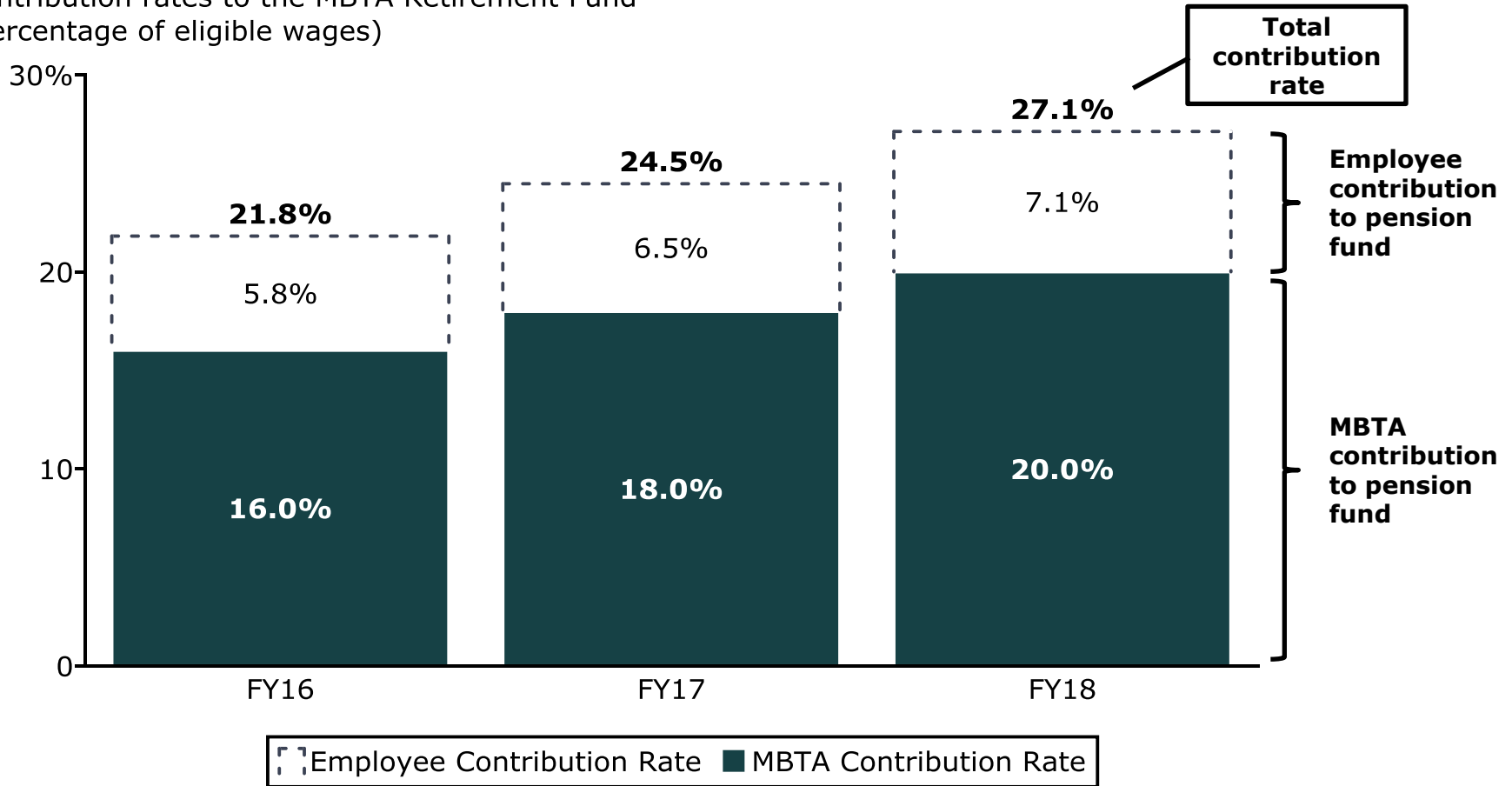| GROUP 4 STATE EMPLOYEE RETIREMENT AGE	MIN YEARS OF SERVICE REQUIREMENT	AGE FACTOR
57 or older	10	2.50%
56	10	2.35%
55	10	2.20%
54	10	2.05%
53	10	1.90%
52	10	1.75%
51	10	1.60%
50	10	1.45%
49	*Minimum retirement age is 50*	

*Members entering service on or after April 2, 2012

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Contribution rate (%): FY16 – FY18

Contribution rates to the MBTA Retirement Fund
(Percentage of eligible wages)

Total contribution rate
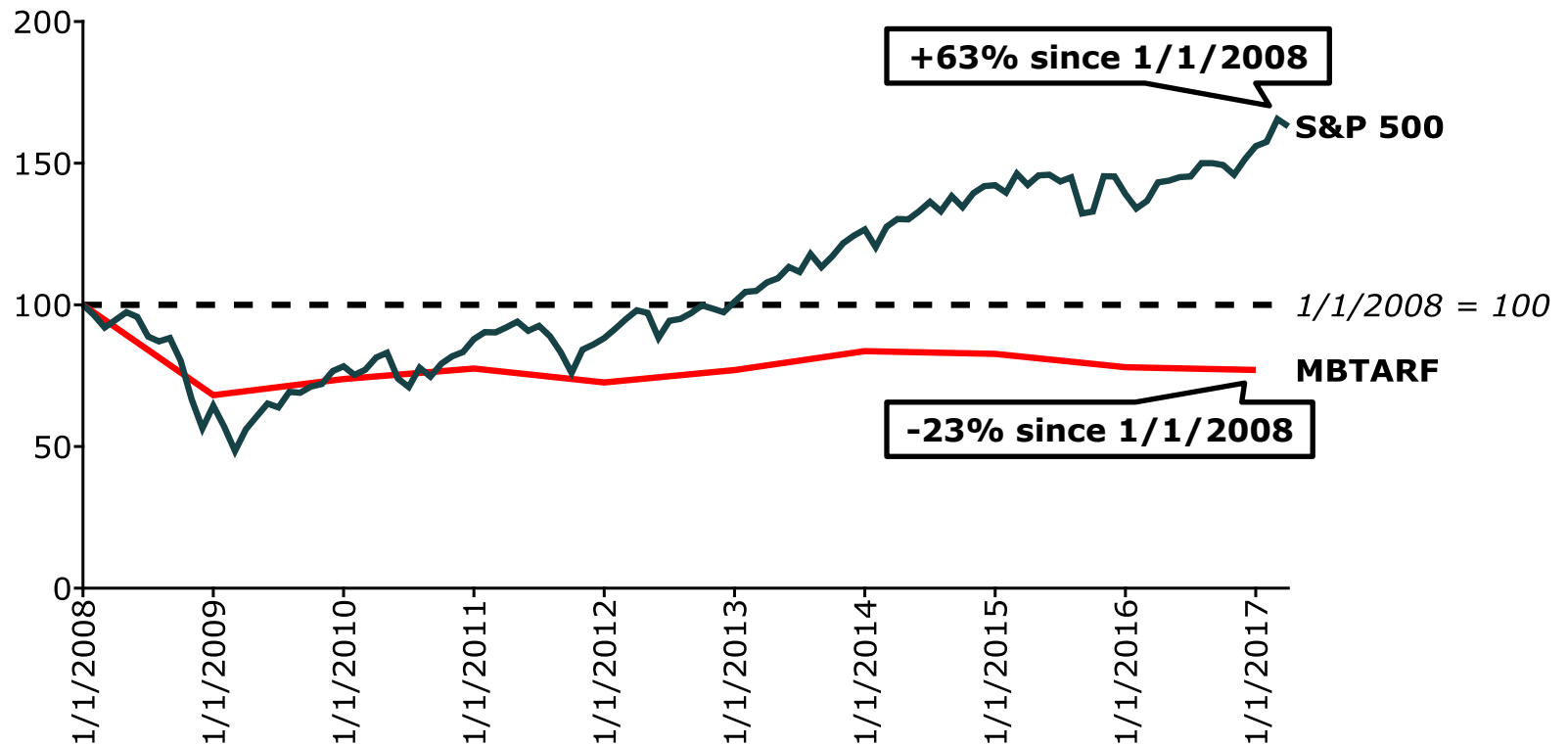
21.8%
5.8%
16.0%

24.5%
6.5%
18.0%

27.1%
7.1%
20.0%

Employee contribution to pension fund

MBTA contribution to pension fund

Employee Contribution Rate   MBTA Contribution Rate

FY16   FY17   FY18

Source: MBTARF Contribution Rates

While the broader market has recovered from the 2009 downturn, the MBTARF portfolio has failed to keep pace

S&P 500 and MBTARF valuations

+63% since 1/1/2008

S&P 500

1/1/2008 = 100

MBTARF

-23% since 1/1/2008

200

150

100

50

0

1/1/2008
1/1/2009
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017

CONSERVATIVE EVALUATION OF MBTARF PORTFOLIO ESTIMATES 4% RETURN OVER 10 YEARS

EQUITY	Source	% Alloc	Geometric Return	Volatility	Arithmetic Return
Domestic - Large	RA	18%	2.60%	14.3%	3.62%
Domestic - Small	RA	7%	2.40%	19.0%	4.21%
International	RA	11%	7.30%	16.9%	8.73%
Emerging	RA	2%	8.90%	23.2%	11.59%
Global	BNY	5%	6.40%	16.5%	7.76%
FIXED INCOME					
Core	RA	8%	2.70%	3.8%	2.77%
TIPS	RA	3%	3.00%	6.2%	3.19%
Mortgage	BNY	3%	2.70%	2.5%	2.73%
Multi-sector	BNY	8%	2.57%	10.4%	3.10%
Bank Loans	RA	2%	3.90%	8.1%	4.23%
Real Estate Debt	BR	1%	3.15%	8.8%	3.54%
Cash	BNY	2%	1.50%	0.0%	1.50%
ALTERNATIVES					
Hedge Funds	BNY	10%	4.30%	6.3%	4.50%
Real Estate	BNY	9%	4.00%	5.0%	4.13%
Private Equity	BNY	8%	7.90%	17.8%	9.48%
Risk Parity	Est	3%	5.00%	10.0%	5.50%
Estimated Portfolio		100%	4.46%	11%	5.07%
Uncertainty for Alternatives			-0.30%		
Net Expected Geometric Return			4.16%		

Notes: 100 bps reduction for alternative risk; BNY net of fees, RA gross of fees
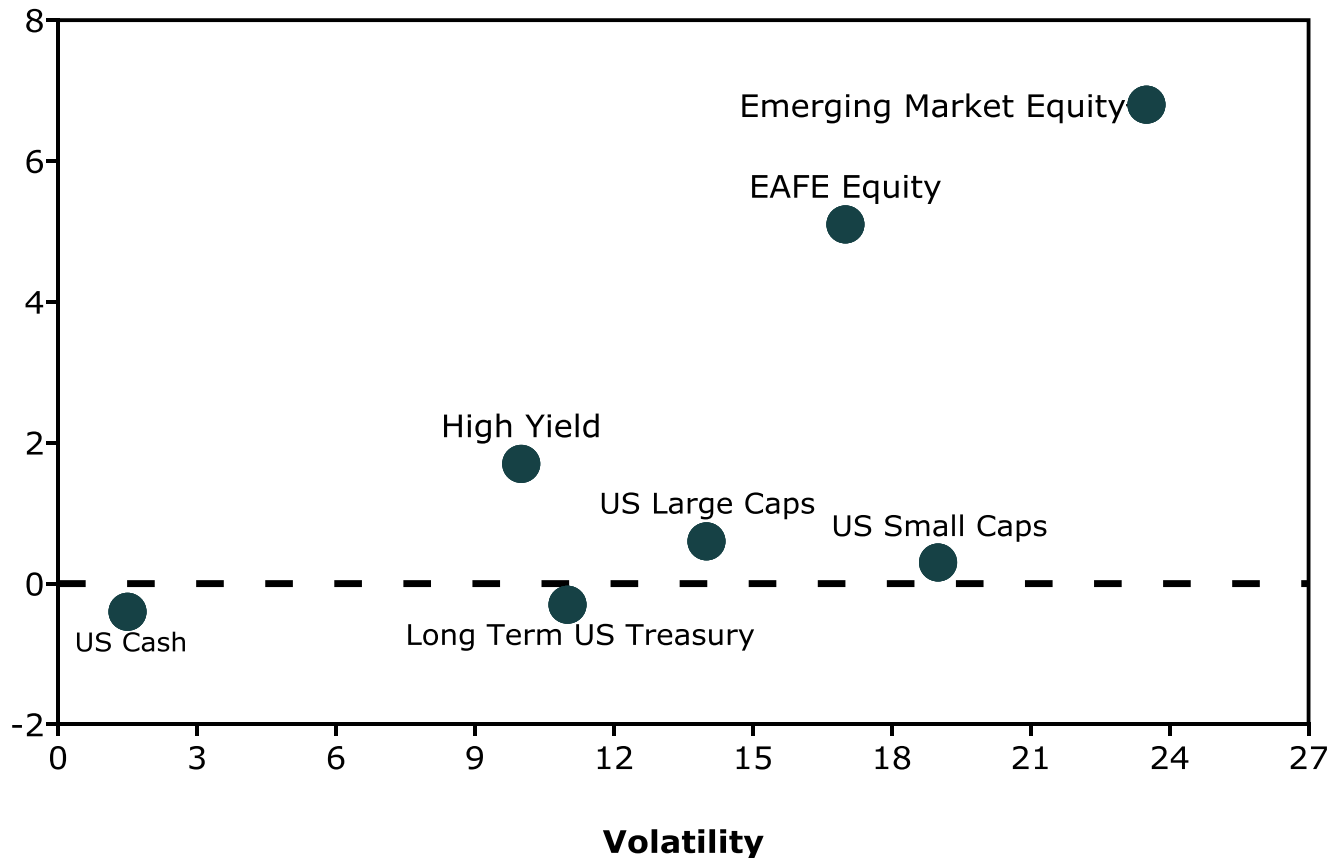
EXPERT RECOMMENDS ASSUMING 4% RETURN FOR NEXT TEN YEARS, BUT ENSURING SUSTAINABILITY AT EVEN LOWER RETURNS

- Due to high benefit liability (50% of total) due over the next ten years, returns over that period are critical for determining future funding levels

- A reasonable annual return expectation for MBTARF over the next 10 years is 4-5%

- Optimistic forecasts results in an expectation of 5.2% over 10 years

- Lower returns are possible and full sustainability would require that the plan survive returns lower than 4% in the next 10 years.

- **Recommended that the baseline evaluation of MBTARF use 4% returns for the next 10 years to stress test the fund under various scenarios and develop a rescue strategy**

Global Investing: 10-year outlook poor for most asset classes

10-Year Real Expected Returns

Volatility plotted on x-axis (0 to 27), 10-Year Real Expected Returns on y-axis (-2 to 8):

- US Cash: volatility ~1.5, return ~-0.4
- Long Term US Treasury: volatility ~11, return ~-0.3
- High Yield: volatility ~10, return ~1.7
- US Large Caps: volatility ~14, return ~0.6
- US Small Caps: volatility ~19, return ~0.3
- EAFE Equity: volatility ~17, return ~5.1
- Emerging Market Equity: volatility ~23.5, return ~6.7

Volatility

Source: Barron's—May 15, 2017, "Global Investing: Taking a Long View", projections from Research Affiliates

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