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MassPensions: How Difficult Is Institutional Transparency?

by Iliya Atanasov and Lingling Fan

Executive Summary

This policy brief introduces the MassPensions data accessibility tool by Pioneer Institute. MassPensions is a website presenting in clear and convenient format key data about the state of public employees' pensions in the Commonwealth of Massachusetts for the period 1985-2012. The low cost and fast turnaround of this project illustrate that government transparency is not always as complicated or expensive as it may seem. Public institutions should work to leverage open-source platforms in designing and implementing broader and more effective transparency initiatives at low cost to promote accountability, civic engagement and meaningful policy discourse. MassPensions provides online information about the state's more than 100 retirement boards, in appropriate context, that can be updated easily and is useful for both specialists and interested citizens. The site includes most data available through the annual reports of the Public Employee Retirement Administration Commission (PERAC), the state's public-pension regulator, and introduces Pioneer's ratings system for pension fund performance.

Overview of the User Experience

MassPensions is accessible to everyone at the web address masspensions.com (as well as .org). The entire website consists of a single app that generates downloadable and customizable graphs and tables presenting critical information about public retirement boards in Massachusetts.

The site aims to fill an important void in providing transparency about the financial situation and performance of Massachusetts retirement boards. While the data in the app are available from PERAC's website,[1] it is difficult to understand their implications without viewing individual boards' performance relative to their peers' and the broader marketplace. Here performance is defined as a combination of investment returns, funded ratios and the annual pension outlays received by the fund from state and local budgets, as well as other key indicators of financial condition, in a dynamic context. Pioneer's own pension fund rating system provides a straightforward way to grasp the

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fiscal situation of public retirement systems in the commonwealth.

Selection controls for the outputs are located in a sidebar on the left side of the user interface. The remainder of the app display is occupied by an About tab and the output tabs: Overview, Members, Financial Condition, Investment Performance and Asset Allocation. Whenever possible, users have the option of displaying most of the data underlying the graphical outputs using the *Display data tables* checkbox on the sidebar.

Users can select a retirement board from the drop-down list at the top of the control sidebar and, for certain charts,[2] specific years from the drop-down menu immediately underneath the board list. This selection automatically updates the data inputs for the remaining functions in both graphic and tabular form. A download button at the bottom of the control bar allows users to save and print various outputs in PDF format.

Overview

The default tab contains basic data about the retirement board selected. On top are displayed its funding deadline,[3] target rate of return and assumed rate of return for the selected year (the default is the most recent year available). The custodian, investment consultant and the number of investment managers/products are listed immediately below these data, followed by a breakdown of the board's rating.

Members

The second tab shows two line charts depicting the number of employees and retirees served by the system and their average pay. A check box allows the user to view average age along with average pay in order to examine potential relationships between the two.

Financial Condition

The financial condition tab contains three line charts. The top chart follows the development of the retirement board's funded ratio. The second chart shows the total actuarial liability versus the yearend market value of the board's assets over time for years

when data are available. The final chart displays the total pension appropriation and the total disbursement of benefits for the year.

Investment Performance

The investment tab provides information about the investment returns of the retirement fund in the context of some basic market benchmarks and its peers. Users can view the annual return over time as compared to the basic statistical metrics for the population of retirement boards in the commonwealth. There are three more benchmarks available for selection through checkboxes: the Wilshire 4500 Index total return, the Barclays US Aggregate Bond Index total return and a 70/30 mix of the two.

The Wilshire 4500 is a market-value-weighted index of the 5000 largest public companies in the US less the top 500 represented in the S&P 500 index. The Barclays Capital (formerly Lehman Brothers) US Aggregate Bond Index captures the return of diversified fixed income. Both of these indices provide substantial exposure to international financial markets as well as the US market for at least three reasons: they represent the stocks and bonds of global corporations, whose performance is strongly affected by the global economy; they represent companies that are engaged in international trade, particularly through their supply chains, and are dependent on the state of a globally integrated US economy; they are routinely traded by international investors through derivatives contracts and exchange-traded funds (ETFs) mirroring their performance which are listed on international exchanges. A rule-of-thumb intuition would suggest that a 70/30 mix of the two should provide a simple representation of a diversified portfolio with moderate global exposure (to the extent that one is possible at low cost).

Asset Allocation

The last output tab consists of a bar chart showing the actual asset mix in the board's portfolio over time in percentage terms and a pie chart of the portfolio for a specific year chosen from a dedicated drop-down menu. For a full description of the asset categories, please refer to Table 1.

IT

The web application was executed entirely in Shiny, a free package for the popular open-source statistical software R. The app can be hosted on a proprietary web server or a Linux-based Shiny server, which is free of charge.

Data

All pension data were obtained from the annual reports and audit reports of Massachusetts retirement boards published on PERAC's website. Core board data, their explanation and availability on PERAC's website and in the MassPensions app are listed in Table 2. Asset-allocation information for 1999-2004 and 2011-2012 has not been publicized by PERAC. No asset allocation information is available for the period 1993-2004 and 2011. The benchmark data for equities and fixed income were obtained from Wilshire Associates and Barclays Capital.

Ratings

Each board is rated on the basis of three key metrics:

- A board's *funded ratio* accounts for the level whereby pension fund assets are sufficient to cover liabilities (promises to present and future retirees). It is defined as the ratio of the book assets to book liabilities at the end of the calendar year and is estimated in this way whenever data are available. However, some funded ratios may be based on market value rather than book value of assets if the latter is not provided by the board or PERAC.

- The *return grade* reflects the ability of the board to meet its actuarially assumed return over the last year. Boards get an A if they can outmatch their ARR and are penalized by a letter grade for each 100 basis points of underperformance.

- The *funding deadline* is the year in which a board is expected to be fully funded given its last available funding schedule (whereby it is paying down its unfunded liability). Boards get an A if they are projected to be fully funded within five years of the respective year of the observation and are penalized by a letter grade

for each five years of extending their schedule beyond that.

The composite grade is the nearest whole grade to the equally weighted average of the board's grades on the three metrics above.

Conclusions

Effective data management and information sharing with the public should be core priorities and competencies of the effective government of the future. Unfortunately, they do not seem to be so important for the governments of the present. For some, this reality is a product of policymakers' being less than enthusiastic about exposing their dealings to public scrutiny; but most certainly it is also the result of an irrational fear of technology and an unfounded belief that effective IT is complicated and inaccessible to ordinary mortals.

MassPensions demonstrates that a more open and "data-conscious" government is not only possible but also largely at our fingertips. Disclosure is not just about keeping tabs on public servants and measuring policy performance. Facing the need to organize and disclose information on a regular basis, institutions (both public and private) benefit from an inherent pressure to understand their data better, which in turn allows them to implement operational improvements more often and more effectively.

The website provides Massachusetts residents, opinion leaders and policymakers immediate access to information regarding their community's pension system in a customizable format that is fairly easy to understand – and share with others. Pioneer is committed to updating and expanding the data available through MassPensions, but we certainly hope that appropriate action to increase transparency by the state government and PERAC will quickly render our work obsolete and unnecessary.

Endnotes

1. A small portion of the data were obtained directly from PERAC and are not publicly available.

2. Annual rating overview and asset allocation pie chart.

3. Definitions of variables are listed in Table 1 and further explained in the Data section.

Table 1. Asset Types

Asset	Availability	Description
Alternative investments	2005-2010	Less common asset classes available to institutional investors – mostly private equity funds
Balanced	2005-2010	A mix of stocks and bonds focused on providing a steady stream of dividends with capital appreciations as secondary objective.
Cash	1985-1992, 2005-2010	US dollars
Domestic equity	2005-2010	Shares of public companies headquartered in the US
Emerging markets	2010	Shares of public companies headquartered and operating in emerging economies
Fixed income	1985-1992, 2005-2010	Tradable bonds of public and private entities, usually investment-grade/lower-risk
General equity	1985-1992	Shares of public companies
Hedge funds	2010	Shares in actively managed funds whose goal typically is to generate a constant return regardless of market fluctuations
High-yield	2010	Junk-rated bonds of public and private entities (i.e., rated below BBB by Standard & Poor's or below Baa by Moody's)
International equity	2005-2010	Shares of public companies headquartered abroad
International income	2010	International fixed-income securities
PRIT	2005-2010	Investments in individual asset classes of the PRIT fund rather than the aggregate Core fund.
PRIT Core	2005-2010	The percentage of the fund's assets invested in PRIT's Core Fund, which is diversified between cash, equities and fixed income. Underperforming funds are required by statute to be fully invested in PRIT's Core Fund.
Real assets	2010	Timberland and other real assets
Real estate	2010	Shares in real-estate investment trusts (REITs) and other vehicles for investment in residential and commercial buildings

Table 2. Core Board Data and Explanation of Terms

Variable	Availability	Description	Interpretation/Application
Assumed rate of return (ARR)	1997-2012	The rate of investment return used to estimate the present value of the retirement board's accrued pension obligations	When computing the value of the fund's liabilities, the actuary uses the ARR to discount the projected future cash payments to retirees. The ARR reflects the fund's expectation about its earnings on employee and government contributions to the pension plan.
Average employee age	2005-2012	NA	NA
Average retiree age	2005-2012	NA	NA
Consultant	1990-1996, 1999-2012	The company which advises the retirement board in its choice of investment products.	NA
Custodian	1990-1996, 1999-2012	A bank or other certified financial company responsible for holding on account the fund's assets and executing trades as directed by the fund.	NA
Employee salary	2005-2012	The average compensation of currently employed members of the system.	Reflects changes in government salaries in member jurisdictions.
Funded ratio	1997-2012	The yearend book value of the fund's assets as percentage of its total estimated liabilities as of the date of the last fund valuation.	It reflects to what extent a retirement board is able to cover its future obligations to provide pensions for retirees.
Funding deadline (year fully funded)	1997-2012	The year in which the fund projects to be fully funded based on its current funding schedule of contributions.	Massachusetts law requires all retirement boards to fund their pensions by a certain date, which varies on the basis of certain statutory requirements, but all boards need to be fully funded by 2040. Each individual board has flexibility on setting the funding deadline up to the statutory limit it faces. The deadline is one of the key factors determining how much a governmental unit needs to pay towards its unfunded liability every year.

Table 2. (cont.)

Variable	Availability	Description	Interpretation/Application
Funding schedule (amortization increase)	1997-2012	The rate at which amortizations of unfunded liabilities increase every year.	Governmental units are required to make a contribution above their current pension costs in order to pay down the unfunded portion of their pension liabilities. Each retirement board is statutorily required to adopt a funding schedule that brings the unfunded liability down to zero by a certain year. To prevent boards from postponing their payments too far into the future, the law imposes a 4.5% cap on the annual increase of the amortization (the difference between the current year's estimated pension costs and the total annual pension appropriation) under any funding schedule adopted by the board.
Investment managers	1985-1996, 1999-2012	The number of investment products in which the fund owns shares directly.	Serves to illustrate how actively a fund's portfolio is managed and how often external vendors need to be contracted.
Market value	1985-2012	The yearend dollar value of all assets held by the pension fund.	For exchange-traded securities, it is obtained by valuing each asset at its closing price on the last trading day of the year.
Number of employees	1999-2012	Currently employed members of the system	Reflects changes in government employment in member jurisdictions.
Number of retirees	1999-2012	Retired members of the system	Used to calculate total pension disbursements.
Pension appropriation	2005-2012	The annual dollar amount a governmental unit contributes to its pension fund.	Indicates the level of fiscal stress attributable to pension obligation.
Retiree benefit	2005-2012	The average allowance of retired members of the system.	Used to calculate total pension disbursements.
Return	1985-2012	The annual percentage increase of the value of a fund's assets as measured at the end of the calendar year	Shows how much interest the fund has accumulated on its assets and in the long run can be used to benchmark its investment strategy using peer comparisons or the return of other investment managers and products.

Table 2. (cont.)

Variable	Availability	Description	Interpretation/Application
Target rate of return	1997-2011	The investment return goal used for investment decisions.	Portfolio allocation among different types of assets is often based on the assumption that risk (usually measured as the historical volatility of returns) and return are strongly positively correlated with each other. Based on this assumption, it is statutorily capped at no more than 1% above the assumed rate of return in order to limit risk taking.
Total liability	1997-2012	The present value of all accrued future obligations as estimated by the last retirement board valuation.	This value is used in determining how much the governmental unit needs to contribute at present in order to meet its pension promises in the future.
Total pension disbursements	2005-2012	The overall dollar amount paid out in allowances to retirees during the year.	Over time, reflects changes in fund cash flows as obligations come due.

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