



Solvency and Insolvency of the MBTA Retirement Fund

by Iliya Atanasov

Overview

The MBTA Retirement Fund (MBTARF) has long been notorious for its secretiveness. Most recently, it has been resisting requests for information from the media despite legislation¹ making its records public. In the wake of revelations that a \$25 million hedge-fund investment had been lost in potential fraud some two years earlier, MBTARF spokesman Steven Crawford told the *Boston Globe*: “The pension fund is fully capable of meeting its obligations to its retirees and beneficiaries. The trust is solely responsible for meeting that responsibility – not the commonwealth.”²

Pioneer’s prior examination of the financial statements of the Massachusetts Bay Transportation Authority (MBTA)³ had demonstrated conclusively that the facts do not quite square with this claim; the MBTA and taxpayers are financially liable for any underperformance at MBTARF. Taxpayers can only be insulated from MBTARF’s performance in two ways – by freezing the plan or by fixing MBTA contributions at a given percentage of the members’ employee compensation.

The primary goal of this policy brief is to evaluate the insinuation that MBTARF is in a position to fulfill its obligations to its beneficiaries without help from the commonwealth. This is a critical matter not just because of the large expense that the fund is costing the MBTA and the taxpaying public, but also because some 12,000 current and former T employees depend on it for their pensions.

“Both ARR mismeasurement and open funding schedules substantially increase the cost of MBTA retirement benefits to taxpayers.”

In addition to fiduciary risks such as conflicts of interest, accounting irregularities and market losses due to incompetence, the MBTA and the public are exposed to potential mismeasurement of the assumed rates or return (ARR) used to evaluate liabilities and contributions, and to questionable practices such as using open schedules to amortize the unfunded liabilities. Both ARR mismeasurement and open funding schedules substantially increase the cost of employee retirement benefits to the T.⁴

Iliya Atanasov is Pioneer’s Senior Fellow on Finance, leading the research tracks on pension portfolio management, infrastructure and municipal performance. Iliya is a PhD candidate in Political Science and Government and MA candidate in Statistics as well as a former Presidential Fellow at Rice University. He also holds BAs in Business Administration, Economics and Political Science/International Relations from the American University in Bulgaria.

Solvency and Insolvency of the MBTA Retirement Fund

Of course, the MBTA is mostly a conduit for taxpayer dollars. In fiscal 2013, it received over \$1.1 billion in dedicated sales tax revenue, local assessments and contract assistance from the state, compared with operating revenue of just \$630 million. In other words, about two thirds of the T’s funding that year came from the public fisc.

Data and Assumptions

The actuarial data necessary to conduct an evaluation of a pension plan’s financial condition are typically available in the valuation reports that must be conducted on a regular basis. MBTARF has made no such records public, but Pioneer was able to obtain the 2011 valuation report – the last one that is known to have been completed, – which was submitted to the fund in the summer of 2013. The data for the analysis that follows are sourced from that report, unless noted otherwise.

Contribution Rates. According to the 2011 actuarial valuation of MBTARF, the annual required contribution (ARC) was determined in accordance with a 30-year open schedule, using an annual increase in amortization payments of 4% for the unfunded accrued actuarial liability (UAAL). This means that the projected 2014 installment paid into the fund towards the unfunded liability must be 4% larger than the prior year’s. An open schedule sets no firm target date of full funding, allowing the deadline to be extended with every valuation. These ever-increasing payments would continue indefinitely, as long as there are members in the plan, because, as stated by the Governmental Accounting Standards Board (GASB), “the open method, when coupled with an amortization period of 30 to 40

years, produces no perceptible amortization of the unfunded actuarial liability.”⁵ The MBTA is required to pay 75% of the change in these virtually boundless pension contributions due to MBTARF by the terms of the current pension agreement, dating to 2002.⁶

The MBTA is required to pay 75% of the pension contributions due to MBTARF.

Available Assets. According to MBTARF’s last available annual report, total assets as of yearend 2012 were valued at \$1,580,491,550.⁷ If the fund were frozen (without any further contributions from either T or its employees), this amount ought to be sufficient to meet the pension plan’s obligations – or at least such is the fund’s publicly stated position.

Apportionment of Assets and Liabilities. One way that a pension freeze may work is that active members are required to withdraw their funds, while the remaining funds must service retiree pensions. As of yearend 2011, the liabilities of the fund were apportioned between retirees and active and inactive members at a ratio of 70.39% to 29.61% (Fig. 1). Using the same proportions, the assets attributable to the retirees would be \$1,112,496,098.

Assumed Rate of Return. One of the critical assumptions underlying the viability of a pension system is the ARR. On one hand, it is used to evaluate the liability and the amount of payments necessary to cover it. Fundamentally, it indicates how much of the cost of the benefit has to be generated by investment returns; the higher the ARR, the more reliant the plan is on its market return.

Fig. 1. Apportionment of Assets and Liabilities among MBTARF Members⁸

	Liability	Assets	Percentage
Retired Members	\$1,602,587,528	\$1,112,496,098	70.39%
Active Members	\$673,106,265	\$467,261,900	29.56%
Inactive Members (refundable)	\$1,056,705	\$733,551	0.05%
Total	\$2,276,750,498	\$1,580,491,550	100.00%

The 2011 valuation date “reflects a change in the assumed annual rate of return on Fund assets from 7.50% to 8.00% effective December 31, 2011 in recognition of a change in the Fund’s asset allocation.”⁹ The actuarial report does not disclose the specific methodology whereby this adjustment is arrived at. If traditional building-block methods are assumed, the change implies that the fund has shifted towards a riskier investment strategy, perhaps one including more alternatives such as private equity and distressed assets. Meanwhile, the Public Employee Retirement Administration Commission (PERAC), the state watchdog for the other 105 retirement systems in Massachusetts, has been steering them in the exact opposite direction – to decrease their ARR well below 8% and be more circumspect about their investment decisions.

The prevalent actuarial methods to estimate ARRs are riddled with subjectivity, suspect of bias and open to undue influence. Using long-term historical rates of return for equities and fixed income and substituting those for novel asset classes for which no long-term¹⁰ data are available (e.g., private equity), it is possible to produce ARRs which are objective, transparent and data-driven.¹¹ When applied to the 2012 asset allocation of MBTARF,¹² long-term historical rates of return produce an ARR of 6.73%, substantially lower than the fund’s assumption of 8%.

“When applied to the 2012 asset allocation of MBTARF, long-term historical rates of return produce an ARR of 6.73%, substantially lower than the fund’s assumption of 8%.”

Workforce and Retiree Demographics. The 2011 valuation assumes annual salary increases of 4%. The most recent distribution of retirees by age group is available in the 2012 annual report of MBTARF (Fig. 2). To simplify the calculation of the pension payments, herein, all members of the same age group were assumed to be the same age and to receive the average benefit of \$27,829. Retiree attrition for the solvency calculations was estimated on the basis of age and the unadjusted RP-2000 mortality table. This nonadjustment can lead to substantial underestimation of mortality rates, especially further out into the future.

In sum, the assumptions in the present study were geared towards erring on the side of overestimating the age of the retirees, underestimating their longevity and, therefore, underestimating the payments they will receive for the rest of their lives. Overall, these assumptions would make the fund appear in better condition rather than not.

In order to estimate the flow of employee contributions to the fund and the increased demands on its assets due to future retirements, it is necessary to derive the expected time of retirement and pensionable pay for active members. For the purposes of this study, employees in each age-service group in the 2011 valuation report were assumed to be equally distributed across the five-year age and service range of the group; the range of the first and last (open) groups on each dimension was assumed to be five years as well. Thus, the group of employees aged 65-69 with at least 40 years of service was split into 25 equally sized groups, the oldest and most experienced of which was with 44 years of service and 69 years of age.

Then, active members were assumed to retire based on whichever of the following occurs last:

Fig. 2. Data and Assumptions about Retired Members

Age Group	<55	55-64	65-74	75-84	85-94	94+
Members	607	1551	2282	1193	577	65
Benefit total	\$16,892,293	\$43,163,009	\$63,506,117	\$33,200,174	\$16,057,419	\$1,808,895
Assumed age	54	60	70	80	90	95

- 1) the employee reaches the top benefit rate of 75% of pensionable salary at 28 years of service;
- 2) the employee reaches age 60 (or 55, depending on the specific example).

Since 75% of pensionable salary is reached after 28 years of service and employees qualify for early normal retirement with 25 years of service and 55 years of age, these requirements guarantee that the employee would actually be eligible to retire under the terms of the pension agreement.

Mortality before retirement was ignored, which is another assumption that could overestimate solvency by propping continuing contributions. Unretired groups were assumed to continue contributing at a 5.5% annual rate estimated on their share of total payroll appreciated at the assumed 4% rate of pay increases annually. These contributions would obviously be insufficient. To keep the plan solvent, employees would have to contribute some 25% of their pay, according to the actuaries' 2011 estimates.

“To keep the plan solvent, employees would have to contribute some 25% of their pay, according to the actuaries' 2011 estimates.”

Finally, when a group reached its retirement age, its overall benefit was taken to be 75% of the pay in the penultimate year of work. That would equal the average of the three highest-paid years for the retiree group as required by the labor agreement.

It should be noted that these are very generous assumptions. The vast majority of existing employees are still eligible for the 23-and-out pension, they can use vacation time and back pay to spike it (so they don't have to wait in order to boost their pensionable pay base) and therefore many may not even wait until they reach the 75% ceiling on the benefit relative to the average pensionable compensation. Taken together, the assumed requirements are likely to overestimate by a lot the number of employees making contributions in far-off years; they may also underestimate the benefits due by overestimating the year in which workers choose to retire.

What Keeps MBTA Pensions Solvent

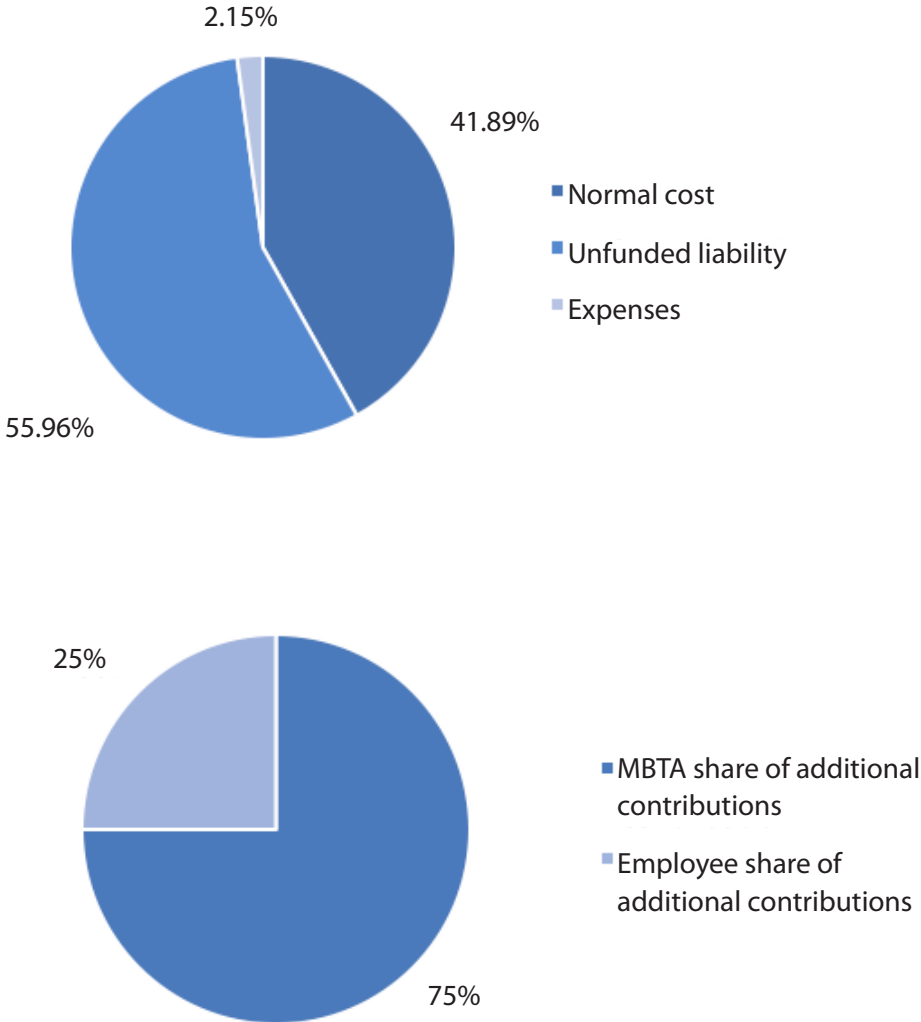
The 2011 valuation report shows clearly a high level of dependency on fresh contributions, three quarters of which come from the MBTA itself. For 2012, some 56% of the required contribution were slated for the UAAL amortization covering the unfunded liability of the plan. The MBTA's share of that UAAL amortization was about \$32 million (Fig. 3). Given the 75% share of the T in additional contributions, the present value of what it owed towards the unfunded liability at the time was about \$545 million.

However, this present value translates into a much larger amount of payments over the remaining 28 years of the funding schedule projected by the actuarial consultants at the time. To extinguish the unfunded liability, the T would have to contribute nearly \$300 million in the 2010s and substantially more in the following two decades through 2039 (Fig. 4). In total, some \$1.6 billion of the money the T does not have would be needed to fund the plan fully according to schedule. These payments would only cover the 2011 unfunded liability; the authority would have to contribute even more to keep the fund solvent because of the benefits that would be earned and come due in the interim.

Using the same approach,¹³ it is possible to estimate taxpayers' share of the hedge-fund loss that occurred at about the same time as the last valuation and was only made public in December 2013. The MBTA's 75% share of the additional contributions needed to make up for a \$25 million hedge-fund loss, which is currently under investigation by the attorney general, would equal \$1,106,189 in the first year and grow 4% per annum for a grand total of nearly \$55.3 million dollars – more than double the loss itself.

Some \$1.6 billion of the money the T does not have would be needed to fund the plan fully according to schedule.

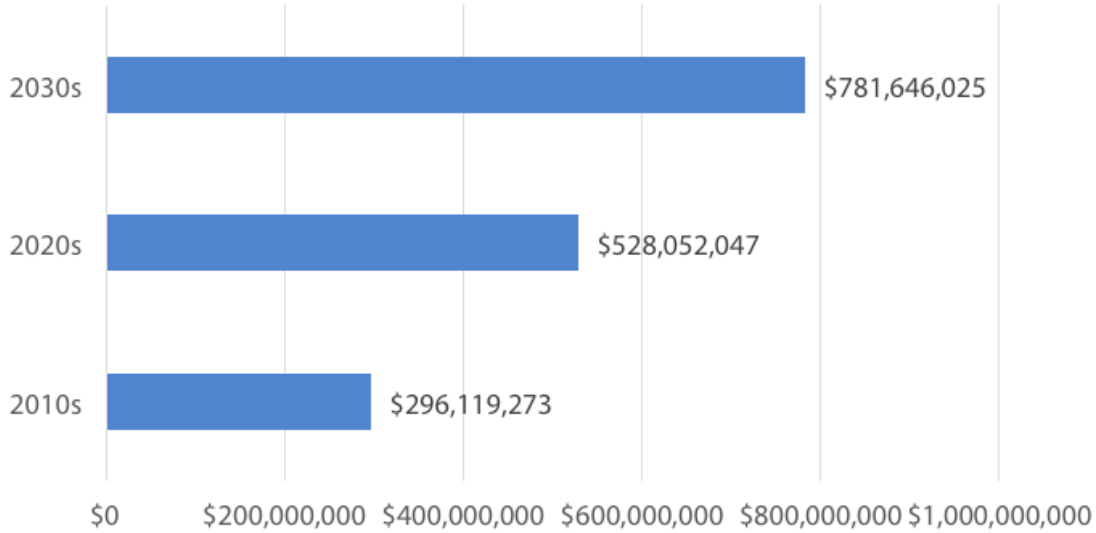
Fig. 3. Composition of Pension Payments by 2012 ARC



Component	Percent covered payroll	Percent of total ARC	Dollar value	MBTA share ¹⁴
Normal cost	8.75%	41.89%	\$32,084,451	\$24,063,338
Unfunded liability	11.69%	55.96%	\$42,849,577	\$32,137,183
Expenses	0.45%	2.15%	\$1,649,470	\$1,237,103
Total	20.89%	100.00%	\$76,583,498	\$57,437,624

Solvency and Insolvency of the MBTA Retirement Fund

Fig. 4. MBTA Required Contributions towards the 2011 Unfunded Pension Liability by Decade



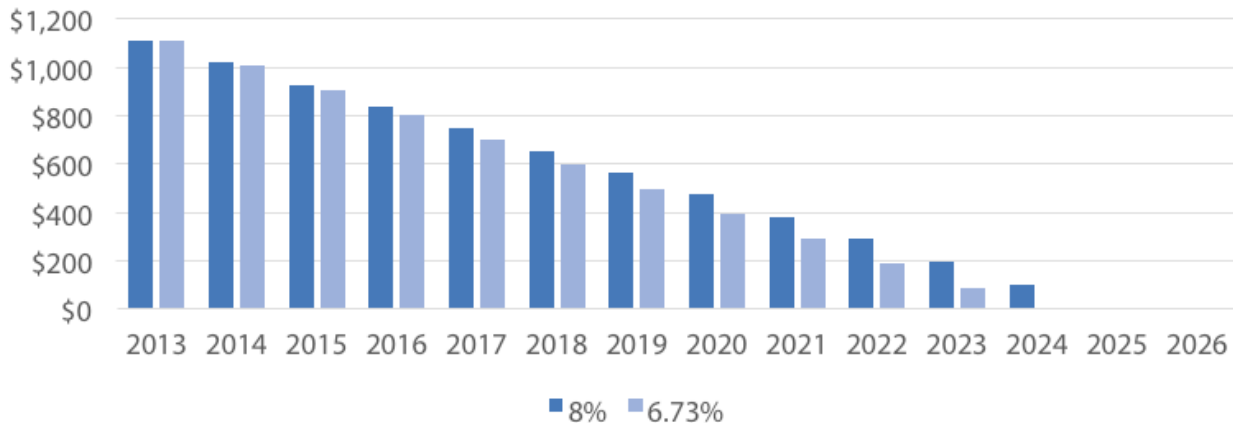
Measuring the Solvency of the Fund

In the absence of further contributions from the T or its current employees, the solvency of the fund proves ephemeral. First, consider a pension freeze where active employees withdraw their share of the assets and move to another retirement system. As noted earlier, this would leave about \$1.1 billion to cover the pension benefits of existing retirees. In that case, the fund would run out of money by 2026 if it managed to match its 8% ARR and by 2024 if it returned the ARR of 6.73% computed from long-term asset returns and the fund's portfolio allocation

(Fig. 5). Some \$80-90 million in pension allowances would still be due in each of those years, with the projected annual payout remaining above \$1 million until 2051.

Another approach is to allow all existing employees to continue accruing benefits under the existing system, but enroll new employees in a different plan. To estimate solvency in that situation, a number of assumptions about retirement behavior need to be made. The basic one used for the purposes of this analysis is that employees will wait until they get the full rate of pensionable compensation, which is

Fig. 5. MBTARF Assets without Further Contributions at Different ARRs



achievable after 28 years of service (they are entitled to 2.67% for every year, up to a total rate of no more than 75%). Suppose also that they wait until age 60 in order to boost the pensionable salary base (the average of the three highest-paid years) on which that rate is applied. In this situation, the fund would run out of money by 2036, in which year some \$158 million in pensions would be due (Fig. 6).

However, waiting to retire until 60 may not be necessary for many MBTA employees who are still eligible for either 23-and-out pensions or “early

normal retirement” at age 55 with 25 years of service, and have the ability to spike their pension with back pay and unused paid vacation days. Thus, consider another scenario, where existing employees look to retire at 55 instead of 60 once they have achieved the 28 years of service necessary to maximize the pensionable allowance rate. In that case, with the current early retirement options, MBTARF would run out of cash around 2031 despite that employees would still be slated to contribute some \$20 million that year (Fig. 7).

Fig. 6. Assets and Pension Payments with 28/60 Retirements (dollars in millions)

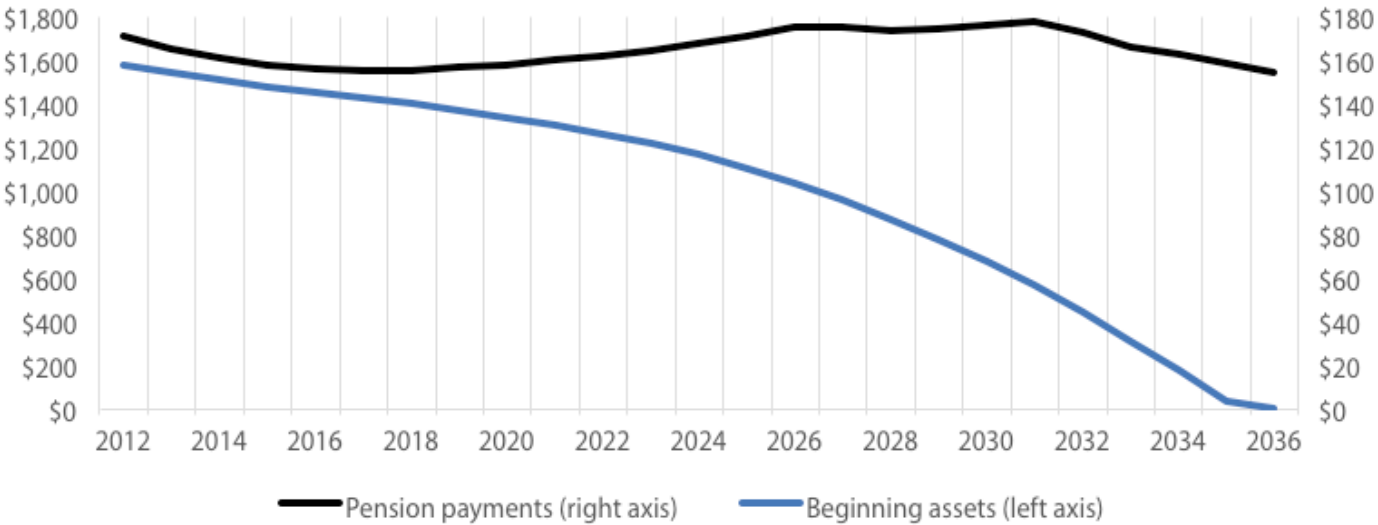
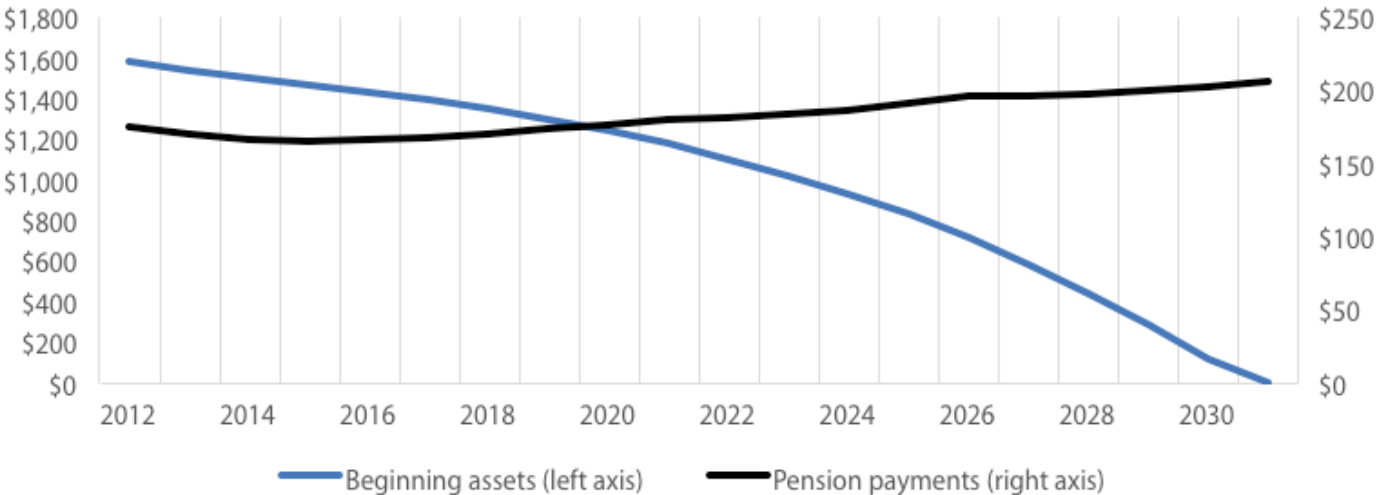


Fig. 7. Assets and Pension Payments with 28/55 Retirements (dollars in millions)



Summary

That the MBTA retirement plan can survive without support from the T and taxpayers is simply not true. According to the 2011 actuarial valuation, the authority is responsible for paying three quarters of the additional required contribution. Some 56% of the ARC projected in that report went towards the unfunded liability.

From those data, it is possible to estimate how long MBTARF would last without contributions from the T. If the plan was frozen and active employees transferred to another system, MBTARF would be able to provide pensions for existing retirees until about 2026. If only new employees were moved to a different plan but existing ones continued to participate and contribute, the remaining early retirement options would only allow the plan to remain solvent until about 2031 without the continued help of the MBTA and Massachusetts taxpayers, who fund the majority of the authority's budget.

These findings illustrate that investment losses at the largely unaccountable MBTA Retirement Fund have a rather costly impact on both the commonwealth and the plan's members. In 2012, the MBTA was slated to contribute some \$1.6 billion through 2039 to help extinguish the then outstanding unfunded liability. The hedge-fund loss uncovered in late 2013 would cost taxpayers about \$55 million in required contributions.

These facts underscore the need for rigorous enforcement of the public-records statutes that since the summer of 2013 apply to MBTARF. If its managers and board members are truly responsible and conscientious about discharging their fiduciary duties, they will not only supply the data requested by members of the media, but also actively disclose their financials, investment management contracts and board minutes.

Endnotes

1. 4 MGL § 7(26) ¶ 1 as amended by 2013 St. 38 § 4, effective 2013.07.01, expands the definition of public records to include MBTA pensions.
2. Beth Healy, “After Loss, Coakley Prods MBTA Board to Tighten Rules,” *The Boston Globe*, December 24, 2013, <http://www.bostonglobe.com/business/2013/12/24/coakley-widens-investigation-mbta-pension-fund-calls-for-tougher-rules.html>.
3. Iliya Atanasov, *Myths and Reality about MBTA Pensions*, Policy Brief (Pioneer Institute, February 6, 2014), <http://pioneerinstitute.org/news/study-calls-for-mbta-employees-to-be-transferred-to-state-pension-system/>.
4. Cf. Iliya Atanasov, “The Costs of Delaying the Funding of Public Pensions in Massachusetts,” *Pioneer Institute White Paper* 109 (January 2014).
5. Governmental Accounting Standards Board, Statement No. 27 (Norwalk, CT, November 1994), <http://www.gasb.org/cs/BlobServer?blobkey=id&blobnocache=true&blobwhere=1175824062508&blobheader=application%2Fpdf&blobcol=urldata&blobtable=MungoBlobs>. ¶ 37, p. 24.
6. Buck Consultants, *Report on an Actuarial Valuation of the Massachusetts Bay Transportation Authority Retirement Fund Prepared as of December 31, 2011*, June 2013, p. 8.
7. MBTA Retirement Fund, *2012 Annual Report*, August 2013, <https://www.mbtarf.com/sites/default/files/AR%20Final%202012%20A.pdf>.
8. Data on liability apportionment as well as total assets sourced from Buck Consultants 2013.
9. *Ibid.*, p. 1.
10. The “long term” or “long run” is meant to cover periods of at least a century.
11. See Iliya Atanasov, “Assumed Rates of Return for Effective Financial Management,” *Pioneer Institute White Paper* (forthcoming).
12. MBTA Retirement Fund, *2012 Annual Report*.
13. I.e., assuming that the first amortization payment is the same proportion of the overall \$25 million as the amortization computed by the actuary is of the total unfunded liability.
14. Approximated on 75% of the total contribution; the T’s share is likely to be larger overall.



PIONEER INSTITUTE
PUBLIC POLICY RESEARCH

185 Devonshire Street, Suite 1101, Boston, MA 02110
T: 617.723.2277 | F: 617.723.1880
www.pioneerinstitute.org